

Dear Drakes Bay Oyster Farm Supporter,

Thank you for your continued patronage and support of Drakes Bay Oyster Farm. The grassroots support group for the farm, the Alliance for Local Sustainable Agriculture (ALSA), www.alsamarin.org, has announced that the National Park Service has published the draft Environmental Impact Statement to inform the Secretary of the Interior whether or not to allow the oyster farm to continue after 2012. The **only** time the public has a say in this important issue is during this last "public comment period", going on right now! **Comments must be received by NPS prior to midnight Mountain Time, November 29, 2011!** The NPS "Comment Form" is provided below, for your convenience.

"I support a renewable Special Use Permit for Drakes Bay Oyster Company" is the single most important comment you can make. To this end, we have included it in the "Comment Form" (below). We respectfully ask for your help in saving the farm by simply:

1. filling out the "Comment Form",
2. cutting along the dotted line and,
3. mailing your comments by **November 29th** to: Draft EIS DBOC SUP c/o Superintendent
Point Reyes National Seashore
1 Bear Valley Road
Point Reyes Station, CA 94956

Alternatively, you may submit your comments online by going to:
<http://parkplanning.nps.gov/commentForm.cfm?documentID=43390>.

If you wish to attach additional comments, please feel free to do so. You may visit ALSA's website for other suggested topics to comment on (www.alsamarin.org). For more up-to-date news and info, visit www.oysterzone.wordpress.com.

With Our Heartfelt Gratitude for Your Support Through the Years!

-----cut here-----

Comment Form

Park: Point Reyes National Seashore
 Project: Drakes Bay Oyster Company Special Use Permit Environmental Impact Statement
 Document: Draft Environmental Impact Statement Drakes Bay Oyster Company Special Use Permit

* indicates required fields

City:* _____ State/Province:* _____
 Postal Code:* _____
 First Name: Debbie Middle Initial: _____
 Last Name: Deagen
 Address: _____
 Country: _____
 Email: _____

POINT REYES NS
 2011 DEC -9 AM 11:42
 43390

(Check here if you want your contact information kept private.)

Comments or Requests:

I support a renewable Special Use Permit for Drakes Bay Oyster Company.
working landscape should be PART of our NATIONAL PARK Seashore Program!

Turtle Island Restoration Network support for Alternative A of the EIS -- full wilderness designation for the entire Drakes Estero within Point Reyes National Seashore



2011 DEC -9 PM 2:15

POINT REYES NS

PO Box 370 • Forest Knolls, CA 94933 P: 415.663.8590 • F: 415.663.9534
www.SeaTurtles.org • www.SpawnUSA.org • www.GotMercury.org

December 9, 2011

Draft EIS DBOC SUP c/o Superintendent
Point Reyes National Seashore
1 Bear Valley Road
Point Reyes Station, CA 94956

Park: Point Reyes National Seashore

Project: Drakes Bay Oyster Company Special Use Permit Environmental Impact Statement (ID: 33043)

Document: Draft Environmental Impact Statement Drakes Bay Oyster Company Special Use Permit

Dear National Park Service,

Drakes Estero is a unique and remote estuary within the Point Reyes National Seashore in California that is home to protected species of birds, fishes and marine mammals. It drains into Drakes Bay, a sanctuary for endangered leatherback sea turtles that migrate across the entire Pacific Ocean to reach abundant jellyfish blooms. Plans approved by Congress to expand marine wilderness protections throughout this sensitive habitat must be implemented, and the entire Drakes Estero converted to marine wilderness.

The Point Reyes Wilderness Act passed in 1976 laid plans to complete a full transformation of Drakes Estero into pristine marine wilderness during 2012. Only a small portion of the sensitive wetlands is currently protected. There is strong public support, as demonstrated below, to uphold and fully realize the promises made to preserve the entire expanse of wetlands over thirty years ago.

Drakes Bay is part of the Leatherback Conservation Area created through tireless advocacy by the Turtle Island Restoration Network's Sea Turtle Restoration Project and is proposed as critical habitat for endangered leatherback sea turtles. Expanding marine wilderness habitat protections throughout the Drakes Estero will benefit biodiversity of the interconnected estuarine and marine ecosystems.

Turtle Island Restoration Network support for Alternative A of the EIS -- full wilderness designation for the entire Drakes Estero within Point Reyes National Seashore

The Turtle Island Restoration Network shared the above information on our website, and our supporters were allowed to sign-on in support of rapidly converting all of Drakes Estero to full marine-wilderness status. The exact message supported by 1,437 of our supporters (listed below) is as follows:

I support Alternative A -- full wilderness designation for the entire Drakes Estero within Point Reyes National Seashore.

Alternative A is the environmentally preferred alternative that would expand and provide the best habitat protections within the only marine wilderness on the west coast. Drakes Estero is a unique wildlife area that is connected to critically important marine habitat for endangered leatherback sea turtles and protected species of marine mammals. Drakes Bay is part of the Leatherback Conservation Area and is also proposed as critical habitat for the endangered Pacific leatherback sea turtle.

Sincerely,

First Name, Last Name, Zip, State

Gerald, Brookman,
Lin, Charania,
Zara, Ivanova,
billy, willdinson,
Gail, McMahon,
Jeanette, Carney,
sandra, arapoudis,
Uta, Cortimilla,
Tom C, Sullivan,
Phyllis, seavers,
Matthew, Ashmore
Toar, pantouw,
kenneth, boyle,
Blake, Payne,
susan, navidad,
Ruby, Nelson,
Matthew, McLeod,
Susan, Hardin,
Adam, Belanger,
David, Parker,
jennifer, kilgore,
Ruby, Nelson,
Patricia, Hamilton,
Lynna, Rogalsky,
Debbie, Friesen,
Kathryn, Richardson,
b, pelton,
Taza, Guthrie,
Marilyn, Hanson,
Georgia, Braithwaite,
Elizabeth, Churchill,
Beverly, Janowitz-Price,
James, Gilland,
Ruth, Descript,
Dianne, Douglas,
Terry, Tedesco-Kerrick,
Evelyn, Verrill,
Rob, Abromavage,
Dean, Roskosz,
Jack, Kriendler,
Marilyn, Lemons,
Bob, Fischella,
Joshua, Capps,
Susan, Thing,
Dona, LaSchlava,
Penelope, Ryan,
Michele, von Kampen,
Linda, Descript,
Elizabeth, Collard,
jeanne, Saint-Amour,
Zee, Kallah,
Richard, Pasichnyk,
Michele, Mercer,
Madeline, rose,
Kristen, Domingo,

N, mascote,
Christopher, Kaufman,
Joan, Marks,
Ana, Herold,
Kristen, Bunting,
David, Rock,
Kathleen, Tarlow,
Rose, Braz,
Mark, Reback,
Diana, Van Ormer,
Mark, Crane,
Aline, Bier,
Regina, Gandour-Edwards,
Lisa, Hammermeister,
Maureen, Toth,
S, H,
Lee Ann, Taylor,
Pamela, Connolly,
Laura, Prless,
ROBERT, PARKER STELLATO,
Elinor, Vega,
Lisa, Burnach,
David, Nason,
Tonya, Kay,
Laura, Rice,
candace, hale,
Calkie, Riley,
Rich, Moser,
Raja, Anderson,
Matt, Zola,
Bonnie, Breckenridge,
Patricia, Marlatt,
Krystal, Matthewson,
Barbara, Vigil,
Chris, Colombana,
Catherine, Murty,
valerya, gurevich,
Colleen, Lobel,
Tami, Armitage,
Judith, Gottesman,
Karen, Daves,
Jed, Fuhrman,
Diane, Knight,
B, Lerner,
Dan, Silver,
MichaelEric, Lerner,
patricia, nlsbet,
Joan, Johnston,
Michael D, Wright,
Avani, Zaidia,
diffany, Smith,
inez, Devlin-Kelly,
mary , rojeski,
Cerise, Chen,
Constance, Franklin,
Debi, Champlin,

richard, hardack,
Clea, Badian,
Allison, Strunka,
John, harris,
Patricia, Matejcek,
Jill, Denton,
Karen, Downing,
Kimberly, Peterson,
Pamela, Shwayka
Jim, Olsen,
Arlene, Zimmer,
Pat, cuviello,
Sandy, Gilbert,
Peter, Lenhardt,
Lesia, McDonald-Chan,
Edy, Rayfield,
Richard, Wightman,
Keaven, Van Lorn,
Jen, Rios,
paul, dayton,
Gail, Roberts,
Geoffrey, Cook,
Donna, Duncan,
Marilynn, Miller,
Jim, Bell,
Cynthia, Gaya,
Rocio, Salazar,
Lara, Martin,
Julie, Litwin,
James, Hampson,
Sara, Dalton,
Lucia, Landman,
Namita, Dalal,
Kimberly, Phillips
probyn, gregory,
C, Glick,
Sara, Bakker,
Kevin, Hayes,
Eileen, Harrington,
Leona, Lauder,
Cynthia, Boyer,
Kent, Minault,
Maryann, LaNew,
Christina, Marx,
K, Krupinski,
Sammarye, Lewis
Brenda, Haig,
Stephen, Schenck
Susan, Reyes,
Hale, Tokay,
Tiana, Scott,
Ken, Wilson,
Shirley, Soldavini
Michael, Rubin,
Sharon, Rodrigues,
Emma, Ausman,

Turtle Island Restoration Network support for Alternative A of the EIS -- full wilderness designation for the entire Drakes Estero within Point Reyes National Seashore

Candi, Ausman,
 Cynthia, Fernandez,
 Frank, Cannon,
 Pauline, Roche,
 Karen, Malley,
 Henry, Rosenfeld,
 Susan, Watts,
 Zachary, Rosenfield,
 Laurel, Brewer,
 Richard, Brandes,
 Joyce, Mitchell,
 Linda, Dragavon,
 Janice, Gloe,
 Catherine, OBrien,
 Allan, Reubelt,
 Lynn, Morrow,
 JULIA, WEAVER,
 Susan, Head,
 Joan, Baca,
 Michelle, Maing,
 Susan, Davis,
 Sara, Dykstra,
 Barbara, Sopjes,
 Robert, Umbreit,
 Paul, Sinacore,
 Alexander, Gays,
 Arnie, Schildhaus,
 Rachael, Prados,
 Ianna, richmond,
 Clarice, Rivera,
 Frank, Hill,
 Lanier, Hines,
 Laura, Maddock,
 Deborah, Peri,
 Barbara, Loebel,
 Jasmin, Keaton,
 Carol, Becker,
 Tod, Bensen,
 Dale, Leininger,
 Judith, Smith,
 Jocelyn, Weisbrich,
 Thomas, Conroy,
 Michael, Archer,
 Alice, Neuhauser,
 David, "Collins, MD CM",
 Deb, Castellana,
 Dolores Warren, ArondFelt,
 Esther, Zamora,
 Elizabeth, O'Hara,
 Tamhas, Griffith,
 Albert, Chen,
 jeff, mckay,
 bonnie ,jay,
 Iris, Chynoweth,
 Michael, Braude,
 Serra, Hardy,
 Jcia, Gibbia,
 M., Delatte,
 Gabriella, Turek,
 Gael, Hunt,
 Gail, Caswell,
 Laura, Daykin,
 rebecca, koo,
 Jeffrey, Zankei,
 Steve, Hibshman,
 Marty, Groff,
 Anthony, Montapert,
 Elaine, Genasci,
 Eiyce, Klein,
 Joseph, Boone,
 Susan, Wayne,
 Gail, Camhl,
 nancy, sunday,
 Sharon, Morris,
 steve, lustgarden,
 Emily, Koch,
 Carol, Patton,
 Jessica, Edwards,
 Danielle, Noblet,
 Randall, Herz,
 Ashlee, Davis,
 Jo, Presbury-Smith,
 Julie, Ford,
 Sharon, McCarthy,
 Talia, Thomasco,
 Carole, Serras,
 Shannon, Hunter,
 Jami, tolpin,
 Robert, Macdonald,
 Christine, Stewart,
 Bibi, Lemtorp,
 Dian, Hardy,

marcia, Sandberg,
 Isabella, La Rocca,
 Debbie, Sherman,
 Jill, Blaisdel,
 Susan, Toy,
 Kenneth, Mundy,
 Christopher, Ro,
 Sandra, Farkas,
 Carly Clements, Owens,
 Jack, Carson,
 John, Teevan,
 Paul, Cofrancesco,
 Celia, Kutcher,
 emily, pfeiffer,
 marita, mayer,
 Maryellen, Redish,
First Name, Last Name, Zip, State
 robert, saulino,
 Nolan, Farkas,
 Denise, LaChance,
 danielle, de costanzo,
 Catherine, Casfield,
 Russell, Weisz,
 Julian, Simlinski,
 Bill, Greene,
 Craig, Chisholm,
 Jamie, Chau,
 joanne, tanner,
 Ken, Oberlander,
 Nahid, Buswell,
 terry, nordbye,
 Valjean, O'Neill,
 Vanessa, Barrett,
 Richard, Harvey,
 Maria, Bruinen,
 Allison, Adams,
 Anna, Schwinger,
 Christina, Martin,
 Mike, Sullivan,
 Rosemary, Howley,
 Sara, Gigliotti,
 Phil, Rockey,
 David, Egert,
 Terrell, Rodefer,
 Billy, Arclia,
 Erin, Suyebara,
 Aneet, Zaveri,
 molly, mclaughlin,
 Keiko, Martinez,
 Stephanie, Ferneyhough,
 deniz, Bolbol,
 Evan, Roman,
 Jeremy, Smith,
 Hannah, Beadman,
 Rhonda, Lynn,
 Adellina, Covaci,
 Shelley, radzimirski,
 Carolyn, Mone,
 Eily, Adjei,
MICHAEL, TOOBERT,
 Steve, Olson,
 Jason, Bowman,
 delrdre, brownell,
 Kris, Head,
 Candy, Bowman,
 Bonnie, Perelli,
 Cathy, McPeck,
 David, Bott,
 Rhea, Damon,
 Beatriz, Schramm,
 Lin, Heidt,
 kirk, seidensticker,
 Natalie, Schneider,
 Mike, Lepisto,
 Elizabeth, Topliff,
 ben, parsons,
 Carol, De Hart,
 jennifer, Eickemeyer,
 Ron, Rahav,
 Nichole, Gutierrez,
 liadsey, loperens,
 betty, murphy,
 Patricia, Cachopo,
 Susan, Mayer,
THOMAS, DOWNS,
 Zachary, Hunter,
 Rob, Helphand,
 Sue, Lai,
 Melinda, Burgess,
 Michael, Allen,
 linda, black,
 Patricia, Carlson,

Dennis, Beall,
 Greta, Montville,
 Michael, Last Name,
 Nikayla, Spain,
 Bonnie, Grand,
 Douglas, Mason,
 Christine, Fontaine,
 Amber, Sumrall,
 Elizabeth, Whitman,
 Suzanne, Hodges,
 Robert, Lamar,
 adolfo, lopez,
 Ron, McGill,
 Pamela, Conley,
 Christine, Holmes,
 Christina, Mills,
 amy, Green,
 Christina, Babst,
 Linda, Lewman,
 Matthew, Carlstrom,
 liz, meesters,
 Amy, Bostick,
 Kit, Lofroos,
 Shannon, Catt,
 Jeffrey, Dickemann,
 Danny, DeTora,
 debra, temple,
 Thomas, Scott,
 Joel, Thacker,
 Jeff, Thayer,
 Ute, Sellin,
 Amanda, Schwartz,
 Vanessa-Jazmine, Larios,
 Teri, Sigler,
 Robert, Rosenber,
 Tracey, Kleber,
 Ben, Martin,
 Elizabeth, Thacker,
 Rob, wilson,
 audrey, lareau,
 Constance, Sutton,
 Valerie, Baugher,
 Elizabeth, Lotz,
 Terry, Matsuoka,
 Deborah, Burckhardt,
 Mary, Lawrence,
 Pamela, Warren,
 Joe, Salazar,
 Edie, Bruce,
 s, woodruff,
 Rusele, Revenaugh,
 Kathie, Kingett,
 Beverly, Spector,
 carol, lowe,
 katie, blair,
 Linda, Haire,
 regina, powell,
 Therese, Debing,
 patricia, daniels,
 Charlene, Henley,
 Damir, Valecic,
 Nina, Valecic,
 Candy, LeBlanc,
 Grainne, O'Carroll,
 Joe, O'Donnell,
 Suzanne, d'Coney,
 Robin, Hunt,
 steve, holzberg,
 Nancy, Amodeo,
 David, Roberts,
 Daniel, Brower,
 Sam, Smith,
 amin, arikat,
 Debra, Dunlop,
 Jorge, Torres,
 Ricardo U., Berg,
 Michael, Pratrher,
 maria, gritsch,
 Amanda, Sousa,
 Susan, Bullock,
 dinda, evans,
 Jennifer, Kelly,
 Kristen, Renton,
 Maia, Maia,
 Corinne, Greenberg,
 heldi, noble,
 Bente, Hayden,
 Barbara, Correa,
 Danae, Shadbun,
 Sakura, Vesely,
 mary, folli,
 Corrine, Martinez,

Turtle Island Restoration Network support for Alternative A of the EIS -- full wilderness designation for the entire Drakes Estero within Point Reyes National Seashore

Dede, Teeler,
adam, park,
Kim, Loureiro,
Carol, Merrill,
Juliet, Johns Pearson,
Sharon, Pollack,
ken, bame,
gerry, collins,
Sue, Petteway,
Nora, Lewis,
Mitch, Cohen,
Kristen, Hltchman,
Lee, Davis,
Natalie, Ralston,
Linda Joy, Lyerly,
Kristine, Wolfe,
Lin, Penrose,
Karri, Kartoc,
Marda, Bender,
James, Helsing,
Michael, Connor,
Nabeel, s,
Leigh, Castellon,
Clayton, Graham,
Judith, Hansell,
T.M., Brooks,
Nick Pilch,
Rachel, Loud,
sandra, Nealon,
Don, Lloyd,
marta, simon,
Reidun, Carstens,
Dianne, Miller,
Nick, Rodin,
David, Zolan,
Rebecca, Hoeschler,
MIKE, CLIPKA,
Iyotsna, AmbrA_z,
EDEN, KENNAN,
Susan, King,
Catherine, Decker,
ty, rothschild,
Alvaro, Rios,
Anne, Balderston,
Mark, Saphir,
Charles, Post,
gray, claxton,
Jazmin, Ment,
Steven, Lam,
nancie, sailor,
lelgh, claxton,
Rachael, Mellin,
David, Cain,
Katherine, Kautz,
Susan, Pernoc,
Michael, Parsons,
Paula, Bourgeois,
Kim Anne, Schreiber,
Mary, Ferraro,
Michael, Kunkel,
Kelly, Lyon,
Lynette, Dumont,
Nancy, Gregory,
Linda, Drescher,
mike, turner,
Phyllis, Hugins,
Ragen, Serra,
JAKE, HODIE,
John, Fredrickson,
Megan, Roemer,
John, Pinezich,
Suzanne, Pierson,
Dara, Tallmadge,
Amy, Nesler,
Lynn, Merrill,
Erica, Escajeda,
Debbie, Brush,
Lisa, Maragon,
Bryan, Kell,
Katja, Rel,
Bob, Shah,
Derek, Schmeb,
Diane, Argenzio,
Ken, Martin,
Lisa, Koehl,
Telah, Ferguson,
Hope, Wang,
Marie, Dutto,
ANNIE, COWLING,
Linda, Gilbert,
Amy, Hopkins,
Dee Dee, Kurko,

Drew, Cucuzza,
Maura, Flynn,
Roz, Downing,
Olivia, Schlosser,
Wendi, Yates,
Andrew, Poltzer,
Julia, Baker,
Sue, Baker,
Ellaime, Lurie-Janick,
Michael, Baltaris Fortier,
Louise, Simone,
Stephanie, SchA_tzinger,
Beverly, Gannon,
Carol, Collins,
John, Streck,
Carol, Kerns,
First Name, Last Name, Zip, State
Lisa, Gosnell,
Rhonda, Anderson,
Mona Sophie, Kling,
Birgit, Fischer,
Godfrey, Little,
Edith, Coleman,
Mercedes, Smith,
Luis, Tirado,
joyce, schwartz,
Christina, Begley,
Brian, White,
Laurie, Hein,
H, Hollon,
Natalie, Schrey,
ron, silver,
margaret, silver,
Pat, Rose,
Nia, Cherrett,
Dr. William M. "Smith, Jr.",
Don, Carpenter,
Max, Polyak,
Jamie, Keller,
Jeff, Howe,
melissa, herron,
James, Brunton,
Cliff, Josephson,
Vida, Lannin,
Jeffrey, Bains,
barbara, jannicelli,
William, West,
Jessica, Pate,
Vic, Anderson,
Myles, Robertson,
Rita, Meagher,
V, McKee,
ken, gunther,
robert, joros, zip code,
Jill, Bozzy,
Dana, Radell,
bill, Isaksen,
noahdm, sanchez,
Ruth, Serra,
Jen, H,
Silvia, Hall,
JAVIER, INFANTE,
Emily, Walker,
Thomas, Deasy,
Cynthia, Strousberg,
Roxanne, Ganley,
Aimee, Cervenska,
Denise, Pendexter,
Martha, Milne,
Colleen, Adomaltis,
EDWARD, CUBEO,
Chris, Holmgren,
Keith, Berger,
Susan, Marsten,
Anthony, Lorenzo,
Trina, Patel,
Tony, Marra,
Laura, Wright,
Cyndi, Seamon,
Riccardo, Lupi,
Jonathan, Diaz,
Ana, Alvarez,
Lora, Smith,
Elsy, Shallman,
April, Wilk,
dawn, zegledi,
Richard, Fowlkes,
Lori, Sall,
Rick Sall,
Camilla, Spicer,
Irish, ellis,
Jena, Lam,

William, Redfoot,
MARILYN & TOM, FINNELI,
Lisa, Morse,
Gina, mondazze,
Brian, Blenkowskd,
Kristina, Harper,
Trecy, Winton,
Iye, block,
Kelly, Abrahall,
Karin, Jeffery,
Cathy, Greer,
Doug, Landau,
John, Starmer,
gabriela, monge,
john, van hise,
Lucy, "Starbuck, DVM",
Daniele, Phelps,
Carol, Mae,
Natasha, Benton,
Marci Dawkins, Stutsman, zip code,
Angie, Rhiner,
Karen, Chapman,
Grant, Campbell,
Nelson, Pena,
Becki, Bowdre,
Carol, Hupp,
Dennis, Moll,
Lillian, Deslandes,
P, D,
Marie-Paule, Vanderhoeft,
donna, mohler,
Eileen, Snitzer,
gwenn, schemer,
Virginia, Bell,
KATHY, OWENS,
Tamara, Garcia,
Mikasa, Moss,
Bonnie, Barfield,
alberto j., garcia,
carolyn, padgett,
Lisa, Anthony,
LEIGH, ERLACHER,
Holly, Crawford,
Bodil, Ribel,
Danna, Williams,
Cathryn, Lee,
M, Hockert,
Carmen, Calleja,
Leigh, Bennett,
Sharon, Schmidt,
Marcey, Lachance,
anita, wintner,
Yolanda, Clay,
Meghan, Dooney,
Stephen, Faes,
Bobbi, Lempert,
Kari, Wilson,
Nina, Monasevitch,
V, Gonzales,
Michael, Dubersteia,
Don, Najta,
Tammy, Stellanova,
Alissa, Katz,
sterling, robbins,
BARBARA, Whitman,
Alicia, Morrier,
melissa, green,
Brittany, Dolan,
Robert, Trembly,
janelle, Pollock,
Amy, Parker & Matt Schkore,
Allison, Brown,
Dan, Meier,
Heather, Weber,
bernardo, alayza mujica,
Mandy, Weeks,
Connie, Chambers,
michelle, mitchell,
Casey Jo, Remy,
Donni, Moen,
janelle Church, Church,
alyssa, Ihler,
Dawn, Albanese,
Matt, Herman,
Christina, Palmer,
p, GASPAR,
Monica, Ball,
AJ, Bradley,
Kathy, Dolan,
Megan, Ponticelli,
Letitia, Noel,
Julie, Suess,

Turtle Island Restoration Network support for Alternative A of the EIS -- full wilderness designation for the entire Drakes Estero within Point Reyes National Seashore

Arlene, Ruksza-Lenz
 sandra, sheehy
 Anne, Settaggi
 Barry, Seth
 Chelsea, Markham
 patricia, bekas
 Lisa, Rapaport
 Lenore, Reeves
 Ronald, Stone
 Daniel, Woods
 Yasu, Kruszynski
 Judy, Redding
 k.sears
 J. mattenen
 Judith M., Meek
 martyn, bassett
 Cheryl, Jennings
 Jennifer, Rykowski
 jady, Carmichael
 Terra, Dietz
 James, Sullivan
 Vanessa, Garvy
 Pauline, Kayes
 Nancy, Stewart
 Peter, Scott
 John, Kirchner
 Thomas, Willett
 Mary, Truelove
 Frances, Duberstein
 Pamela, VourosCallahan
 Nancy, Crowe
 Mark, Hallett
 Diana, Kaye
 suan, biggs
 lynn, gray
 Jeon, biggs
 Abbi, Chittenden
 Darcy, Romondo
 Ginger, Anderson
 valeria, marin
 Charles, Brumleve
 Kathe, Garbrick
 Cyndi, Clough
 Sharon, Hall
 James H, Fitch
 Melinda, Veirs
 Tony, Menechella
 robert, mayton
 SHARON, WRIGHT
 Martha, Geoghegan
 Lara, Beard
 Megan, Ferguson
 Joseph, Vincent
 Aileen, O'Brien
 Isabel, Lima
 Roswitha, Marcuzzi
 Damian, McDonnell
 Ghazale, Jamsheed
 Claire, Sharp
 Patricia, Randazzo
 Allison, Argo
 Daniel, O'Brien
 Bonnie, Faith
 shery, weiland
 Rosemary, Bernier
 Pamela, T
 David, Strong
 Thomas, Dorsey
 Bonnie, Brett
 Karen, Grover
 suzanne, searle
 Daniel, Belachew
 Eileen, Hennessy
 Barry, De Jasu
 Paula, Myles
 Benjamin, Phullos
 Liz, Field
 Shawn, Sargent
 William, Alan
 Richard, Mertens
 Julie, Block
 Pilar, Quintana
 bill, galli
 Donna, Pearson
 Margaret, McGinnis
 Anna, Clayton
 Dalit, Rabinovitch
 Caitlin, Silva
 nicole, silva
 Jillian, Forschner
 Kevin, Nelson
 Judith, Embry

Jackie, Adam
 doug, krause
 Leanne, Shearer
 Melissa, Miller
 Emanuele, Pelosi
 Rebecca, Regnery
 Bridget, Burgos
 Marilyn, Martin
 Catherine, Raymond
 Lois, Blumenthal
 Douglas, McNeill
 Mary, Xakellis Chapman
 Daniel, Vice
 A. Chenevert
 Kathy, Bentley
 Shelley, Bobb
 Aaeron, Robb
 Alex, Balboa
 David, Elfin
 linda, hunt
 Karen, Goetze
 Nicole, Weber
 Taryn, Alverson
 Sandra, dos Santos
 Rocio, Luparello
 daniel, mele
 Charles, Alexander
 Virginia, Allen
 nick, nichols
 Karen, Stickney
 Mary Ann, Smale
 Will, Greene
 Candice, Lynn
 Meryl, Pinque
 Ross, Miller
 Kathleen, Sneider
 Ariel, Shaw
 Christina, Fong
 Julie, Acs
 William, McMullin
 Liz, Clark
 Carrie, Mack
 Mark, Mublich
 Art, Hanson
 Susan, Inman
 Bonna, Mettie
 Fred, "Matthaei, Jr"
 Cynthia, Scallci
 Kathy, Chavez
 Marilyn, Carse
 Monique, Musialowski
 Denise, Brennan
 Donald, Garlit
 Karen, Raccio
 Tara, Cross
 Ingrid, Roed
 Christine, Barnes
 David, Stewart
 deborah, walsh
 Wanda, Ballentine
 Ann Marie, Sunderland
 soraja, sarasvati
 Dr. William "Skip", Dykoski
 Elizabeth, Luther
 Jan, Cowan
 Anthony, Donnic
 Edward, Spevak
 Anne, Orth
 Terry, Pitt
 John, Crotty
 Shelley, Mason
 Debbie, Geno
 Elsie, Au
 linda, bishop
 Steven, Davies-Sigmund
 John, Moszyk
 leyna, stemie
 Vicki, Johnson
 sarah, sumrall
 Rita, Leone
 Margarite, Salone
 jeanne, lebow
 Carolyn, McCorkle
 Eileen, Gibson
 Denis, Goulet
 Erin, Nuzzo
 SUE, GRIFFITHS
 Keith, Parker
 Carol, Hoke
 Diane, Bucchert
 Traci, Thiessen
 Lisa, Neste

Valerie, Finch
 Phillip, Irwin
 TyAnn, Lee
 Robert, Story
 Jennifer, Butler
 Nicole, Duncan
 Jordan, carduner
 Richard, Strowd
 Judy, Gehrig
 edwin, skinner
 Scott, Tucker
 Bobbie, Murray
 shellee, frazier
 George, Neste
 Marta, Dawes
 Jane, Wilson
 Mary, Baker
 Sanja, Valesic
 Sanja, Lalic
 Tanwi, Sandelwood
 Charl, Legare
 , page
 Nicole, Wells
 Jennifer, Rogers
 Jennifer, Kreitzer
 maura, riley
 Jessica, Thompson, zip code
 John, Casse
 Kellie, Smith
 nathan, schaefer
 Tucker, Thomas
 Doris, Carey
 Leia, Cairns
 Michael, Carney
 Erika, Pitsker
 Shari, Miller
 christine, SCHMUTZ
 Nancy, Chlsmar
 Martina, Clark
 christina, litde
 Robert, Pezick
 Keith, Vaughn
 Patricia, Fulmer
 Elyse, Levy
 David, Fisher
 Elise, Margulis
 Cheryl, Lechtanski
 Lance, Michel
 Theresa, Weems
 Helen, Schafer
 Sherry, Gerszberg
 Julija, Merljak
 Carlos, Dropeza
 Marguerite, Waters
 John, McDonald
 Raul, Arribas
 Michelle, Murphy
 Valerie, Tarr
 Lesley, Mowat
 Valerie, Tarr
 Debra, Ricci
 ANNA, WRIGHT
 Nicholas, Mantas
 carol, jaggiello
 Dennis, Schvejda
 hermina, oliver
 John, Richkus
 Dawn, Walker Cinco
 Dennis, Morley
 Patty, Coates
 Ellen, McConnell
 Fred, Gail
 John, Shultz
 joni, moretti
 Denise, Lytle
 Jack, Schwartz
 Y.D., Jordan
 James, Koo
 Ruth, Leibowitz
 Francesca, Argiro
 tanja, israel
 Dr. Nancy, Booth
 John, Pittenger
 phyllis, ruth
 Kat, Rasky
 V. Alexander
 Kelly, Schneid
 Heather, Glaze
 Jan, macek
 Jessie, Vosti
 Judith, Pecho
 Michelle, Friesen

Turtle Island Restoration Network support for Alternative A of the EIS -- full wilderness designation for the entire Drakes Estero within Point Reyes National Seashore

Stephanie, Nemet
 Jan, McCreary,
 Barbara, Bacon,
 BRUCE, BARNOW,
 Antia, Walsh,
 Paul, Luehrmann,
 Don, Cooney,
 Susan, Stephens,
 Jenny, O'Neil,
 Lynda, Coln,
 Linda, Renner,
 Jeanne, Wheeler,
 Rich, Ryan,
 Barbara, Scott,
 David, Dewenter,
 John, Marchese,
 Derek, Gendvil,
 Michael, Macintyre,
 Carmen, Mo,
 Thalia, Ayoub,
 David, Depue,
 Donald R., Parris,
 Holl, Davidson,
 Alex, Brownstein
 myra, gordon,
 Carin, Zellerman,
 Richard, Heaning,
 Susan, Esposito,
 Elaine, Peterson,
 Anthony, Iacono,
 Bob, Pomilla,
 Joseph, Alfano,
 Palge, Harrison,
 Megan, Veley,
 Carol, Dobson,
 guy, perrotta,
 Patrick M., Donovan,
 Ganapati, Durgadas,
 Heather, Cross,
 J., MASSETTI,
 Sandra, Whiteknact,
 William, Sharfman,
 Barbara Sondra, Levine,
 Judith, Weis,
 SUSAN, krause,
 Jennifer, Savage,
 Leslie, Cassidy,
 Bobbie, Flowers,
 Janet, Forman,
 sophia, rubinsteln,
 Carrie, Fox,
 isabella, baugher,
 Jean, Naples,
 Joseph M., Varon,
 Valerie, Kaye,
 Patricia, Iasek,
 Erma, Lewis,
 Jeanne, Andresakes,
 Victoria, Lepore,
 Richard, Eng,
 Pierre F. Schlemel,
 Gerrit, Crouse,
 Adele, Eisenstein,
 JOHN, LA VEGLIA,
 rich, donato,
 Pat, Rabin,
 Kate, D.,
 Jessie, Rosenthal,
 Janet, O'Rourke,
 Celia, Montgomery,
 Margaret, Hart,
 Meghan, August,
 Floss, Shahbegian,
 Beth, Lee,
 Ken, Ward Jr.,
 Len, Jacobs,
 Sandra, Dal Cais,
 Charlotte, Price,
 Sheila, Dempsey,
 Brenda, Collins,
 Ivana, Dimovski,
 Christopher, Panayi,
 Kevin, Sewell,
 Meg, Cotner,
 Ro, Capozzelli,
 Barry, Smith,
 Chris, Schneebell,
 Leah, Jacobs,
 Roberta, Desalle,
 Richard, Cleary,
 Amy, Anderson,
 Nicholas, Scheerer,

Julia, Serrago,
 Shakima, Jones,
 Tricia, Hamilton,
 Kimberly, Gargulo,
 Melissa, Barbella,
 MIKE, Hat,
 Liz, Mostov,
 Karen, Menell,
 Phyllis, Mollen,
 Ilenia, Massaroni,
 Jane, Edsall,
 Doris, Lehr,
 Emily, Birnbaum,
 Marsha, Aronson,
 Garret, McCarty,
First Name, Last Name, Zip, State
 Kerry, Burkhardt,
 Cassandra, Treppeda,
 Marilyn, Peetkov,
 Chris, Land,
 Barry, Smith,
 Sarah, Hamilton,
 Lois, Cohen,
 Ann, Hallowell,
 Nyack, Clancy,
 Stephanie, Jones,
 Anna, LaChance,
 Dominic, Lombardozzi,
 Emily, Doutre,
 Fay, Forman,
 Chris, Witting,
 Dostana, Jusic,
 Mrs. Mander,
 Orsino, Flynn,
 Caryn, Corriere,
 Elizabeth, Mooney,
 Justin, Eddings,
 Margaux, Booth,
 Angela, Christopher,
 Suzana, Meges,
 Rebecca, Sifron,
 Nelson, Baker,
 Valerie, Sherrill,
 Melissa, Dabe,
 Loree, Hollander,
 Elizabeth, Chokan,
 Lou, Marti,
 Alyssa, Buccione,
 Gloria, Nader,
 Valerie, Hildebrand,
 Greg, Noneman,
 Carlee, Trent,
 Bobette, Seymour-Linder,
 Wanda, Huelsman,
 Jill, Dorsey,
 Jamie, Tsilominas,
 Betty, Combs,
 Al, Abrams,
 Amanda, Waldrup,
 Natalie A., Carter,
 Leia, Pelson,
 Dawn, Florio,
 Michelle, Rice,
 Julie, Colon,
 Feather, Feathers,
 Cathy, Reynolds,
 Jennifer, Jayroe,
 David, Burkhardt,
 Shirley, Smith,
 Christine, Neary,
 Patty, Bonney,
 Mark, Wheeler,
 Suzanne, Kindland,
 Jeremy, Henry,
 Gary, Gilardi,
 Kendra, Madden,
 Ruth, McD.,
 Gary, Wright,
 Ian, Shelley,
 Marcia, Cooperman,
 Angela, Fazzari,
 Charlotte, Stahl,
 Lacie, Holt,
 Sandra, Oliver-Poore,
 Maureen, O'Neal,
 John, Duker,
 Janice, Clark,
 Vicki, Hood,
 Jennie, Jones,
 Dolores, Matthys,
 Dondi, Visser,
 David, Lawrence

Kacey, Donston,
 Bob, Thomas,
 Jeannine, Mihalek,
 Judith, Vincent,
 Nicolette, Swift,
 Nancy, Fleming,
 Kathleen, Moon,
 Melinda, McComb,
 David, Lunde,
 Coralie, Benton,
 Nicole, Jergovic,
 Serena, Witkopp,
 Marianna, Visser,
 Cynthia, Ignatovich,
 Brad, Nahill,
 Talia, Hughes,
 Julie, Perco,
 LORI, DANKO,
 Lori, Snyder,
 Deanne, O'Donnell,
 Ann, Sheffield,
 Anthony, Capobianco,
 Barb, Savin,
 Michael, Balsai,
 Patsy, Gerrity,
 Dale, Must,
 Nancy, Orons,
 Alicia, Smith,
 Dawn, Mason,
 Frank, Osterman Jr.,
 Susan, Babbitt,
 Constance, Garcia-Barrio,
 Mary, Barr,
 Jon, Levin,
 Leslie, Wantz,
 Debra, Hoven,
 Joel and Mary, Bonham,
 DeDe, O'Donnell,
 Julie, Schampel,
 Marjorie, Rathbone,
 Kathy, Javens,
 Kelly, Riley,
 Carol, Thompson,
 Daniel, Shapiro,
 Beth, McHenry,
 Aimee, Malsano,
 Gloria, Cameron,
 Deanna, Prince,
 Jill, Turco,
 Robert, Steinger,
 Marie, Elaine, Rago,
 Dana, Steele,
 Michelle, Dudeck,
 William, Willis,
 Huron, Wright-Campbell,
 Antoinette, Sellitto,
 Estera, Maria,
 Andrew, Benton,
 Elizabeth, Beatty,
 Jineen, Boyle,
 Jeannine, Mendrola,
 Andrea, Fleming,
 Darleen, Mc Naul,
 Ailed, Rivera,
 Deborah, Lipman,
 Deborah, Leenutaphong,
 Frances, Carpenter,
 Paula, Marsella,
 Kat, Turi,
 Genaro, Avila,
 RANDY, HAYES,
 Crystal, Smith,
 Ronda, Greaves,
 Sofia, Andrade,
 Patricia, Carrier,
 Barbara, Condit Vick M.Ed.,
 Lisa, Milo,
 William, Brabson,
 Kathy, Kowalchick,
 Sherry, Kelley,
 Sarah, Howell,
 Philip, Heinlein,
 Shelli, Schmidt,
 Ronald, Ratner,
 Dai, Morello,
 Chris, Drumright,
 Joyce, Wheaton,
 Maggie, Odie,
 Darlene, Schueler,
 Jason, Nichols,
 Valda, Purvis,
 Caitlin, Glidden,

Turtle Island Restoration Network support for Alternative A of the EIS -- full wilderness designation for the entire Drakes Estero within Point Reyes National Seashore

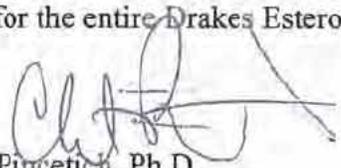
Hiedi, Tan,
B. Morello,
Phyl, Morello,
amy, lagrone,
Joanne, Popp,
Sharon, Gillespie,
Karen, Sprague,
Ana-Maria, Harris,
Patricia, Aranibar,
Shelva, Wood,
Terris, Williams,
Mike, Webb,
Joan, milford,
Ginger, Young,
Kristy, Mitchell,
Harry, Cleaver,
Brooke, Pope,
wendy, hughes,
Lindsey, McMahan,
Gilda, Bayegan,
Judy, Sevilla,
Shelley, DeShong,
Barbara, Campbell,
Jesse, Chacon,
mindy, bradburn,
Patricia, Huckleba,
Renee, Kirkpatrick,
Judy, Landress,
Katherine, Arredondo,
Jaam D. Hinojosa,
Frank, Aaron,
Emily, Albert,
bee, w,
Linda, Patterson,
Dean, Thompson,
Sally, Simpson,
chris, beal,
Bruce P, Greher,
ROBERT, STREBECK,
Thomas, Windberg,
linda, trux,
Dee, Carroll,
Sharon, Bailey,
Jennifer, Blau,
Leslie, Currens,
Melissa, Gaskill,
Elaine, Berg,
Kristen, Albritton,
Holle, Martin,
Leslie, Jernigan,
Joanie, Steinhaus,
Phyllis, Jacoby,
Frank, Blake,
Christiaan, Siano,
paul, whitehouse,
D.M. GORE,
Tracey, Chance,
Diego, Ross,

mindy, bradburn,
Dana, Crawford,
sergio, romero,
the, hamilton family,
Keith, Teeter,
Scott, Walker,
Tim, Duda,
Lsa, Barrett,
Sylvia Ruth, Gray,
Mary, Williams,
Lori, Brawnerm,
Debbie, Slack,
Yuri, Sobolev,
John, Burbank,
Judith, Shematek,
Damon, Phillips,
Douglas, Beckmann,
Katarzyna, Kubzela,
virginia, massey,
Cheryl, Zellmer,
Tami, Palacky,
Margaret, Vaughn,
Grace, Holden,
Martha, Desrosiers,
Angela, Lockhart,
Elaine, Fischer,
Elaine, Becker,
Charity, Moschopoulos,
Mike, Johnstone, 2
Storm, Cunningham,
Jason, Green,
Louise, Wallace,
Tracey, Krill,
Mary Catherine, Epatko,
Mark, B,
Jennifer, Hadley,
Autumn, Gonzalez,
Frida, Simms,
su, Johnson,
Arthur, Coates,
Chuck, Clarke,
Judith, hazelton,
Cassandra, Church,
Diana, Smith,
Kathleen, Wolfe,
Gayle, Janzen,
Pam, Perry,
Bronwen, Evans,
Livja, Sorenson,
James, Mulcare,
Alexandra, Scarborough,
David, Casey,
Britt, Lind,
Joe, Ginsburg,
Cyndi, Rossini,
Jeanne, Layton,
Edie, Sine,

Sallie, Becker,
katherine, seabrook,
Craig, Zimmerman,
Wendy I, Hernandez,
Linda M, Eiseeman,
barbara, birnbaum,
Kelly, Probst,
KEITH, OVREGAARD,
Diann, MacRae,
Janice, McLaughlin,
Hugh, Harkins,
Joan, Shelby,
Chuck, Ricevuto,
Liz, Campbell,
Jerry, Liebermann,
Ella, McCabe,
Julene, Weaver,
William, Barmettler,
Al, McCAarthy,
Victoria, Mollinari,
MacKenzie, Serpe,
Barbara, McKee,
D, W,
Lesley, Murphy,
Dorian, Bowen,
Dr. Darlene, Townsend,
Jacqueline, Lavanchy,
Robert, Rowland,
Kelly, Welsh,
Rand, Guthrie,
Joanne, Schoetder,
jackie, Tryggeseth,
Joyce, Frohn,
Sarah, Foster,
molly, brewer,
Kay, Mederas,
Ellen, Gutfleisch,
Elsie Hickey, Wilson,
susanne, way,
Cheryl, Ulrich,
Beth, Beck,
Sharon, Johnson,
Richard, Heinlein,
wendy, huffman,
Mark M, Giese,
dianne, lien,
james, walker,
James & Shelley & Elise, Poson,
Whitney, Metz,
Brenda, Eisenhart,
Warwick, Neal,
Gracie, Kealey,
Robert, Cardillo,
Sandra, Materl,

The Turtle Island Restoration Network prides itself in facilitating public comment, and also directed hundreds of members to use the online NPS comment portal on this issue. While we understand the current NPS EIS comments are not able to accommodate any other online public comment facilitating system (i.e. petition, bundled pdf of letters), we hope you understand that the voices of the above U.S. residents wish to be part of the discussion concerning Drakes Estero, and wish to see the entire area converted entirely to marine wilderness as soon as possible.

In conclusion, the Turtle Island Restoration Network supports Alternative A of the EIS -- full wilderness designation for the entire Drakes Estero within Point Reyes National Seashore.

Sincerely,

Christopher Pincetich, Ph.D.
Outreach and Education Manager
Turtle Island Restoration Network

Dear Drakes Bay Oyster Farm Supporter,

Thank you for your continued patronage and support of Drakes Bay Oyster Farm. The grassroots support group for the farm, the Alliance for Local Sustainable Agriculture (ALSA), www.alsamarin.org, has announced that the National Park Service has published the draft Environmental Impact Statement to inform the Secretary of the Interior whether or not to allow the oyster farm to continue after 2012. The **only** time the public has a say in this important issue is during this last "public comment period", going on right now! **Comments must be received by NPS prior to midnight Mountain Time, November 29, 2011!** The NPS "Comment Form" is provided below, for your convenience.

"I support a renewable Special Use Permit for Drakes Bay Oyster Company" is the single most important comment you can make. To this end, we have included it in the "Comment Form" (below).

We respectfully ask for your help in saving the farm by simply:

1. filling out the "Comment Form",
2. cutting along the dotted line and,
3. mailing your comments by **November 29th** to: Draft EIS DBOC SUP c/o Superintendent
Point Reyes National Seashore
1 Bear Valley Road
Point Reyes Station, CA 94956

Alternatively, you may submit your comments online by going to:

<http://parkplanning.nps.gov/commentForm.cfm?documentID=43390>.

If you wish to attach additional comments, please feel free to do so. You may visit ALSA's website for other suggested topics to comment on (www.alsamarin.org). For more up-to-date news and info, visit www.oysterzone.wordpress.com.

With Our Heartfelt Gratitude for Your Support Through the Years!

-----cut here-----

Comment Form

Park: Point Reyes National Seashore

Project: Drakes Bay Oyster Company Special Use Permit Environmental Impact Statement

Document: Draft Environmental Impact Statement Drakes Bay Oyster Company Special Use Permit

* indicates required fields

City:*

State/Province:*

Postal Code:

First Name: Mariela Carmen

Middle Initial: M.C.G.M

Last Name: x Gonzalez

Address:

Country:

Email:

(Check here if you want your contact information kept private.)

Comments or Requests:

I support a renewable Special Use Permit for Drakes Bay Oyster Company.

2011 DEC -9 AM 11:42
 RECEIVED
 NATIONAL PARK SERVICE

Dear Drakes Bay Oyster Farm Supporter,

Thank you for your continued patronage and support of Drakes Bay Oyster Farm. The grassroots support group for the farm, the Alliance for Local Sustainable Agriculture (ALSA), www.alsamarin.org, has announced that the National Park Service has published the draft Environmental Impact Statement to inform the Secretary of the Interior whether or not to allow the oyster farm to continue after 2012. The **only** time the public has a say in this important issue is during this last "public comment period", going on right now! **Comments must be received by NPS prior to midnight Mountain Time, November 29, 2011**! The NPS "Comment Form" is provided below, for your convenience.

"I support a renewable Special Use Permit for Drakes Bay Oyster Company" is the single most important comment you can make. To this end, we have included it in the "Comment Form" (below). We respectfully ask for your help in saving the farm by simply:

1. filling out the "Comment Form",
2. cutting along the dotted line and,
3. mailing your comments by **November 29th** to: Draft EIS DBOC SUP c/o Superintendent
Point Reyes National Seashore
1 Bear Valley Road
Point Reyes Station, CA 94956

Alternatively, you may submit your comments online by going to:
<http://parkplanning.nps.gov/commentForm.cfm?documentID=43390>.

If you wish to attach additional comments, please feel free to do so. You may visit ALSA's website for other suggested topics to comment on (www.alsamarin.org). For more up-to-date news and info, visit www.oysterzone.wordpress.com.

With Our Heartfelt Gratitude for Your Support Through the Years!

-----cut here-----

Comment Form

Park: Point Reyes National Seashore

Project: Drakes Bay Oyster Company Special Use Permit Environmental Impact Statement

Document: Draft Environmental Impact Statement Drakes Bay Oyster Company Special Use Permit

* indicates required fields

City:* State/Province:* Postal Code:* First Name: WilliamMiddle Initial: CLast Name: HanzlikAddress: Country: Email: (Check here if you want your contact information kept private.)

Comments or Requests:

I support a renewable Special Use Permit for Drakes Bay Oyster Company.

POINT REYES NPS

2011 DEC -9 AM 11:42

FID

Dear Drakes Bay Oyster Farm Supporter,

Thank you for your continued patronage and support of Drakes Bay Oyster Farm. The grassroots support group for the farm, the Alliance for Local Sustainable Agriculture (ALSA), www.alsamarin.org, has announced that the National Park Service has published the draft Environmental Impact Statement to inform the Secretary of the Interior whether or not to allow the oyster farm to continue after 2012. The **only** time the public has a say in this important issue is during this last "public comment period", going on right now! **Comments must be received by NPS prior to midnight Mountain Time, November 29, 2011!** The NPS "Comment Form" is provided below, for your convenience.

"I support a renewable Special Use Permit for Drakes Bay Oyster Company" is the single most important comment you can make. To this end, we have included it in the "Comment Form" (below).

We respectfully ask for your help in saving the farm by simply:

1. filling out the "Comment Form",
2. cutting along the dotted line and,
3. mailing your comments by **November 29th** to: Draft EIS DBOC SUP c/o Superintendent
Point Reyes National Seashore
1 Bear Valley Road
Point Reyes Station, CA 94956

Alternatively, you may submit your comments online by going to:
<http://parkplanning.nps.gov/commentForm.cfm?documentID=43390>.

If you wish to attach additional comments, please feel free to do so. You may visit ALSA's website for other suggested topics to comment on (www.alsamarin.org). For more up-to-date news and info, visit www.oysterzone.wordpress.com.

With Our Heartfelt Gratitude for Your Support Through the Years!

-----cut here-----

Comment Form

Park: Point Reyes National Seashore

Project: Drakes Bay Oyster Company Special Use Permit Environmental Impact Statement

Document: Draft Environmental Impact Statement Drakes Bay Oyster Company Special Use Permit

* indicates required fields

City:*

State/Province:*

Postal Code:*

First Name: Jerry

Middle Initial: J

Last Name: Johnson

Address:

Country:

Email:

(Check here if you want your contact information kept private.)

Comments or Requests:

I support a renewable Special Use Permit for Drakes Bay Oyster Company.

POINT REYES NS

2011 DEC -9 AM 11:42

ED

Dear Drakes Bay Oyster Farm Supporter,

Thank you for your continued patronage and support of Drakes Bay Oyster Farm. The grassroots support group for the farm, the Alliance for Local Sustainable Agriculture (ALSA), www.alsamarin.org, has announced that the National Park Service has published the draft Environmental Impact Statement to inform the Secretary of the Interior whether or not to allow the oyster farm to continue after 2012. The only time the public has a say in this important issue is during this last "public comment period", going on right now! Comments must be received by NPS prior to midnight Mountain Time, November 29, 2011! The NPS "Comment Form" is provided below, for your convenience.

"I support a renewable Special Use Permit for Drakes Bay Oyster Company" is the single most important comment you can make. To this end, we have included it in the "Comment Form" (below). We respectfully ask for your help in saving the farm by simply:

1. filling out the "Comment Form",
2. cutting along the dotted line and,
3. mailing your comments by November 29th to: Draft EIS DBOC SUP c/o Superintendent
Point Reyes National Seashore
1 Bear Valley Road
Point Reyes Station, CA 94956

Alternatively, you may submit your comments online by going to:
<http://parkplanning.nps.gov/commentForm.cfm?documentID=43390>.

If you wish to attach additional comments, please feel free to do so. You may visit ALSA's website for other suggested topics to comment on (www.alsamarin.org). For more up-to-date news and info, visit www.oysterzone.wordpress.com.

With Our Heartfelt Gratitude for Your Support Through the Years!

-----cut here-----

Comment Form

Park: Point Reyes National Seashore
 Project: Drakes Bay Oyster Company Special Use Permit Environmental Impact Statement
 Document: Draft Environmental Impact Statement Drakes Bay Oyster Company Special Use Permit

* indicates required fields

City:* [redacted] State/Province:* [redacted]

Postal Code:* [redacted]

First Name: Shannon Middle Initial: _____

Last Name: Myers

Address: [redacted]

Country: [redacted]

Email: _____

(Check here if you want your contact information kept private.)

Comments or Requests:

I support a renewable Special Use Permit for Drakes Bay Oyster Company. !!

POINT REYES NS
 2011 DEC -9 AM 11:42
 RECD

Dear Drakes Bay Oyster Farm Supporter,

Thank you for your continued patronage and support of Drakes Bay Oyster Farm. The grassroots support group for the farm, the Alliance for Local Sustainable Agriculture (ALSA), www.alsamarin.org, has announced that the National Park Service has published the draft Environmental Impact Statement to inform the Secretary of the Interior whether or not to allow the oyster farm to continue after 2012. The **only** time the public has a say in this important issue is during this last "public comment period", going on right now! **Comments must be received by NPS prior to midnight Mountain Time, November 29, 2011!** The NPS "Comment Form" is provided below, for your convenience.

"I support a renewable Special Use Permit for Drakes Bay Oyster Company" is the single most important comment you can make. To this end, we have included it in the "Comment Form" (below). We respectfully ask for your help in saving the farm by simply:

1. filling out the "Comment Form",
2. cutting along the dotted line and,
3. mailing your comments by **November 29th** to: Draft EIS DBOC SUP c/o Superintendent
Point Reyes National Seashore
1 Bear Valley Road
Point Reyes Station, CA 94956

Alternatively, you may submit your comments online by going to:
<http://parkplanning.nps.gov/commentForm.cfm?documentID=43390>.

If you wish to attach additional comments, please feel free to do so. You may visit ALSA's website for other suggested topics to comment on (www.alsamarin.org). For more up-to-date news and info, visit www.oysterzone.wordpress.com.

With Our Heartfelt Gratitude for Your Support Through the Years!

-----cut here-----

Comment Form

Park: Point Reyes National Seashore
Project: Drakes Bay Oyster Company Special Use Permit Environmental Impact Statement
Document: Draft Environmental Impact Statement Drakes Bay Oyster Company Special Use Permit

* indicates required fields

City:* _____ State/Province:* _____

Postal Code:* _____

First Name: x Brigid x Middle Initial: _____

Last Name: * Lunny *

Address: _____

Country: _____

Email: _____

(Check here if you want your contact information kept private.)

Comments or Requests:

I support a renewable Special Use Permit for Drakes Bay Oyster Company.

POINT REYES NPS
2011 DEC -9 AM 11:42
-EID

Dear Drakes Bay Oyster Farm Supporter,

Thank you for your continued patronage and support of Drakes Bay Oyster Farm. The grassroots support group for the farm, the Alliance for Local Sustainable Agriculture (ALSA), www.alsamarin.org, has announced that the National Park Service has published the draft Environmental Impact Statement to inform the Secretary of the Interior whether or not to allow the oyster farm to continue after 2012. The **only** time the public has a say in this important issue is during this last "public comment period", going on right now! **Comments must be received by NPS prior to midnight Mountain Time, November 29, 2011!** The NPS "Comment Form" is provided below, for your convenience.

"I support a renewable Special Use Permit for Drakes Bay Oyster Company" is the single most important comment you can make. To this end, we have included it in the "Comment Form" (below). We respectfully ask for your help in saving the farm by simply:

1. filling out the "Comment Form",
2. cutting along the dotted line and,
3. mailing your comments by **November 29th** to: Draft EIS DBOC SUP c/o Superintendent
Point Reyes National Seashore
1 Bear Valley Road
Point Reyes Station, CA 94956

Alternatively, you may submit your comments online by going to:
<http://parkplanning.nps.gov/commentForm.cfm?documentID=43390>.

If you wish to attach additional comments, please feel free to do so. You may visit ALSA's website for other suggested topics to comment on (www.alsamarin.org). For more up-to-date news and info, visit www.oysterzone.wordpress.com.

With Our Heartfelt Gratitude for Your Support Through the Years!

-----cut here-----

Comment Form

Park: Point Reyes National Seashore
Project: Drakes Bay Oyster Company Special Use Permit Environmental Impact Statement
Document: Draft Environmental Impact Statement Drakes Bay Oyster Company Special Use Permit

* indicates required fields

City:* State/Province:*
Postal Code:
First Name: Lorenzo Middle Initial:
Last Name: Hernandez
Address:
Country:
Email:

(Check here if you want your contact information kept private.)

Comments or Requests:

I support a renewable Special Use Permit for Drakes Bay Oyster Company.



POINT REYES NS

2011 DEC -9 AM 11:42

ED

Dear Drakes Bay Oyster Farm Supporter,

Thank you for your continued patronage and support of Drakes Bay Oyster Farm. The grassroots support group for the farm, the Alliance for Local Sustainable Agriculture (ALSA), www.alsamarin.org, has announced that the National Park Service has published the draft Environmental Impact Statement to inform the Secretary of the Interior whether or not to allow the oyster farm to continue after 2012. The **only** time the public has a say in this important issue is during this last "public comment period", going on right now! **Comments must be received by NPS prior to midnight Mountain Time, November 29, 2011!** The NPS "Comment Form" is provided below, for your convenience.

"I support a renewable Special Use Permit for Drakes Bay Oyster Company" is the single most important comment you can make. To this end, we have included it in the "Comment Form" (below).

We respectfully ask for your help in saving the farm by simply:

1. filling out the "Comment Form",
2. cutting along the dotted line and,
3. mailing your comments by **November 29th** to: Draft EIS DBOC SUP c/o Superintendent
Point Reyes National Seashore
1 Bear Valley Road
Point Reyes Station, CA 94956

Alternatively, you may submit your comments online by going to:
<http://parkplanning.nps.gov/commentForm.cfm?documentID=43390>.

If you wish to attach additional comments, please feel free to do so. You may visit ALSA's website for other suggested topics to comment on (www.alsamarin.org). For more up-to-date news and info, visit www.oysterzone.wordpress.com.

With Our Heartfelt Gratitude for Your Support Through the Years!

-----cut here-----

Comment Form

Park: Point Reyes National Seashore
 Project: Drakes Bay Oyster Company Special Use Permit Environmental Impact Statement
 Document: Draft Environmental Impact Statement Drakes Bay Oyster Company Special Use Permit

* indicates required fields

City:* _____ State/Province:* _____

Postal Code:* _____

First Name: LINDSAY Middle Initial: _____

Last Name: DUCKIES

Address: _____

Country: _____

Email: _____

(Check here if you want your contact information kept private.)

Comments or Requests:

I support a renewable Special Use Permit for Drakes Bay Oyster Company.

2011 DEC -9 AM 11:42
 POINT REYES NS
 FED

Dear Drakes Bay Oyster Farm Supporter,

Thank you for your continued patronage and support of Drakes Bay Oyster Farm. The grassroots support group for the farm, the Alliance for Local Sustainable Agriculture (ALSA), www.alsamarin.org, has announced that the National Park Service has published the draft Environmental Impact Statement to inform the Secretary of the Interior whether or not to allow the oyster farm to continue after 2012. The **only** time the public has a say in this important issue is during this last "public comment period", going on right now! **Comments must be received by NPS prior to midnight Mountain Time, November 29, 2011!** The NPS "Comment Form" is provided below, for your convenience.

"I support a renewable Special Use Permit for Drakes Bay Oyster Company" is the single most important comment you can make. To this end, we have included it in the "Comment Form" (below). We respectfully ask for your help in saving the farm by simply:

1. filling out the "Comment Form",
2. cutting along the dotted line and,
3. mailing your comments by **November 29th** to: Draft EIS DBOC SUP c/o Superintendent
Point Reyes National Seashore
1 Bear Valley Road
Point Reyes Station, CA 94956

Alternatively, you may submit your comments online by going to:
<http://parkplanning.nps.gov/commentForm.cfm?documentID=43390>.

If you wish to attach additional comments, please feel free to do so. You may visit ALSA's website for other suggested topics to comment on (www.alsamarin.org). For more up-to-date news and info, visit www.oysterzone.wordpress.com.

With Our Heartfelt Gratitude for Your Support Through the Years!

-----cut here-----

Comment Form

Park: Point Reyes National Seashore
 Project: Drakes Bay Oyster Company Special Use Permit Environmental Impact Statement
 Document: Draft Environmental Impact Statement Drakes Bay Oyster Company Special Use Permit

* indicates required fields

City:* State/Province:*

Postal Code:*

First Name: Walter

Middle Initial: nia

Last Name: TULLIS

Address:

Country:

Email:

(Check here if you want your contact information kept private.)

Comments or Requests:

I support a renewable Special Use Permit for Drakes Bay Oyster Company.

SAVE many jobs & homes!!

POLI REYES NS
 2011 DEC -9 AM 11:42
 FD

Cicely Muldoon, Superintendent
Point Reyes National Seashore
Pt Reyes CA 94937

December 8, 2011

RE: comments on the Draft EIS for the DBOC SUP

Dear Cicely,

Here are my comments on the Draft EIS for the future of Drakes Estero. Though many of my comments address my perceptions of specific inadequacies and omissions in this document, I need to strongly commend your staff and the supporting NPS for this effort to date. Working within a remarkably compressed timeline, on a particularly emotional, politically explosive and locally-divisive issue the Park has nonetheless managed the process with grace and professionalism.

I have organized my comments into two categories, minor issues that deal with particular details of the draft and major issues that are more substantive and could have significant implications to the EIS. While much of the following addresses deficiencies in the Action Alternatives (B, C, &D), none of them should be construed as support for anything short of the most expedient path to full wilderness protection for the Estero and the benefits it will bring to the Point Reyes National Seashore. I strongly support Alternative A.

Minor issues:

Volunteerism in the Seashore The volunteer corps that provides so much time and energy supporting the Seashore deserves recognition and support from the EIS. Harbor seal monitoring volunteers have been caught up in the DBOC PR machine and personally vilified in the local press. Has there been a discernable drop in participation in the harbor seal program or the entire volunteer corps in the last few years? This should be considered in the analysis of visitor experience/recreation.

Asphalt: Throughout the EIS all references to the removal of mariculture infrastructure should specifically include mention of the asphalt parking surface that was a non-permitted development of the onshore facilities. Leachates from the asphalt into the Estero, the unwanted stabilization of fill in what were once tidelands, and the decidedly unnecessary and non-wilderness characteristics of this surface material combine to make its removal a significant concern that needs to be addressed in the document.

Leach-field removal: The EIS should consider the need for the second leach-field when mariculture operations end. Assuming that one leach-field would be more than adequate for the remaining structures, removal of the extra leach-field should also be included in the list of mariculture infrastructure that is the responsibility of DBOC.

Interpretive functions conducted by DBOC: Throughout the document DBOC is afforded the consideration that their interpretive materials may provide a beneficial

function to the visiting public. The reality is that DBOC seems totally focused on securing a new lease and is not at all interested in promoting a factual or balanced storyline of what is happening in the Estero. For example, visiting school groups have been asked to write letters supporting the continuance of the mariculture operations in Drakes Estero (personal communications with some parents of students at West Marin Elementary). What may qualify as interpretive content for DBOC may not be factually accurate and may actually have a very negative effect on some of the public's impressions and understanding of the science of the estuary and the Park's role in fulfilling its mandates.

Unless created or vetted by NPS staff, all "interpretive" functions (tours, signage, and literature) by DBOC needs to be considered as an adverse impact on the visitor experience in the Seashore.

Socioeconomic impact analysis

The findings that Alternative A will result in a local oyster shortage are almost funny. The designation of a statewide study area for evaluating impacts seems wrong, given that oysters are quite transportable and that many of the locally consumed oysters are already brought in from out-of-state (and the other local mariculture operations freely label and sell as such). Prior to the purchase by DBOC, Johnson's Oyster Company was barely in production and there really did not appear to be a discernable scarcity of oysters in the region. The small numbers of oysters that Johnson's sold were trucked in from Washington State for resale. Presumably DBOC started selling 'ship & dip' Washington stock until its own initial planting was ready for market. While statewide production potential might fall, market forces from the current strong demand for oysters will cause other producers to ramp up production. The study area should be coastal and references to "major adverse impacts to California's shellfish market" (page 395) are overstating the situation.

Major issues:

The inadequacy of the analysis of the effects on NPS operations

The EIS needs to re-evaluate the impacts that all alternatives would have on park operations. The impacts from the No Action alternative seem overstated while the analysis of the Action Alternatives does not realistically evaluate the problems of managing this mariculture operation.

For all of the Action Alternatives the EIS needs to more specifically recognize that the Estero's wilderness designations make monitoring and enforcement of all conditions and regulations more difficult and expensive than monitoring and enforcement in other areas of the Seashore. For example, adherence to the Estero's wilderness designations means that there is a virtual absence of park staff on the water. To date, the minimum requirement concept for wilderness management has virtually excluded NPS motorized boat access to the offshore operation.

Park staff access to the offshore mariculture operations is presently deficient and there does not seem to be any component of the Action Alternatives that addresses this. The lack of an on-site presence significantly limits NPS' ability to evaluate mariculture practices or verify such basic aspects as actual numbers of oysters being grown or placements of culture apparatus. The current reliance on over-flight information, shore-based estimates (through spotting scopes) and an occasional and seasonal visit by kayak does not constitute adequate access to manage this or any possible future operation. In terms of overall management, the NPS has been crippled by political pressure, rendering it incapable of enforcing even the most basic regulations and conditions of the current lease.

DBOC's generally uncooperative nature and the unreliable reporting compound the already difficult tasks of assessing and managing the operation. The lease-holder's track record of non-compliance speaks for itself. In only five years of operation DBOC has generated a long list of un-permitted activities, permit violations, and a general unwillingness to respond to even the most basic requests for explanation or clarification. To imagine that a new SUP would be met with a sea change in behavior is beyond optimistic. DBOC's petulant non-cooperation and perpetual antagonism towards NPS and CCC directives does not support the type of cooperative interaction that would be needed for the sort of adaptive management that is envisioned in the MMC report (11/11) or recommended in Alternatives B, C, &D. "Collaborative management" requires degrees of trust, respect, and willingness to play by the rules that have never been demonstrated by the lease holder.

DBOC's campaign to secure a new lease has been unambiguous in its stated intent to secure a renewable or non-term lease. If any type of a new 10-year SUP is granted there is a reasonable assumption that DBOC would maintain a similar strategy and behavior pattern as they push for a longer lease.

For years CDFG management of their "lease" is woefully inadequate. For instance, consider the under-funded state of DBOC's performance bond, the required clean-up fund, particularly given the imminent expiration of the SUP. Much of a new NPS management program would involve filling the administrative vacuum created by CDFG.

Specifics common to all the Action Alternatives--- that CDFG would have a very limited jurisdictional capacity over the new leasing arrangements and the commitment of a full-time staff equivalent ---are both significant improvements over the existing management and enforcement functions. The lack of marine access by park staff and an obstinate lease-holder remain as major impediments to a sufficient oversight mechanism.

Given access issues and the nature of the operator, the EIS should consider a mandatory observer program for each of the Action Alternatives. A full time observer with total access to the mariculture vessels would allow the NPS to access the waters of the Estero without any further impacts (in fact, a net reduction of impacts) on the wilderness values and wildlife. The observer program could be modeled on existing NOAA or NMFS

programs. It could give the NPS a much-needed first-hand exposure to the mariculture operations and allow for a much greater capacity for oversight and enforcement. An observer program for the offshore mariculture operations in Drakes Estero would probably need to be an additional fulltime position beyond the one fulltime position prescribed in all the Action Alternatives. Given the rigors of accommodating boat times (to coincide with tides, seasonal demand for products, occasional rainfall closures, etc.) and the hyper-scrutiny currently applied to all documentation by park staff, the observer would face challenges in work day scheduling and reporting protocols. The originally conceived fulltime position would be include managing the observer program, interfacing with park resource managers and the leaseholder, and providing the oversight function that CDFG has essentially failed to execute. The added expense of both the mariculture operations oversight and the observer positions need to be borne by DBOC and should be explicitly included in the valuation of the lease.

The DEIS fails to assess the burden that managing the oyster operation would mean to park resources. On a very fundamental level the proposed model of needing one FTE to manage but one lease in the park needs more careful consideration. How many leases are in the Seashore? Resource-wise, is it feasible to dedicate one FTE per lease?

To dismiss the proposed FTE as inconsequential as it is less than one percent of park staff completely ignores the realities of how problematic this leaseholder has been and how ill-equipped park staff is in handling such a lessee. It is somewhat hard to fathom how and why the park has even allowed the lease to continue given the flagrant misconduct by DBOC since it took over the lease. It can reasonably be assumed that the intense PR and political battles presently being waged by DBOC will only continue. As a result, every level of park operations, from the volunteers monitoring the harbor seals up through the head of the natural resources to the superintendent's office, regional staff and national staff will have a disproportionate amount of time and resources consumed.

IMPACTS ON NPS OPERATIONS and the analysis of Alternative A incorrectly states "additional NPS staff would be required for monitoring/enforcing Drakes Estero during boat closure periods (estimate approximately 1-2 FTE)" and that apparently that this would have the cumulative effect of a long term minor adverse impact. This evaluation fails to take into account the proposed gate and seasonal closure of the access road which seems to be the put-in for most boats in the Estero; the fact that there is currently an identical seasonal boat closure (with the exception of mariculture vessels) in place; and that the exemptions for mariculture vessels make for a much harder monitoring/enforcement function. There are not only no additional staffing requirements, but the net effect can be seen to actually reduce the demands on NPS staff.

The inadequacy of considerations on mariculture debris

The DEIS only marginally addresses the floating debris (plastic and others) from DBOC operations. In discussing the project's water quality, wildlife and wildlife habitats, wilderness, and visitor experience and recreation issues, the EIS needs to more rigorously assess the negative impacts of mariculture debris. The chronic problem of plastic mariculture debris from the oyster operations in Drakes Estero has been occasionally

addressed by the NPS, the GFNMS, and the California Coastal Commission with no apparent resolution. DBOC continues to dismiss the problem as an historic artifact from the previous owner and offer the false promise of “zero tolerance” of marine debris. Attached (and to be included in the record) is a copy of a recent letter to Interior Secretary Salazar that attempts to provide a demonstration of the magnitude of the problem---and this is only within the confines of the PRNS. The context of the letter can frame the following concerns:

Water quality and wildlife impacts from floating mariculture debris need to be elevated within the EIS. Both the plastics and materials treated with biocides represent a small but steady stream into the ecosystem that, as waste, are considered contaminants by the Clean Water Act and are addressed in more than a dozen federal and state laws. Known sources of marine debris, especially those within the control of our laws and policies and particularly those operating within the confines of a national seashore should be remedied wherever and whenever possible. Our oceans are being slowly poisoned by plastics (even the accidentally discarded sort) and the cumulative and long-term nature of these materials makes even a small contribution worthy of our best efforts to stop at the source.

So consider a hypothetical Black-footed Albatross chick on Midway Island that dies from ingesting a fragment of a plastic spacer tube from DBOC. It was just a tiny piece of plastic when it was lost by the oystermen---no discernable impact. The chick is one of tens of thousands in a year-class; the death of this one bird will not make a difference to the Black-footed Albatross population---no discernable impact. There is an ecological tragedy of the commons occurring here. The EIS needs to recognize the introduction of plastics (and other toxic materials) from the mariculture operations to the marine ecosystem and articulate their adverse impacts on the marine environment.

The DEIS fails to accurately evaluate the effects of mariculture debris from DBOC on wilderness and the visitor experience. While much of the debate over the future of Drakes Estero focuses on the legal protections of wilderness designation, there is an aesthetic consideration of wilderness that has been pushed aside. Similarly the DEIS considerations for visitor experience barely acknowledge that mariculture debris detracts from enjoyment of the Seashore. It is about more than just view-sheds.

Plastic garbage on our beaches has an adverse effect on this visitor’s experience. Plastic industrial waste emanating from within the wilderness zone of the Seashore is just plain wrong. Enjoyment of a walk along Drakes Beach or the Estero shoreline is greatly diminished by the presence of “locally-farmed” plastic jetsam.

The range of alternatives and the need for a restoration alternative

The DEIS acknowledges considering and discounting the idea of an alternative that includes a restoration component that goes beyond the basic cessation of oyster operations. The DEIS cites the limited scope of the appropriations rider as the reason for dismissing a ‘restoration alternative’. The EIS process is not legally constrained by such a consideration and that such an alternative is well within the practical and legal possibilities of this process. Recognizing that NEPA requires a range of alternatives to be

evaluated, and that the alternatives in the draft can be summarized as wilderness, oysters, oysters, or more oysters, it would seem both reasonable and fair to include at least another alternative on the non-mariculture side of the equation.

By many measures the mariculture operation has significantly impacted the wilderness values of Drakes Estero for decades and these effects cannot be reversed by the simple removal of mariculture infrastructure. Assuming that DBOC lives up to its responsibility to completely remove all shellfish and shellfish infrastructure, there will still probably be a significant amount of man-made features and debris that should be removed from the Estero. The most basic restoration efforts should begin with the total removal of all fill (both soil and oyster shell) associated with the "onshore" facilities, re-creating significant tidelands and perhaps a transitional marsh. Examples of other man-made artifacts that should be considered for removal could include the random and derelict creosote pilings that serve no discernable purpose; remnants of long unused cattle fencing that is out in the inter-tidal zone in many spots around the Estero; and miscellaneous debris such as the engine block and axels (materials for mooring weights?) in the inter-tidal zone at Bull Point. Another possible restoration consideration could be a complete shoreline clean-up of environmentally damaging materials such as the plastic mariculture debris and pressure treated wood from derelict oyster racks.

Some impacts, such as the probable naturalization of non-native bivalve species, can perhaps never be remediated and might need to be subject to significant mitigation measures.

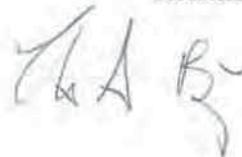
A final comment that may be outside the box of the EIS issues but needs to be made: the issue of mariculture in the Estero needs closure. The debate over the future of the Estero has been as destructive and divisive as anything that has come along in the history of the Seashore. The community is sharply divided and thoroughly sick and tired of the debate.

DBOC and supporters have made it clear they are not content with a 10 year lease. The DEIS analysis of wilderness legislation and park policies seem to make it clear that mariculture operations should cease at the end of the current lease. Wilderness and park advocates have made it clear that the mariculture operation is incompatible with their values.

The community, and this includes entire entity of the Point Reyes National Seashore, needs to move forward. Any of the Action Alternatives will, in DC vernacular, simply kick the can down the road. Unless the Wilderness Act, the Point Reyes Wilderness Protection Act, and a host of other laws are repealed and national park policies rewritten, mariculture operations in Drakes Estero will remain an open wound in the greater Pt Reyes community. Alternative A, the no-action alternative that completes a forty year path to full wilderness protection for this estuary seems the only choice that will close this toxic debate and let some sort of healing begin.

Sincerely,

Thomas G Baty

A handwritten signature in black ink, appearing to read 'T G Baty', written in a cursive style.

THOMAS G. BATY

COPY

November 29, 2011

The Honorable Ken Salazar
Secretary, Department of Interior
1849 C Street
Washington DC 20240

RE: the stream of plastic debris flowing from the Drakes Bay Oyster Company

Dear Secretary Salazar;

I am a native Californian that has lived for the past 52 years in Point Reyes. I cherish the relatively unspoiled coastline that is in theory protected by the Point Reyes National Seashore. I have long recognized that the state of this area is the result of many generations of individual and institutional effort to preserve and protect from unbridled growth, development, and exploitation. I spend significant time on our local waters, fishing and volunteering for the Seashore, the two local Marine Sanctuaries, and various NGOs. I recognize that our ocean is also in need of protection from some of our destructive behaviors. I recently served on the Regional Stakeholder Group that developed the North Central Coast network of Marine Protected Areas for the MLPA.

I habitually walk the beaches of the Point Reyes peninsula. As I walk I always pick up litter (primarily plastic) that courtesy of winds and currents comes from near and far. A particular problem for me, and the reason for this letter, is a very local and very identifiable source of plastic debris that originates from the commercial mariculture operation within the National Seashore. The Drakes Bay Oyster Company (DBOC) emits a constant stream of plastic debris into Drakes Estero and out into the marine ecosystem.

To illustrate the problem of DBOC's plastic debris, I took a handheld GPS unit and walked almost all of the beaches of the Point Reyes National Seashore this past summer. In ten days over a three-week period I hiked almost all the major Pt Reyes beaches; only time and tides kept me from walking every foot of accessible shoreline. I documented only distinct DBOC debris---black pvc spacer tubes, distinct small-mesh grow-out bags and the particular dense, light blue flotation blocks (rigid insulation) that are exclusively used by DBOC (I found other mariculture debris but could not gauge its origins).

I found and picked up 726 pieces of DBOC's plastic debris on 607 sites (some were so close to each other that they showed up as a single GPS waypoint). Attached are images of the total distribution around the entire Point Reyes peninsula, a close-up of specific beaches, and the total haul. Of particular note: the amount of debris along the Limantour Spit---a federally designated wilderness area; the shear density of debris along both the Estero's shoreline and the spit at Drakes Beach where the debris departs the Estero; and how even the north facing beaches have surprisingly high counts of plastic debris.

I walk all these beaches often and over the last year have literally picked up thousands of pieces of mariculture debris from these very same areas. This past spring a combination of high tides and a southern wind chop swept through a poorly maintained storage facility at the DBOC plant and a huge new wave of plastic mariculture debris was released into

THOMAS G. BATY

the Estero's Wilderness areas and the ocean beyond. I picked up thousands of tubes, mesh bags, and plastic milk crates in and around the Estero in just a few days following this single tidal/storm event. I am aware of others who picked up even more than I did.

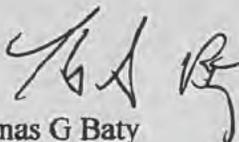
The current owners of DBOC claim to have a "zero tolerance" policy of debris from their operations and also contend that much (if not all) of the mariculture debris is from the past owners' operation that continues to leach into the coastal marine environment. DBOC chooses not to acknowledge that they reuse much of the old materials in their present production. And while some of the debris is clearly old, very much of it is new: tubes with smooth, unworn surfaces and fresh saw marks and the recently-employed mesh bags and floats that are solely the constructs of the current operators. Besides being factually inaccurate, the DBOC argument casting blame on the past owners is fundamentally specious: DBOC should be legally and morally responsible for the liabilities as well as the assets from the Johnson Oyster Company. All mariculture debris from this oyster lease is now the responsibility of DBOC.

I have taken my concern to a variety of agencies looking for corrective action. I displayed an array of pvc tubes and mesh bags at the Marin County Board of Supervisors hearing on the environmental effects of the mariculture operation in 2009. DBOC staff acknowledged that the debris was from their lease, specifically that the small mesh grow-out bags were of recent production. We were again given the false promises of "zero tolerance" from the company owner. Since then we have seen more, not less volume of plastic debris coming from the facility, apparently increasing as their production has increased. I know that the California Coastal Commission has repeatedly attempted to address the problem of plastic debris from the oyster company in the past: I sent them these comments and images in September and they are again attempting to get DBOC to remedy the problem.

I have been documenting and sharing my concerns with the Point Reyes National Seashore. The Draft EIS briefly touches on the subject of plastic mariculture debris, basically failing to adequately assess the impacts on the Seashore experience and the environment. I remain hopeful that the final EIS for the mariculture operation will more thoroughly address this chronic problem.

Plastic waste is killing parts of our oceans. Because of its longevity and tendency to accumulate, small amounts still matter. How can Interior and the National Park Service continue to allow public lands to be misused like this? Is this how a wilderness area within a National Seashore is meant to be managed? Is this how we knowingly treat our oceans?

Sincerely,



Thomas G Baty

attached: 3 pages of images



Drakes Bay Oyster Company

Marin

Drakes Bay

Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Chimney Rock
Data CSUMB, SFML, CAOPC
© 2011 Google

2010 Google



Drakes Estero

Data CSUMB SFML CA OFC

© 2011 Google
Image © 2011 TerraMetrics

©2010 Google





1801 East Cotati Avenue
Rohnert Park, CA 94928-3609

Environmental Studies and Planning
School of Social Sciences

707.664.2306
www.sonoma.edu/ensp

DEC 9 PM 2:15

ENVIRONMENTAL STUDIES

To: Cicely Muldoon, Superintendent
Point Reyes National Seashore

From: Dr. Laura A. Watt
Environmental Studies and Planning
Sonoma State University
18 Rachel Carson Hall
1801 East Cotati Ave.
Rohnert Park, CA 94928

Re: Comments on the Drakes Bay Oyster Company Special Use Permit Draft EIS

8 December 2011

Dear Superintendent Muldoon:

This letter of comment on the Draft EIS regarding the Drakes Bay Oyster Company (DBOC) Special Use Permit contains twelve separate comments, regarding both the NEPA process that the Point Reyes National Seashore (PRNS) has undertaken, and the substance of your analyses. I fully expect to see all of these comments addressed in your next phase of the planning process.

My relevant expertise includes nearly six years as a professor of environmental studies and planning at Sonoma State University, and over ten years of experience researching the history and management of PRNS. In addition, I have four years' experience working professionally as an environmental consultant for EDAW Inc. (now AECOM), focusing primarily on writing land management plans and EISs for federal agencies; in particular, I was project manager and primary author for the BLM's 2004 King Range National Conservation Area Resource Management Plan and EIS, which won an national award for "NEPA Excellence" from the National Association of Environmental Planners.

1. *Consistency of NEPA compliance*

As with the scoping process a year ago, I am commenting with reluctance, because I do not understand why you are undertaking this environmental review process at all. PRNS has a long history of ranches shifting from reservations of use and occupancy to special use permits, mostly in the 1990s; all of the current-day beef and dairy operations have gone through this transition, and not a *single* one required environmental review under NEPA. This makes sense intuitively, because by issuing the special use permit, the NPS has simply continued the existing uses on the landscape, many of which have been occurring for generations. Similarly, when ranches have gone *out* of operation in recent years, such as

THE CALIFORNIA STATE UNIVERSITY

Bakersfield • Channel Islands • Chico • Dominguez Hills • East Bay • Fresno • Fullerton • Humboldt • Long Beach • Los Angeles • Maritime Academy
Monterey Bay • Northridge • Pomona • Sacramento • San Bernardino • San Diego • San Francisco • San Jose • San Luis Obispo • San Marcos • Sonoma • Stanislaus

Horick (D) Ranch, Rancho Baulines (Wilkins) in the Olema Valley, and the Mendoza (B) Ranch's conversion last year from operating dairy to bed-and-breakfast, no NEPA analysis of any kind has been done, despite these transformations involving sometimes-extensive changes in land use and management.

So why is DBOC being singled out? The transition from reservation to permit in 2012 would not involve any changes to their operation, nor any changes to the ecosystem of Drakes Estero, which has supported oyster cultivation for nearly 80 years. The last time the NPS conducted environmental review of the oyster operation, in an Environmental Assessment completed in 1998, it found that not only would continuing the operation have no negative environmental impacts, even *expanding* the on-shore facilities would have no negative environmental impacts. Nothing has changed substantially about the oyster farm or its surrounding environment since 1998, except that DBOC has improved much of the environmental compliance required for the operation.

Of course, it has been argued that the EIS is required because of the potential wilderness status of Drakes Estero; this too makes no sense. The special use permit applies to the on-shore land where DBOC's facilities are located (which is not within the potential wilderness zone), not the Estero itself, which is under lease from the California Department of Fish and Game through 2029. Furthermore, if a special permit is issued and DBOC continues operation beyond 2012, nothing happens to the potential wilderness status; it stays in effect, as only Congress can change wilderness designations. The oyster farm's continuance does not "roll back" or erode wilderness protection in any way. And, if the special use permit is not issued, it is not clear that the Estero's status would then change to "full" wilderness, as the State of California would still hold retained fishing and mineral rights in the Estero, and wilderness status is usually not extended to lands unless they are under full federal control.

Please explain why an EIS is required for the issuance of a special use permit; or, if it is required, why PRNS has been so inconsistent on this requirement in the past with similar transitions from reservation of use and occupancy to special use permit.

2. Congressional Intent for the PRNS Potential Wilderness

Some have argued that Congress intended the oyster farm to cease operations once the reservation of use ran out, when it designated Drakes Estero as potential wilderness. As part of my academic research, I have read through every relevant document I can find regarding the 1976 designation of wilderness at PRNS, and have found zero evidence of such intent. The only statement that remotely hints at this intent is a single sentence in House Report 94-1680, and even that only suggests that the NPS "steadily remove" obstacles to full wilderness status. "Steadily remove" does not mean "as soon as possible"; it remains ambiguous about timeframe. Indeed, this sentence is followed by one that clearly states that utility lines, easements, and rights-of-way from the Muddy Hollow corridor "should be eliminated as promptly as possible," yet it took 23 years for the NPS to accomplish this action.

In contrast, there is ample evidence in the historic record of statements and testimony that the authors of the 1976 potential wilderness legislation did *not* intend to drive the oyster operation out of business. Co-sponsor Senator John Tunney wrote in his statement for the March 1976 Senate hearings that "Established private rights of landowners and leaseholders will continue to be respected and protected. The existing agricultural and aquacultural uses

can continue.” Senator Alan Cranston and Representative John Burton both explicitly endorsed a recommendation from the Citizens Advisory Commission that included the oyster farm be allowed to “continue unrestrained by wilderness designation.” CA Assemblyman Michael Wornum concluded his testimony: “Finally, I believe everyone concerned supports the continued operation of oyster farming in Drakes Estero as a non-conforming use.” This support was echoed in the comments and testimony made by many local environmental groups at the time, including the president of the Marin Conservation League stating specifically, “we do not object to the non-conforming use of the Johnson Oyster Co. operation in Drake’s Estero.” In considering Congressional intent, it is important to look at the entire historical record, not just a single sentence in one report.

Earlier this year, three former legislators, Pete McCloskey, John Burton, and Bill Bagley, co-wrote a letter to the Secretary of the Interior clarifying that their intent, back in the 1960s and ‘70s, was to allow the oyster farm to continue indefinitely, not to set in motion a requirement that it close. Their recollections of past intent were bolstered by former Assistant Secretary of Interior Nathaniel Reed, in a letter dated August 2011. They recommended to the current Secretary that the NPS should offer DBOC a special use permit to allow their operation to continue.

Please address the full legislative history of the 1976 wilderness designation and the ample evidence of Congressional intent to allow the oyster operation to continue unrestrained by wilderness designation.

3. Inconsistent NPS Policy for Management of Designated Potential Wilderness

There are other examples within the National Park System of areas designated as potential wilderness where NPS managers are *not* pressing to remove non-conforming uses, including commercial uses, as speedily as possible so as to convert the areas to “full” wilderness status. The most well-known of these are the High Sierra Camps, located within designated potential wilderness at Yosemite National Park, which are enormously popular with the public; the NPS has consistently renewed the operators’ special use permits to continue this use. As recently as 2007, Karen Taylor-Goodrich, Associate Director for Visitor and Resource Protection, NPS, testified before a House subcommittee that an area containing check dams at Sequoia-Kings Canyon could be designated as potential wilderness, which would “allow Southern California Edison, the operator, to continue its hydroelectric power operation *as long as it wants*” (emphasis added). It is impossible to conclude from these examples that speed is of the essence in converting potential wilderness to “full” status, nor that the NPS has a consistent and mandatory policy guiding the management of these areas.

Please address the inconsistency of NPS policy for management of areas with designated potential wilderness, and specifically why DBOC should not have similar rights to continue operation in Drakes Estero “as long as it wants.”

4. Reasonable Range of Alternatives

The range of alternatives analyzed in this DEIS does not seem to be “reasonable” as required by NEPA, as the differences between Alternatives B, C, and D are minimal to the point of almost being meaningless. In the Executive Summary, Table 2-5 presents a summary of the alternatives, listing eighteen items or issues that each alternative addresses;

for twelve of those items (67%), the conditions for Alternatives C and/or D simply state “Same as Alternative B.”

Please explain why a broader, more reasonable range of alternatives was not considered, and include a new alternative in your analysis that would allow the issuance and continued renewal of a special use permit to DBOC, along the lines of the Collaborative Alternative proposed by the Alliance for Local Sustainable Agriculture (published in the Point Reyes Light, December 1, 2011).

5. Lack of True No-Action Alternative

Alternative A closes DBOC down, and Alternatives B, C, and D all add new requirements or restrictions on DBOC’s management; there is no alternative that continues current management direction and intensity unchanged. That is the purpose of the “no-action” alternative, according to the Council on Environmental Quality’s guidelines on NEPA implementation. By not providing any baseline of existing environmental benefits and impacts of DBOC’s current operation, and by identifying the issuance of a permit as the action under evaluation rather than the change in resource use and management, this DEIS distorts the entire intent of NEPA analysis.

Please explain why there is no alternative included that continues current management direction and intensity unchanged, and please add such an alternative to your analysis.

6. Lack of an Identified Preferred Alternative

The DEIS does not identify the agency’s preferred alternative, thereby depriving the public of a sense of what direction the NPS is most likely to take, as is intended for NEPA analysis. Furthermore, the Point Reyes Light reported in its September 29 issue that PRNS officials had asserted “that they will rely largely on *public opinion* to determine whether oyster cultivation should continue, as it has for over nine decades, in the estero” (emphasis added). This again runs contrary to NEPA’s intent, which requires a careful consideration of the science of the alternatives and their impacts, rather than a popularity contest or “vote.”

Please explain how science and public opinion will be balanced in the final EIS.

7. Consistency with PRNS’ General Management Plan

The 1980 PRNS General Management Plan (GMP), written four years *after* wilderness designation and which remains the guiding document for PRNS, suggests nothing about removing oysters as part of the park’s long-term management direction; rather, it includes a specific goal to “monitor and *improve* mariculture operations, in particular the oyster farm operation in Drakes Estero”—so not issuing a special use permit would contradict the Seashore’s own plan.

The PRNS website currently states that a new draft GMP “is anticipated to be released in the fall or winter of 2011 for public review.” Considering that it is now December 2011, is the Draft GMP imminent? If so, what does it say regarding management of Drakes Estero? Is there any relationship between this DEIS and the Draft GMP?

Please explain why PRNS is considering an action, removal of the oyster farm, that directly conflicts with the 1980 GMP, which is still the official management policy of PRNS.

8. Selective Use of Evidence in Analysis of Impacts

The DEIS is selective in terms of what information is included or utilized in the analysis of potential impacts, ignoring or not acknowledging findings from the National Science Academy's report, the huge collection of photos from PRNS's "secret camera" program, the expansion of eelgrass in Drakes Estero since DBOC took over management, etc. This is poor science. Sources of information need not be published in a peer-reviewed journal or conducted via a particular protocol to be considered valid data, and ignoring or avoiding certain sources of information creates the appearance of bias in the analysis.

Please utilize *all* sources of relevant information available to you in your revised analysis.

9. Lack of Causal Data for Estimated Impacts

The degree to which impacts are based in clear evidence vs. "potential" impacts is worrisome, such as claiming potential impacts to red-legged frogs, which need fresh water habitats, but the estero is brackish (and note that these findings of potential impacts contradict the EA done for oyster facilities expansion in 1998). Table ES-2 (p. xv) states: "Agencies are not required to engage in speculation or analyze indirect effects that are highly uncertain (CEQ 1981 Q18 [48 Fed. Reg. 18027])"—yet this is exactly what the impacts analysis has done with its heavy emphasis on potential, unsubstantiated impacts. The Point Reyes Light conducted an analysis of the frequency of use of certain words: in the 430-page document, finding that the words "data" and "evidence" combined turned up only 142 times, and mostly in reference to maps, census figures, and economic info—"data" was only used once in relation to an environmental impact (and that was in reference to Becker 2011, a paper that is under serious dispute)—in contrast, the word "potential" occurs 761 times, and 70% of those were in reference to environmental impacts.

Please address the need for stronger causal data to confirm or corroborate the actual likelihood of potential impacts, or remove them from your analysis; impacts should not be speculative in nature.

10. Dismissal of Cultural Resources and Cultural Landscapes from Analysis

The question of impact to cultural resources was dismissed on the basis on finding no historic integrity of the built structures at DBOC, ignoring the continuation of use as historically significant part of the cultural landscape. I would argue that oyster operation should be considered an element of the ranching cultural landscape, because of its role in controlling water nutrient levels. Furthermore, removal of DBOC and its agricultural production could have major negative repercussions for the surrounding ranches, which are part of a nominated historic district, as well as for the wider agricultural community of West Marin.

Please address the potential impacts to historic and culturally important land uses, namely oyster production, in your analysis.

11. Dismissal of Environmental Justice from Analysis

The disproportionate economic impacts of Alternative A on people from very underrepresented minority community must be considered an environmental justice issue. Dismissing it because the affected employees only represent 0.01% of Marin County's

population overlooks this disproportionately negative impact by calling it “regionally minimal”—but individually, as well as at the scale of the local Hispanic community of Inverness, it is a major adverse impact. Interestingly, the environmental justice movement is described historically as having started with a protest of about 500 African-Americans regarding a toxic waste dump in their community in Warren County, NC; it is likely that their numbers represented a miniscule percentage of the population of their county, but that does not diminish the disproportionate burden of harm they were experiencing.

Please address the magnitude of this local-level environmental justice impact in your analysis.

12. Inadequate Discussion of Visitor Experience

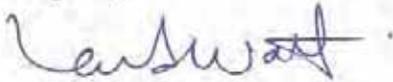
Given the number of public comments received through the scoping process that detailed visitor enjoyment of the oyster farm, why was that not considered an adverse impact under Alternative A? After all, PRNS is currently managed to, among other things, maintain a pastoral landscape, so why is maintenance of DBOC not “necessary and appropriate for public enjoyment”? Elsewhere in the NPS, there is a growing recognition of the importance of the protection of working landscapes for public enjoyment, as documented in the 2007 NPS publication *Stewardship Begins with People: An Atlas of Places, People, and Handmade Products*, in which Kevin Lunny was quoted and the local oyster industry was highlighted.

Please address the significant negative impacts to visitor experience that closing DBOC would represent in your analysis.

In closing, a decision to shut down DBOC’s operation would be a tragic loss to this vibrant area’s sustainable agriculture and distinctive character. Drakes Estero as it is currently managed, as designated potential wilderness but supporting production of a sustainable, local food source, represents a rare opportunity for the public to experience wilderness and working landscape side by side, *seeing* how attached and interwoven they are, how each depends on the other.

Based on the inadequacies of this Draft EIS listed above, I strongly recommend that the NPS consider a new preferred alternative that would allow the issuance and continued renewal of a special use permit to DBOC, along the lines of the Collaborative Alternative proposed by the Alliance for Local Sustainable Agriculture.

Best regards,



Dr. Laura A. Watt

Cc: US Senator Diane Feinstein; US Representative Barbara Boxer; US Representative Lynn Woolsey; Marin County Supervisor Steve Kinsey; US Secretary of Interior Ken Salazar; National Park Service Director Jon Jarvis

≈ Save Our Seashore ≈

40 Sunnyside Drive, Inverness CA 94937
 gbatmuirb@aol.com 415-663-1881



DEC -9 PM 3:18

POINT REYES NS

December 9, 2011

Comments on the NPS Draft EIS for Drakes Estero Wilderness

Superintendent Cicely Muldoon
 Point Reyes National Seashore (PRNS)
 1 Bear Valley Road
 Point Reyes Station, CA 94956

Re: Support for Alternative A, Full Wilderness Protection for Drakes Estero

Dear Superintendent Muldoon:

Save Our Seashore urges PRNS, the National Park Service (NPS), and the Secretary of Interior to uphold long-standing federal law and policy and support Alternative A, the environmentally preferable alternative to restore Drakes Estero to full wilderness as intended.

Save Our Seashore submits the attached documents as our comments on the NPS Draft Environmental Impact Statement (Draft EIS) that will inform the Secretary's decision whether (or not, as we urge) to issue a new Special Use Permit for Drakes Bay Oyster Company (DBOC) to operate a commercial shellfish operation within federally designated potential Wilderness in the Point Reyes National Seashore:

December 6, 2011 SOS Letter re Oct 16
 August 6, 2011 SOS Letter to CCC re Seal Violations
 November 22, 2011 CCC Response to Hulls
 September 11, 2007 CCC Memorandum
 December 4, 2009 Sierra Club Letter to CCC re Production Cap
 December 31, 2009 Sierra Club letter re DBOC Violations
 March 30, 2011 SOS Information Quality complaint
 October 5, 2011 SOS Letter to MMC
 November 4, 2011 Dr. Richard Letter to MMC
 December 7, 2011 SOS Letter to MMC
 November 22, 2011 Marine Mammal Commission Report (available on line) is included by reference.

Sincerely,

Gordon Bennett

Gordon Bennett, President, Save Our Seashore

≈ Save Our Seashore ≈

40 Sunnyside Drive, Inverness CA 94937
gbatmuirb@aol.com 415-663-1881

December 9, 2011

Review of Dr. Goodman's 10/16/11 presentation that was submitted as a dEIS comment

Slides 1-6:

Dr. Goodman lists his credentials

Response: Dr. Goodman's professional credentials and history on this matter have been well publicized by Dr. Goodman. However, expertise in one professional area does not necessarily imply professional expertise in another area. We believe that Dr. Goodman is not a qualified wildlife biologist with expertise in harbor seals or red-legged frogs nor is Dr. Goodman a professional statistician, as evidenced by the 11/22/11 Marine Mammal Commission (MMC) Report and the 10/5/11 and 12/7/11 Save Our Seashore (SOS) letters incorporated by reference herein.

Slide 7:

Dr. Goodman states: "Senator Feinstein legislatively asked that draft EIS follow conclusions of the National Academy of Sciences report. The May 5, 2009 NAS report concluded: "... there is a lack of strong scientific evidence that shellfish farming has major adverse ecological effects on Drakes Estero ... But the dEIS dismissed the NAS conclusion: *"The 2009 NAS report does not provide a definition or detection threshold for what a "major" adverse ecological effect would be in this context, nor does it indicate that the NAS use of an impact qualifier (e.g., "major") is consistent with NEPA standards."*

Response: Dr. Goodman's analysis, implication and conclusion are faulty. The correct analysis is that the dEIS simply states that NEPA defines the technical term "major" as "the action would result in a noticeable change to a population or individuals of a species or designated critical habitat." There is no indication in the NAS Report that NAS used the word "major" in the same way as the technical term is defined by NEPA. Therefore, Dr. Goodman's straw-man conclusion that the dEIS dismissed the "NAS conclusion" is incorrect and simply sets the stage for the similarly incorrect implication that the dEIS is contrary to Senator Feinstein's legislation.

Slide 8:

Dr. Goodman states: "Absence of "data" and "evidence" from...dEIS"

Response: Dr. Goodman's straight-jacketed definition of "data" and "evidence," meaning only "cause-and-effect proofs" attempts to add a straw-man to the controversy in order to support his unsubstantiated assertion that there are only "7" data pieces of "data" and "evidence" showing impact. In fact, the dEIS is replete with references to hundreds of scholarly articles that provide information that supports the dEIS claim of impacts. No agency has the resources to do site-specific cause and effect studies on all aspects of every individual NEPA analysis, thus related studies are always referenced.

Furthermore, the MMC Report (page 59) states:

The term "evidence" has added to the controversy surrounding this issue. The Commission does not believe that the Service used this term in the title of the Becker et al. (2011) paper to mean "proof" of displacement, but rather to mean "information that supports the hypothesis of displacement." Such use would be entirely consistent with scientific custom. For example, the term "weight of evidence" is often used to mean consideration of the relative strengths of information supporting opposing hypotheses.

Slide 9:

Dr. Goodman states: "The one citation of "data" in the dEIS is from Becker 2011 which is why that paper is so key."

Response: Becker 2011 discussed in the referenced MMC Report and the SOS letters. These documents demonstrate the non-cooperative and combative nature of the oyster company as well as the inconsistency of its records that the MMC makes clear are needed to adaptively manage the company's operations such that its impacts are reduced/eliminated. Thus NPS must require that the oyster company produce its records and mark its boats and personnel sufficient to provide the information noted by the MMC as heretofore withheld from NPS. NPS should also insure that these records are both maintained and are correct on a daily basis and must continuously monitor compliance both on the water and in the on-shore operations. Given that the company seemingly not only exploits every ambiguity in its operating permit to maximize its profits at the expense of public resources, but also attempts to both create and seek out such ambiguities, we believe that the dEIS significantly understates the management effort required by NPS.

Slide 10:

Dr. Goodman states: "dEIS presented "potential" impact with no data for seven endangered species including e.g. red-legged frog, Myrtle's silverspot butterfly, Western snowy plover, and CA least tern."

Response: Dr. Goodman misunderstands NEPA and ESA. NEPA requires consideration of species known to use designated critical habitat within the project area. The purpose of the Endangered Species Act is to assess potential impacts and propose mitigations before the impacts become "proven." The ability to save species would be severely compromised if managers had to wait to take action until after the impacts actually occurred and could be "proved." By Dr. Goodman's incorrect logic, a spotted owl chick in a tree near a logger holding a chainsaw and eyeing potential timber could only be "saved" after the nest hit the ground.

Slide 11-12:

Dr. Goodman states: "PRNS has 2.6 million visitors each year... on 50 miles of roads, but dEIS suggests danger to red-legged frogs from "vehicle strikes" on 0.5 mile road to oyster farm (1%)"

Response: Dr. Goodman first omits the potential in Alternative A to restore the oyster processing site to its former wetland conditions that would provide natural breeding habitat for CRLF. Many of the current CRLF breeding sites in PRNS are cattle ponds that are impounded remnants left after ranchers diverted original stream courses and filled original wetlands. Thus much of the current CRLF breeding areas are unnatural physical features that will require constant human intervention to remain. To the contrary, the oyster site is not in the pastoral zone and if restored per Alternative A could maintain pond for CRLF breeding as a natural feature absent the need to water cattle. On all other Alternatives, NEPA requires strike impacts from the project to be considered notwithstanding other strike impacts.

Slide 12:

Dr. Goodman states: "Water too brackish for red legged frogs. Crossing to salt water?"

Response: Dr. Goodman misunderstands the life history of CRLF, which can move overland during non-breeding and disperse as much as 1/4 mile away from breeding ponds. Dr. Goodman incorrectly presumes that CRLF must travel only between fresh water sites, and thus would not be in the oyster road adjacent to the breeding site when crossing the road would not lead to another fresh water site.

Furthermore, Dr. Goodman's "1%" division is wrong in both the numerator and the denominator. The DOC asserted "50,000 visitors" are not park visitors but instead simply customers of the non-visitor-serving commercial business. DBOC has in effect expropriated the term "visitor" to serve its commercial purposes. The dEIS should but does not quantify the percentage of DBOC customers that are not park visitors. We believe a vast majority of these customers never venture elsewhere in the park, but simply drive out and return from DBOC, thus the potential for "strike impact" should include not just the oyster road, but also any park road accessing DBOC that has "strike potential." We believe this would include, for example, the road (SFB Blvd) through the wetland adjacent to the Rogers Ranch through which all DBOC customers must pass. Thus the numerator of miles of "project" roads with strike potential is significantly understated. Also, many of the current CRLF breeding sites are in cattle impoundments a distance greater than 1/4 mile from roads. Thus Dr. Goodman's use of "total" miles of NPS road is grossly overstated. When both the numerator the denominator of the project's CRLF strike potential are corrected (up and down respectively), we believe that Alternatives B, C and D could represent significantly higher than 1% of the project's CRLF strike impacts

Slide 13:

Dr. Goodman states: "but the dEIS neglects to mention that eelgrass never existed at most racks, and from 1991 to 2007, eelgrass expanded 100% (368 acres), from 368 to 736 acres."

Response: Dr. Goodman's assertion that eelgrass "never existed at most racks" is completely unsubstantiated and it furthermore contradicted by testimony at the MMC hearings, which asserted that the former Johnson Oyster Company used water soluble chemicals to eliminate eelgrass, which thus opened up these areas now devoid of eelgrass for oyster cultivation.

Slides 14-16:

Dr. Goodman states: "Eelgrass is thriving partly due to oysters improving water clarity."

Response: Dr. Goodman's assertion is again completely unsubstantiated and has already been address in the 9/18/07 National Park Service Clarification of Law, Policy, and Science on Drakes Estero September 18, 2007 (incorporated by reference herein) which states:

Dr. Grosholz provided expert opinion to the NPS on Dr. Goodman's statements regarding eelgrass (Email to NPS, July 15, 2007). Dr. Grosholz stated, "Dr. Goodman is correct to point out that we should base our decisions on the best science available, but curiously fails to cite any science at all on this point. He is correct that there is very little in the way of published literature, but what there is clearly indicates that oyster culture negatively affects eelgrasses. Everett et al. (1995) unambiguously demonstrates that oyster culture negatively effects eelgrass on a local scale. While this study takes place in Oregon, it involves the same species and same methods used in Drake's Estero. In the absence of a similar study in California, this is the best available science, period." Dr. Grosholz also states (Email, July 15, 2007):

Unfortunately, the evidence that Dr. Goodman provides has nothing to do with local impacts of oyster culture on eelgrass. The broad-scale increase of eelgrass beds in Drake's Estero is certainly good news! We all want to see increases in the coverage of this important and diverse community. It is equally possible that eelgrass would be even more abundant than the current level in Drake's Estero if oyster racks hadn't been present. In other words, we might have seen even greater recovery of eelgrass in the absence of oyster culture. The more relevant scale of analysis has to do with local impacts (scales of meters) of oyster racks on eelgrass. But the aerial photo data from CDFG has nothing to do with this. The aerial photos in this unpublished analysis are unlikely to have the necessary resolution, so the statement "eelgrass growing closer to and surrounding the oyster racks" has no quantitative support.

Finally, the statement that eelgrass beds in California [have] "...otherwise been retreating and are in decline" is not supported by any published analysis I am aware of and no support for this statement is provided by Dr. Goodman. It's simply unsupported speculation and very misleading to imply that eelgrass is retreating everywhere in California except for Drake's Estero. Finally, the impacts of boat propellers on eelgrass due to the direct effects of physical damage and the indirect effects of increased turbidity remain an unquantified, but plausible mechanism and should be investigated.

The current level of impact to eelgrass beds by the oyster operation may or may not be significant to the overall persistence of eelgrass within Drakes Estero. The extent of indirect adverse impacts from boat operations or changes to water quality has not been measured and further research is clearly needed to determine the extent and persistence of these impacts. Nevertheless, the current level of impacts would not occur if the oyster operations were reduced in or absent from Drakes Estero.

Furthermore, the dEIS significantly understates the eelgrass acreage impacted by DBOC by limiting it to the impacts of propeller cuts. Omitted from the dEIS calculation are the acres of scouring impacts in Schooner Bay from the boat propellers that have eliminated eelgrass habitat such that there is no propeller-cut eelgrass for the dEIS to count (because there is not eelgrass at all). The 9/11/07 California Coastal Commission Memorandum from: John Dixon, Ph.D. Ecologist regarding the Effects of Oyster Mariculture on the Natural Resources in Drake's Estero (incorporated by reference herein) states:

"Eelgrass is also impacted by the boat traffic associated with the oyster operation. The deep channel in Schooner Bay is thought to be caused by scour from regular boat use associated with the oyster operation (Anima 1990). In the absence of frequent motor boat activity this channel would probably be shallow and winding, as is the case elsewhere in the estero, and portions of what is now channel would be shallow flats that could support eelgrass."

Slides 17-18:

Dr. Goodman states: "dEIS only includes the 4th generation of NPS claims of harm by DBOC to harbor seals: other claims absent."

Response: Dr. Goodman proposes a straw-man argument to imply that NPS withdrew three generations of claims re harbor seal impacts, leaving only Becker 2011. In fact, the NPS process, like virtually all scientific undertakings, has been a step-by-step process, with the each prior "generation" (beginning at the 1st generation's "early warning" at the May 8, 2007 Supervisors Meeting) of impact assessments being refined in response to suggestions, criticisms, or new data and then incorporated into the subsequent generation.

Slides 19-20:

Dr. Goodman states: "NPS logs of 3 ½ years of minute-by-minute, day-to-day photos showed not a single disturbance of the harbor seals caused by DBOC."

Response: Dr. Goodman's assertions are contradicted by the 11/22/11 MMC Report and the SOS Letters, which state:

The MMC report notes, *"The combination of video and still photography provides convincing evidence of seal disturbance that likely was caused by the sound of the boat..."* However, other incidents remain disputed because DBOC claims that the observed/photographed boats are not DBOC's. The MMC states (page 20) *"An alternative explanation would be that...boats unrelated to the Company enter the estuary and cause disturbance...the occupants of such boats may appear to conduct activities related to mariculture, although they are not affiliated with the Company."* This "alternative explanation" thus postulates a "shadow fleet" whose only launch site is adjacent to the DBOC worksite (where only DBOC is allowed to launch motor boats) and whose occupants poach DBOC's oysters and disturb seals (yet these illegal boats and law-breakers have never been reported by DBOC). The MMC recommends (page 57), *"This source of uncertainty could be [easily] resolved by marking all mariculture boats and workers..."* DBOC offered to mark its boats two years ago, but still refuses to resolve the "uncertainty." This contradiction again illustrates the problem of "Collaborative Management" in which the NPS is expected to collaborate by not being able to identify DBOC boats, while DBOC continues not-to-collaborate by refusing to make their boats identifiable by the NPS.

Slide 21:

Dr. Goodman states: "NPS said photos had not been analyzed, but NPS logs showed the photos had been analyzed in detail"

Response: The resolution and physical capacities of the NPS cameras were so limited in relation to relatively small and distant harbor seals that NPS scientists determined that they could not provide good harbor seal data and thus NPS did not analyze them for harbor seal data. However, the resolution and physical capacities of the NPS cameras were not so limited in relation to the relatively larger oyster boats that they could not be used to determine the location of the oyster boats. Slide 21 by Dr. Goodman that shows the 2008 NPS photo log is displayed such that the dates of the log notations of "boat in channel" are hidden. When these dates are revealed and the actual log data examination, these dates turn out to be when the oyster boat was not supposed to in the identified channel supposedly closed for seal protection. This same issue was covered in the 12/7/11 SOS letter, which stated:

The Goodman/Lewis Review claimed that *"Since January 1992, oyster boats... park along the far west end of the lateral channel...during pupping season."* Yet the Goodman/Lewis Review demonstrated its own assertion as false with a photo of an oyster boat parked halfway down the "seasonally closed" Lateral Channel. Although the MMC Report did not address compliance, the Coastal Commission's Nov 22 letter stated, *"Staff independently verified the validity and veracity of the images and associated documentation."*

Slide 22:

Dr. Goodman states: "dEIS includes other "data" without documented protocols, such as aerial photos, maps, and other data (e.g., 1982 & 1983 data from Allen's pre-NPS notebooks) from Becker 2011."

Response: Dr. Goodman's focus on the NPS photographs is based on the already dismissed hypothesis that "disturbance" (e.g., as evidenced by photographs) is the leading metric by which oyster company impacts should be measured. In contrast, Becker 2011 states:

To better understand breeding pinniped vulnerability to potential shellfish mariculture disturbance and displacement effects...potential mechanisms were explored....Short-term human disturbance did not have a significant effect on spatial use, but... the proportion of seals... hauled out near mariculture sites was...lower during years of higher oyster harvest.

In summary, it is displacement (seal counts), not disturbance (photographs) that provides the best metric to describe the oyster company impacts on harbor seals. Dr. Goodman's focus on the photographs is a red herring.

Slides 23-28:

Dr. Goodman states: "A photo you won't find in the dEIS: oyster boats stay >700 yards away from the harbor seals and don't disturb them."

Response: As previously noted, this was one of several photos turned into the Coastal Commission demonstrating an oyster boat in a closed seal protection area, which we believe contributes materially to harbor seal displacement. The MMC report also notes, (pages 25-26):

"On 15 May 2008 the volunteer observed harbor seals resting on OB. She reported witnessing an incident that caused some of the seals to flush into the water. She videotaped the seals at the water's edge and in the water, and she also videotaped the boat moving northward at some distance from the seals. Importantly, this disturbance of seals also was documented by photographs....The combination of video and still photography provides convincing evidence of seal disturbance that likely was caused by the sound of the boat as it left OB and moved up the west channel (a distance of hundreds of meters)."

In fact and contrary to Dr. Goodman's assertions, the above photos document the distance at which the oyster boat disturbed the seals as indeed greater than (" $>$ ") 700 yards.

Slide 27:

Dr. Goodman states: Two weeks before NPS scientists published Becker 2011 paper, Field Solicitor Gavin Frost found that their "mistakes stem from the refusal ... to modify their intuitive, but **statistically and scientifically unproven, belief** that DBOC mariculture activities ..." disturb harbor seals in Drakes Estero.

Response: Dr. Goodman's accusation was rebutted by the March 30, 2011 letter from SOS to the NPS Washington Administrative Program Center, which is incorporated by reference herein. The 12/7/11 SOS letter also points out the Solicitor Frost also found that Dr. Goodman conducted:

"Verbal and written assaults on NPS scientist and officials who [Dr. Goodman] has repeatedly accused of misrepresentation...Reviewed the [NPS] data, unilaterally concluded that [it] did not support comments made by NPS....rejected the possibility of honest but different scientific opinions...immediately accused [NPS]...of fabricated or falsified claims...[and] Immediately attached labels of 'false' and 'misrepresentation' and 'misleading' to every to every scientific assertion with which [he] disagreed."

Slides 28-30:

Dr. Goodman states: "Alternative D (as well as Alternatives B & C) in the draft EIS contains poison pills to put DBOC out of business within months."

Response: The 12/4/09 letter from the Sierra Club to the Coastal Commission (incorporated by reference) states:

"Aquaculture operations nearby DBOC appear profitable and renew their leases:

<i>Tomales Bay Co's (per CDFG)</i>	<i>Acres In Production</i>
<i>Marin Oyster Co</i>	<i>7</i>
<i>Cove Mussel Co</i>	<i>7</i>
<i>Charles Friend</i>	<i>20</i>
<i>Hog Island Oyster Co</i>	<i>70</i>
<i>Pt Reyes Oyster Co</i>	<i>30</i>
<i>Tomales Bay Shellfish</i>	<i>75</i>
<i>Tomales Bay Average</i>	<i>34.8</i>
<i>Drakes Bay Oyster Co</i>	<i>147</i>

Compared to Tomales Bay companies, DBOC (per the National Academy of Science) has significantly more "Acres in Production." Thus, in our opinion, DBOC could remain profitable at half its current size, equal to the two largest Tomales Bay companies. It is also possible that DBOC could remain profitable at 1/20th of its current size, or equal to the two smallest Tomales Bay companies. "

Thus Dr. Goodman's economic assertion is not only unsubstantiated, but contradicted by the much smaller size of profitable oyster companies nearby. Thus argument appears to be based primarily on the desire to maximize profit, rather than avoid insolvency. See also the SOS economic analysis attached.

Slide 31-32:

Dr. Goodman states: "The dEIS claims that the six ranches surrounding Drakes Estero are the primary source of nonpoint-source pollution...Once Drakes Estero is designated "wilderness," and without oysters, the ranches surrounding it will be eliminated as the source of pollution."

Response: However, the California Department of Health (CDPH) in its 2000 Management Plan for Drakes Estero assessed the various potentials for non-point source pollution as follows:

"Range cattle: It is probable that their total impact on water quality in the Estero is minor."

"Marine mammals: Drakes Estero also is home to a substantial population of harbor seals... the possible coliform contributions of marine mammals... could be significant, at least locally in and near the popular haul-out areas. Harbor seals are known to have unfavorably impacted some shellfish growing areas in Washington State."

Thus, Dr. Goodman's hypothesis that cattle pollution would close PRNS ranches is not supported by CDPH, which seems in contrast to indicate that oyster operations near seal haulouts should be curtailed.

Slide 33:

Dr. Goodman states: "NPCA...turned the NPS EIS process into a national popularity contest, with people across the country being fed false information including threats to endangered species..."

Response: Dr. Goodman is building another straw-man argument not related to a dEIS comment and ironically he appears to be providing a precise description of the efforts of the oyster company itself.

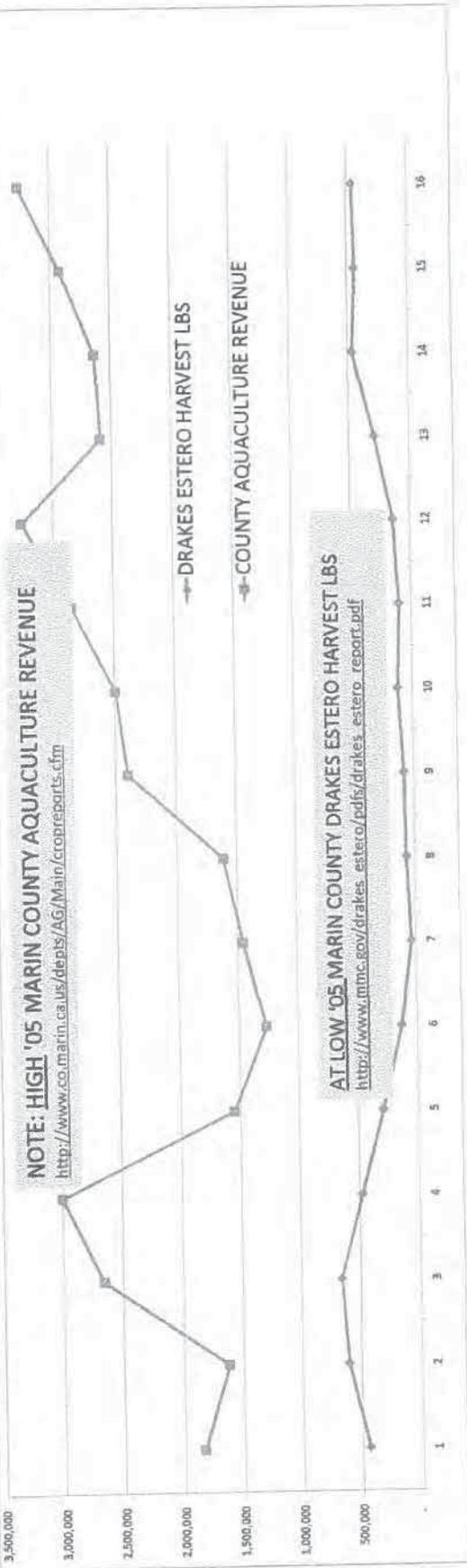
Sincerely,

Gordon Bennett

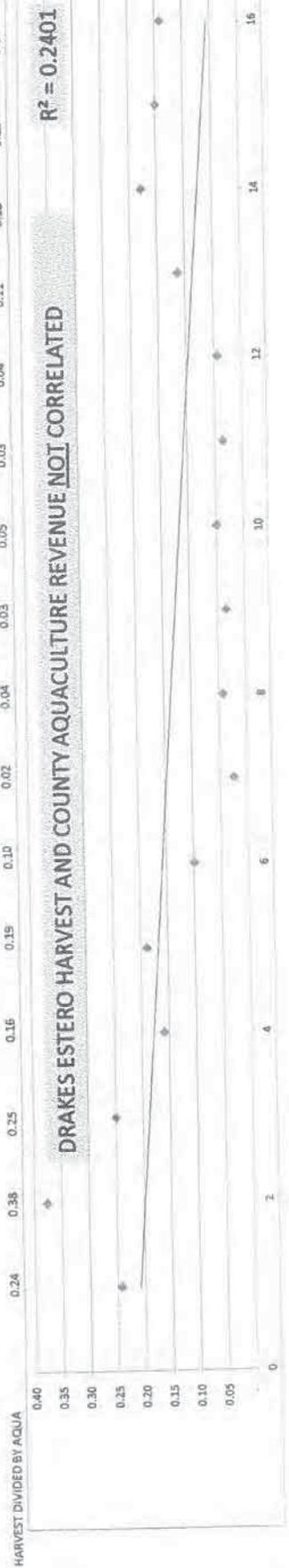
Gordon Bennett, President, save Our Seashore

YEAR	1991	1992	1993	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
DRAKES ESTERO HARVEST LBS	442,745	608,484	662,388	476,791	292,188	125,749	34,094	65,676	78,064	116,643	96,754	138,958	291,538	466,000	438,000	458,000
COUNTY AQUACULTURE REVENUE	1,829,528	1,613,556	2,660,763	3,003,430	1,548,900	1,266,019	1,450,305	1,608,315	2,397,845	2,492,235	2,853,898	3,264,910	2,594,177	2,632,930	2,918,780	3,265,951

NOTE: HIGH '05 MARIN COUNTY AQUACULTURE REVENUE
<http://www.co.marin.ca.us/depts/AG/Main/cropreports.cfm>



AT LOW '05 MARIN COUNTY DRAKES ESTERO HARVEST LBS
http://www.mmc.gov/drakes_estero/pdfs/drakes_estero_report.pdf



August 16, 2011

California Coastal Commission
Peter Douglas, Executive Director
45 Fremont St., Suite 2000
San Francisco, CA 94105

Re: Drakes Bay Oyster Company Non-Compliance with Consent Order

Dear Executive Director Douglas,

Thank you for your work to protect our coastal resources and values at Drakes Estero in Point Reyes National Seashore. On behalf of the National Parks Conservation Association and Save Our Seashore, we are writing regarding the California Coastal Commission's (CCC) Consent Order for the Drakes Bay Oyster Company (DBOC). For some time, our organizations have been concerned about DBOC's lack of compliance to the CCC's regulations and permits, as well as those by the National Park Service (NPS). Indeed, the DBOC has had a history of violating regulations and their oyster operations within the estero are considered unmanageable by many in the public. We write to you because we believe regular violations of the Consent Order (via violations to the NPS Special Use Permit) have occurred and are likely continuing.

The CCC Consent Order, signed 12/12/07, states:

6.0 National Park Service Special Use Permit

Respondent shall fully participate and cooperate in good faith in the National Park Service permitting process, provide timely responses, and work to advance the process as efficiently as possible, including responding to requests for information.

7.0 Compliance with Permits and All Applicable Laws

Respondent shall comply fully with the terms and conditions of any permit that the Commission or the National Park Service issues in response to the applications referenced in Provisions 5.0 and 6.0 above. Respondent shall also comply with all applicable laws and regulations.

The NPS Special Use Permit, signed 4/22/08, states at 4(b)vii: "Permittee will follow "Drakes Estero Aquaculture and Harbor Seal Protection Protocol" attached herto as Exhibit C." Exhibit C states: "During the breeding season, March 1 through June 30, the "Main Channel" and the "Lateral Channel" of Drakes Estero will be closed to boat traffic. During the remainder of the year, the Lateral Channel and Main Channel are open to boat traffic outside of the protection zone." (emphasis added)

Recently, photographs from within the Estero have been made publically available by the NPS on their website. After reviewing a portion of these photos, we believe that there has been a chronic intrusion of the lateral channel during the closure period. Therefore, we conclude that

the DBOC has been violating the NPS Special Use Permit and thus the CCC Consent Order (section 6.0 and 7.0).

This issue of compliance is a serious matter, especially since the NPS is considering offering the DBOC a new operating permit. Chronic lateral channel intrusion by this activity, which can include among other things humans, boats, and loud music, can prevent seals from using what would otherwise be suitable habitat. Seals, with their survival function to minimize energy loss, can quickly figure out where chronic oyster operations are occurring and avoid them. These intrusions directly undermine the efforts by the NPS and the CCC to protect harbor seals in Drakes Estero.

We have attached slideshows of photos that show violations on more than 20 days.

We would appreciate it if you could notify the NPS about these concerns, or take other appropriate action, as it may help them in better understanding the activity of commercial oyster operations in Drakes Estero, and adherence to existing regulations. We believe it is fully within your authority to take action, per the conditions in the CCC Consent Order.

Please contact us if you have any questions or if we can be of assistance in this matter.

Sincerely,



Neal Desai
Associate Director, Pacific Region
National Parks Conservation Association



Gordon Bennett
President
Save Our Seashore

CALIFORNIA COASTAL COMMISSION

45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE (415) 904-5200
FAX (415) 904-5400
TDD (415) 597-5885



November 22, 2011

John Hulls


RE: Photographs of Vessels in the Lateral Channel of Drakes Estero

Dear Mr. Hulls:

This letter responds to two letters you directed to Charles Lester, the Executive Director of the California Coastal Commission: one you submitted via email on November 8, 2011; and another received in the Coastal Commission offices on November 10, 2011.

Each letter includes questions and requests regarding photographs of vessels in the lateral channel of Drakes Estero. Your inquiries are included below in italics along with corresponding responses.

- 1. I would very much appreciate it if you would provide me with the information submitted by NPCA and their associates, as referenced in your 29 September letter. Please include copies of the NPS photos referenced in the letter.*

Per your request, attached to this letter is a copy of a letter dated August 16, 2011, from Neal Desai, National Parks Conservation Association, and Gordon Bennett, Save Our Seashore, to the Executive Director of the California Coastal Commission (Commission) regarding the presence of Drakes Bay Oyster Company vessels within the lateral channel of Drakes Estero during the harbor seal breeding season. This letter also included copies of 559 images taken by the National Park Service (NPS) wildlife monitoring system in Drakes Estero on 23 days in April and May of 2008 and April, May, and June of 2009. Specifically, the photos were taken on the following dates: the 23rd, 24th, 26th, 29th, and 30th of April 2008; the 1st, 14th, 15th, 17th, and 22nd of May 2008; the 30th of April 2009; the 1st, 8th, 12th, 21st, 23rd, 26th, 28th, and 29th of May 2009; and the 16th, 17th, 19th, and 25th of June 2009. Due to the large number of these images and the significant cost associated with reproducing them, we have not included copies with this letter. However, you may view many of these images on the Point Reyes National Seashore website at: [http://www.nps.gov/pore/parkmgmt/planning_reading_room_photographs_videos.htm]. For access to those images that may not be available on the NPS website, please contact Commission staff at the number included below to discuss options for a digital version of the images to be provided to you.

November 22, 2011

Page 2

In addition to the 559 images described above, on September 14, 2011, Neal Desai also submitted via email to Commission staff an additional image. This image was attributed to a slide from a PowerPoint presentation provided to the Marine Mammal Commission by Corey Goodman. In the narrative text accompanying the slide, Mr. Goodman notes that the image was taken by Todd Pickering and John Hulls on April 26, 2011. This image is attached to this letter, per your request.

- 2. How did CCC determine that my photo and the NPS 'hidden camera' photos showed a violation of the seal protection protocols justifying the Sept 29 letter and CCC personnel comments to the National Parks Traveller? Or, conversely, did CCC merely rely on NPCA allegations before issuing the letter and making public statements?*

Upon receipt of the correspondence and images provided by Neal Desai and Gordon Bennett in August and September of 2011, described above, Commission staff independently verified the validity and veracity of the images and associated documentation. In our view, these images document the presence of a vessel within the lateral channel of Drakes Estero on over 20 days of the harbor seal breeding seasons of 2008, 2009, and 2011. That vessel appears to be there supporting aquaculture operations. Our investigation resulted in the issuance of a letter dated September 29, 2011, to Mr. Lunny requesting a meeting to discuss the apparent use of motorized vehicles within the lateral channel during the restricted season (March 1-June 30), marine debris in Drakes Estero attributed to the aquaculture operations, and compliance with the Commission's Consent Cease and Desist Order CCC-07-CD-11. A copy of that letter is attached for your reference.

- 3. Why is it that the CCC letter was immediately released and posted on the SaveDrakesBay.org site and widely distributed by NPCA and others before Lunny had an opportunity to respond?*

As of the date of this letter, Mr. Lunny has not responded to the above-described September 29, 2011, letter or a follow-up letter dated October 26, 2011, although we did receive a telephone call from him on November 21, 2011. The September 29, 2011, letter to Mr. Lunny is a public document. On October 3, 2011, Mr. Desai requested a copy of the letter and a copy was provided to him on that date.

- 4. Has Coastal Commission had any discussions with NPCA or their associates regarding my claims against them?*

An email copy of your claims against Mr. Desai and the National Parks Conservation Association was provided to the Executive Director of the Commission by Phyllis Faber on October 20, 2011. Shortly after, Mr. Desai contacted Commission staff by phone with a request for confirmation that the image he submitted had not been "doctored" or "altered" from the original.

November 22, 2011

Page 3

The Commission staff has reviewed the PowerPoint presentation prepared by Mr. Goodman in which a labeled version of the image appears, and we believe the image is identical to the one provided to Commission staff by Mr. Desai on September 14, 2011. We have also reviewed the original photo submitted as an attachment to your letter of November 8, 2011. In our view, the image provided to Commission staff by Mr. Desai was not "doctored" or "altered" from the original photo in any way, although the labels in the original PowerPoint slide were removed.

5. *I would very much appreciate a clarifying statement from CCC to the effect that my photo does not show a violation of seal protection protocols in Drakes Estero.*

Section 7.0 of Consent Cease and Desist Order CCC-07-CD-11, Compliance with Permits and All Applicable Laws, specifically incorporated the requirements set forth in the NPS Special Use Permit and other permits, and states that Respondents (Drakes Bay Oyster Company) shall "comply fully with the terms and conditions of any permit that the Commission or the National Park Service issues in response to the applications referenced in Provisions 5.0 [Coastal Development Permit Application] and 6.0 [National Park Service Special Use Permit] above. Respondents shall also comply with all applicable laws and regulations." Section 4(b)(vii) of the NPS Special Use Permit states that Drakes Bay Oyster Company must follow the "Drakes Estero Aquaculture and Harbor Seal Protection Protocol," (attached to the Special Use Permit as Exhibit C) which states that "*during the breeding season, March 1 through June 30, the "Main Channel" and "Lateral Channel" of Drakes Estero will be closed to boat traffic.*" As noted in our September 29, 2011 letter to Mr. Lunny, a variety of photographs document the presence of boats in the lateral channel during the March through July closure periods in 2008, 2009, and 2011. The presence of boat traffic in this area during these times is not allowed pursuant to the NPS Special Use Permit, and, therefore, is inconsistent with Section 7.0 of the Commission's Consent Cease and Desist Order CCC-07-CD-11, which is why we have requested the opportunity to discuss these issues with Mr. Lunny directly.

If you have any questions, please contact Mr. Cassidy Teufel of my staff at 415-904-5502.

Sincerely,



ALISON DETTMER
Deputy Director

Attachments: NPCA and SOS letter dated August 16, 2011; Lateral channel image dated April 26, 2011; CCC Letter dated September 29, 2011.

cc: Charles Lester, CCC, Executive Director
Lisa Haage, CCC, Chief of Enforcement
Cicely Muldoon, Superintendent, Point Reyes National Seashore
Ron Sundergill, National Parks Conservation Association

August 16, 2011

California Coastal Commission
Peter Douglas, Executive Director
45 Fremont St., Suite 2000
San Francisco, CA 94105

Re: Drakes Bay Oyster Company Non-Compliance with Consent Order

Dear Executive Director Douglas,

Thank you for your work to protect our coastal resources and values at Drakes Estero in Point Reyes National Seashore. On behalf of the National Parks Conservation Association and Save Our Seashore, we are writing regarding the California Coastal Commission's (CCC) Consent Order for the Drakes Bay Oyster Company (DBOC). For some time, our organizations have been concerned about DBOC's lack of compliance to the CCC's regulations and permits, as well as those by the National Park Service (NPS). Indeed, the DBOC has had a history of violating regulations and their oyster operations within the estero are considered unmanageable by many in the public. We write to you because we believe regular violations of the Consent Order (via violations to the NPS Special Use Permit) have occurred and are likely continuing.

The CCC Consent Order, signed 12/12/07, states:

6.0 National Park Service Special Use Permit

Respondent shall fully participate and cooperate in good faith in the National Park Service permitting process, provide timely responses, and work to advance the process as efficiently as possible, including responding to requests for information.

7.0 Compliance with Permits and All Applicable Laws

Respondent shall comply fully with the terms and conditions of any permit that the Commission or the National Park Service issues in response to the applications referenced in Provisions 5.0 and 6.0 above. Respondent shall also comply with all applicable laws and regulations.

The NPS Special Use Permit, signed 4/22/08, states at 4(b)vii: "Permittee will follow "Drakes Estero Aquaculture and Harbor Seal Protection Protocol" attached herto as Exhibit C." Exhibit C states: "During the breeding season, March 1 through June 30, the "Main Channel" and the "Lateral Channel" of Drakes Estero will be closed to boat traffic. During the remainder of the year, the Lateral Channel and Main Channel are open to boat traffic outside of the protection zone." (emphasis added)

Recently, photographs from within the Estero have been made publically available by the NPS on their website. After reviewing a portion of these photos, we believe that there has been a chronic intrusion of the lateral channel during the closure period. Therefore, we conclude that

the DBOC has been violating the NPS Special Use Permit and thus the CCC Consent Order (section 6.0 and 7.0).

This issue of compliance is a serious matter, especially since the NPS is considering offering the DBOC a new operating permit. Chronic lateral channel intrusion by this activity, which can include among other things humans, boats, and loud music, can prevent seals from using what would otherwise be suitable habitat. Seals, with their survival function to minimize energy loss, can quickly figure out where chronic oyster operations are occurring and avoid them. These intrusions directly undermine the efforts by the NPS and the CCC to protect harbor seals in Drakes Estero.

We have attached slideshows of photos that show violations on more than 20 days.

We would appreciate it if you could notify the NPS about these concerns, or take other appropriate action, as it may help them in better understanding the activity of commercial oyster operations in Drakes Estero, and adherence to existing regulations. We believe it is fully within your authority to take action, per the conditions in the CCC Consent Order.

Please contact us if you have any questions or if we can be of assistance in this matter.

Sincerely,



Neal Desai
Associate Director, Pacific Region
National Parks Conservation Association



Gordon Bennett
President
Save Our Seashore

CALIFORNIA COASTAL COMMISSION

45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE AND TDD (415) 904-5200
FAX (415) 904-5400



MEMORANDUM

FROM: John Dixon, Ph.D.
Ecologist

TO: Alison Dettmer

SUBJECT: Effects of Oyster Mariculture on the Natural Resources in Drake's Estero

DATE: September 11, 2007

Habitat Characteristics of Drake's Estero

Drake's Estero is a shallow tidal estuary with four inland branching bays (Figures 1 & 2). A fifth bay to the west, Estero de Limantour, is somewhat isolated but its mouth is also inside the sand spit that shelters these areas from the open ocean and, to some degree, it is functionally a part of Drake's Estero. Anima (1990) categorizes Drake's Estero as a "coastal lagoon" because there is relatively little freshwater influence. Salinity throughout the estuary is generally similar to that on the open coast. At higher high tide, the lagoon system (including Estero de Limantour) covers about 2323 ac (9.4 km²) of which some 1186 ac (4.8 km²) are intertidal. The subtidal portions of the Estero are shallow, generally less than 6.5 ft (2 m). The deepest areas (23-26 ft; 7-8 m) are at the entrance and within a portion of the main channel. There is very little natural hard substrate present. The dominant substrates are silty sands and muds.

Large areas of subtidal sand and mud currently support eelgrass. Eelgrass (*Zostera marina*) is one of about 50 species of seagrasses, a polyphyletic group of specialized flowering plants that have evolved adaptations to live and reproduce in the marine environment. They are distinct from the algae that are the most common photosynthetic organisms in the oceans. Like other seagrasses, eelgrass provides important habitat for large numbers of species of invertebrates and fish (Phillips 1984). Thirty-five species of fish have been observed within eelgrass beds in either Drake's Estero or Estero de Limantour (Wechsler 1996). Eelgrass is often described as "nursery habitat" because of its importance to the juvenile life stages of many species. It also provides foraging habitat for many species of birds, including black brant (*Branta bernicla nigricans*) for which eelgrass itself is a preferred food (Ganter 2000). Eelgrass also has important indirect effects on community organization by stabilizing the substrate and affecting nutrient cycling (Phillips 1984). A demonstration of the importance of eelgrass habitats occurred in the 1930s when disease destroyed 90% to 100% of beds of eelgrass in various locations in the north Atlantic. This was followed by a precipitous decline in many fish and invertebrate species, including commercial species, which

caused significant economic hardship (Stauffer 1937; Cottam & Munroe 1954; Phillips 1984). Coincident with the loss of eelgrass, the overwintering population of brant in the Netherlands dropped two orders of magnitude to about 100 individuals. This natural catastrophe has been largely forgotten by all but eelgrass specialists. However, a widespread appreciation of the critical ecological functions of eelgrass is re-emerging as seagrass habitats are again in decline, now being imperiled by the intensive development of the world's coastlines (Orth et al. 2006).

Like most species, eelgrass waxes and wanes in local abundance and spatial distribution over time (e.g., Griffin 1997). Where appropriate data are available, the best estimate of suitable habitat is generally the cumulative distribution of eelgrass over some long period. In 1990 when Anima mapped eelgrass in Drake's Estero, it was mostly confined to the central portion of the estero. Today, there are also significant eelgrass beds in Schooner Bay and Home Bay (personal observations on July 17, 2007 and aerial photograph in NPS 2007) and probably in other areas. Brown and Becker (2007) estimate that there are currently 740 acres¹ of eelgrass in Drake's Estero, of which 355 acres have dense cover and 385 acres have patchy cover. Obviously the appropriate habitat is more extensive than would have been estimated by the distribution of eelgrass in 1990. Since there apparently are few estimates of eelgrass distribution in Drake's Estero, all areas of appropriate substrate and depth should be considered potential eelgrass habitat.

Drake's Estero is relatively pristine. Water quality is high with little evidence of herbicides or pesticides and human activities within the watershed (mostly grazing) do not appear to have resulted in high levels of sediment inputs (Anima 1990). There are few roads or buildings in the area. Within the estero itself, the only development is related to oyster mariculture. Drake's Estero is part of Point Reyes National Seashore and has received special congressional designation as "wilderness"² (NPS 2007). Drake's Estero is particularly important for shorebirds and waterfowl. Thousands of birds are regularly present and during the winter the number of individuals occurring in Drake's Estero and Estero de Limantour are thought to be around 20,000 (Hickey et al. 2003). Drake's Estero (including Estero de Limantour) has been designated a site of regional importance by the Western Hemisphere Shorebird Reserve Network. Drake's Estero is also of regional significance for harbor seals. Twenty percent of the mainland breeding population in California utilizes the Point Reyes coast (Allen et al. 2004). Within this important area, Drake's Estero is one of the primary pupping sites. In 2006, Drake's Estero supported the largest number of harbor seals and contributed the largest number of pups within Point Reyes (Manna et al. 2006). The significance to fish of eelgrass and other estuarine habitats within Drake's Estero was recognized by the Pacific Fisheries Management Council when it designated those habitats as "Essential

¹ No methods were described in this Trip Report (Brown & Becker 2007), so this should be considered a preliminary estimate until a formal report is available.

² Estero de Limantour is currently designated "wilderness" (and a California State Ecological Reserve) and Drake's Estero is "potential wilderness" due to the nonconforming mariculture operation. The 1972 agreement that "grandfathered" the mariculture operation for 40 years expires in 2012, at which time Drake's Estero will be eligible for full "wilderness" status.

Fish Habitat" and a "Habitat Area of Particular Concern"³ under the Magnuson-Stevens Fishery Conservation and Management Act (<http://www.pcouncil.org/facts/habitat.pdf>).

Oyster mariculture in Drake's Estero

Oysters have been grown in Drake's Estero since about 1930 (Anima 1990). The processing facility is located close to the shore in the upper northeast section of Schooner Bay. Currently, there are at least four methods of cultivation employed. Oysters are grown suspended from wooden racks, on the bottom in plastic mesh bags individually scattered in a haphazard fashion on intertidal flats, on the bottom in plastic mesh bags tethered in lines on intertidal flats, and in buoyed plastic mesh bags that are tethered in lines on intertidal flats but that float when the area is inundated by the tide. Each of these culture techniques has the potential for negative environmental impacts.

Bottom bag culture is generally restricted to intertidal areas and so avoids the eelgrass beds which grow from rhizomes in the subtidal sediments. However, some of the individual bags have found their way into the adjacent eelgrass. I suspect that this is an accidental result of placing the bags by dropping them from a boat at high tide. It is also possible that some bags have been moved by waves or currents. Regardless of how they arrived, these bags should be removed from the eelgrass beds because they preempt habitat. The bags that are left on the intertidal flats probably add nutrients to the sediments and isolate the sediment from the water column. Taken together, these factors probably result in anaerobic conditions developing closer to the surface⁴, which would likely result in changes to the composition of the infaunal community. To my knowledge, this hypothesis remains untested. I have found no studies of the effects of bottom bags on infauna. A potentially more serious environmental impact of bottom bags is the preemption of shorebird foraging habitat. In Tomales Bay, oyster mariculture is avoided by western sandpipers and dunlins but preferentially utilized by willets (Kelley et al. 1996). Overall, the abundance of foraging shorebirds is reduced in Tomales Bay by the mariculture operation. However, Kelley et al (1996) did not distinguish the effects of bottom bag culture and culture in bags on raised racks. Although a reduction in shorebird foraging opportunities is a potentially serious environmental impact of oyster bottom culture, the significance of such an impact will be directly related to the proportion of foraging habitat that is preempted. An estimation of that proportion would help in the assessment of the significance of the environmental impact. If the proportion of the suitable intertidal foraging habitat that is covered by bottom bags is relatively small, then the impact is probably not very significant. The effects of bottom bag culture on harbor seals is potentially much more serious. Some of the bags are being placed on intertidal flats which have been documented to be haul-out sites for harbor seals (Allen 2007). The bags preempt space and create barriers to

³ "Habitat Area of Particular Concern" refers to the subset of Essential Fish Habitat which is rare, particularly susceptible to human-induced degradation, especially ecologically important, or located in an environmentally stressed area.

⁴ When I disturbed the substrate by tugging on bottom bags that were scattered on the intertidal flat at Bull Point, there was a strong hydrogen sulfide odor released, which indicates shallow reducing conditions.

movement and are a locus of disturbance when they are placed, maintained, and retrieved.

Oyster culture within eelgrass beds generally has deleterious effects (Everett, et al. 1995; De Casabianca, et al. 1997; Griffin 1997; Rumrill and Poulton 2004; Bertin & Chamillon 2006). These are related to preemption of space, changes in currents that result in either scour or sedimentation, shading, biodeposition that may result in increased sedimentation and eutrophication, and physical disturbance of the substrate (e.g., trampling & propeller scarring) related to routine mariculture activities. The type and severity of mariculture impacts are related to the type of culture technique (e.g., ground culture⁵, bottom bag culture or rack culture), the depth distribution of eelgrass relative to optimal mariculture habitat, the spatial extent of the mariculture manipulations, the biomass of cultured oysters, and the hydrological characteristics of the site.

At Drake's Estero, only rack culture using suspended lines is intentionally located in eelgrass beds. The most obvious effect of the oyster culture is that eelgrass tends to be excluded from the footprint of the racks (Wechsler 2004, Brown & Becker 2007, NPS 2007⁶, pers. obs. July 17, 2007). National Park Service personnel counted 89 culture racks in eelgrass beds and found no eelgrass under the 62 useable racks and no eelgrass under 20 of the 27 dilapidated racks (Brown & Becker 2007). The total area under active and abandoned oyster racks where eelgrass is excluded is estimated to be about 8 acres (Brown & Becker 2007). Eelgrass is very sensitive to light levels (Backman & Barilotti 1976; Burdick & Short 1999) and the lack of eelgrass within the footprint of culture racks is probably a result of shading. Depending on their orientation relative to currents oyster racks can also cause scouring or increases in sedimentation (Forrest & Creese 2006), either of which could also reduce eelgrass abundance. However, regardless of mechanism, there is less eelgrass present today than there would be in the absence of the oyster racks.

Eelgrass is also impacted by the boat traffic associated with the oyster operation. The deep channel in Schooner Bay is thought to be caused by scour from regular boat use associated with the oyster operation (Anima 1990). In the absence of frequent motor boat activity this channel would probably be shallow and winding, as is the case elsewhere in the estero, and portions of what is now channel would be shallow flats that could support eelgrass. Propeller scarring in seagrass beds is a well-known phenomenon that is of increasing concern in heavily populated areas (Sargent et al.

⁵ Ground culture differs from bottom bag culture in that shells with oyster spawn (cultch) are scattered directly on the substrate and are not confined.

⁶ NPS (2007) incorrectly cites Elliott-Fisk et al. (2005) as also noting a lack of eelgrass under mariculture racks. In fact, the latter state that, "We found the oyster racks to have no pronounced impacts on the eelgrass beds, which existed both under and away from the racks as an incredibly rich habitat type." Elliott-Fisk et al. is largely a summary of the research that was conducted by several U.C. Davis graduate students, including Wechsler. Since the quoted passage directly contradicts the findings of Wechsler (2004) and recent observations, it was probably simply a mistake by the author of that section. In any event, the current presence or absence of eelgrass under culture racks is a simple matter of fact that can be easily verified.

1995; Madley et al. 2004). In shallow water, propellers and propeller wash tear up the sea grass canopy but also displace rhizomes and leave bare areas (Zieman 1976). Even in Drake's Estero where boating activity is relatively low, the cumulative effects of propeller scarring may be significant because it may take years for scars to recover (Dawes et al. 1997). The direct impacts on eelgrass are obvious and the area affected could be determined from aerial imagery. There may also be indirect impacts to organisms that depend upon the eelgrass for habitat. The patchy disturbance to the seagrass bed affects different species in different ways, with motile swimming species being less affected than more sedentary species (Bell et al. 2002; Uhrin & Holmquist 2003). Although the community effects of propeller scarring in Drake's Estero are difficult to quantify, it is clear that they constitute a negative impact.

Biodeposition is a phenomenon that can have deleterious effects by increasing sedimentation and nutrients. Oysters feed by filtering materials that are suspended in the water column. This includes plankton, particulate organic matter, and inorganic particles. Oysters do not ingest filtered inorganic particles. Both organic residue from the digestive tract and rejected inorganic particles are bound in a mucus matrix and ejected (Newell et al. 2005). The former are termed feces and the latter are called pseudofeces since they have not passed through the digestive system. If the concentration of suspended particles is so high that the filtering rate exceeds the processing rate, oysters will reject plankton and particulate organic matter in addition to the indigestible inorganic particles and the pseudofeces will then have a relatively high organic content. The strings of feces and pseudofeces are much larger than the constituent materials and settle around seven times as fast as unbound suspended particles (Haven & Morales-Alamo 1966). Where oyster culture is intense and tidal flushing is low, biodeposition has been shown to have very serious deleterious effects (Ito & Imai 1955; De Casabianca 1997; Bertin & Chaumillon 2006). However, in Drake's Estero there is good tidal flushing and individual rack areas are fairly small. Therefore, at current levels of oyster production it seems unlikely that biodeposition would result in significant environmental impacts to eelgrass or to the local infauna. According to Elliott-Fisk et al. (2005), Harbin-Ireland (2004) found little difference in the number of infaunal taxa or individuals under the racks and at various distances up to 50 m away. Nor was there a significant difference in the concentration of organic materials in the sediments. Qualitatively, however, the effect of oyster culture is to remove plankton, particulate organic matter, and inorganic particles from the water column, process them, and deposit them on the bottom. Whether this is a positive or negative ecological effect depends on the context. In Drake's Estero where water quality is good and where millions of bivalves may not have been present historically (although the history of native oysters is probably unknown), the effects of oyster culture on natural ecological processes is probably negative but not easily measured.

A salient effect of oyster mariculture is to introduce hard substrates to areas where they are naturally rare. The oyster racks, the oyster cultch, and the cultured oysters all provide surfaces that can be colonized by sedentary "fouling" organisms. The novel surfaces associated with pilings and floats are particularly attractive to non-indigenous species (Glasby et al. 2007). Where both natural reefs and pilings are present, the

latter are disproportionately colonized by the exotics. In Drake's Estero, one such species is the tunicate identified as *Didemnum* species A (Bullard et al. 2007; NPS 2007). This invasive species is common on oysters and has also colonized patches of intertidal mudstone. Although *Didemnum* is unlikely to become a pest in Drake's Estero due to the lack of appropriate substrate, the oyster racks and oysters provide a continuing source of larvae that can colonize other areas.

The oyster racks themselves are constructed of lumber that was pressure treated with a wood preservative. Prior to 2003, the preservative used was almost always chromated copper arsenate. This chemical compound is highly toxic to marine organisms (Weis & Weis 1996). It is designed to be very persistent in wood and retention studies show little change in concentration over time at the parts-per-hundred level. However, aquatic organisms are affected at a parts-per-million level and the chemicals do leach at this level, although the rate of leaching decreases with time (Weis et al. 1992). The leached toxic compounds are taken up and concentrated by marine organisms and accumulate in sediments (Weis & Weis 1992; Weis & Weis 1996). The most toxic element for aquatic organisms is the copper, which has even been found at elevated levels in oysters growing on structures constructed of treated wood (Weis et al. 1993).

Oyster racks and the suspended strings of oysters with their attached fouling organisms also create a physical habitat that is not naturally present and that might alter the species composition and abundance of the local fish community. Such structures provide habitat and may also simply act as fish aggregating devices. Wechsler (2004) attempted to assess the effects of the oyster racks on the fish community. However, his fishing methods prevented him from sampling within the footprint of the oyster rack itself. Trawls were conducted within eelgrass 1 to 2 m from the racks. Gill nets were attached to the racks and may provide a better indication of the community actually associated with the racks, but the data were not separated by fishing method. The results indicated no differences in the number of species or number of individuals next to the racks, 75 m distant, and in Estero de Limantour.⁷

A potentially very significant environmental impact associated with oyster culture is disturbance of foraging birds and disturbance of harbor seals. Disturbance may exclude birds from feeding or roosting areas, increase energy demands both by increasing metabolic rate before flight and causing them to take flight, and reduce feeding efficiency and feeding time (Stillman et al. 2007). Similarly, both pedestrian and boat activity can result in physiological and behavioral changes in harbor seals. Disturbance that causes seals to leave the shore and enter the water is particularly serious, especially when pups are present (Suryan & Harvey 1999). Such disturbance increases energy requirements by decreasing the haul-out period, creates a trampling risk for pups, and increases the chances of pup abandonment. The significance of disturbance varies with tidal height, frequency, distance, and season. At higher tides most habitat will be inundated and the effects of human activities will be less consequential. Obviously, more frequent disturbance will have more serious consequences. The

⁷ The analysis of variance resulted in tiny F-values which were incorrectly associated with a P-value of 0.01. However, Wechsler appropriately described his results as statistically not significant.

closer the source of disturbance, the more likely it will have a negative effect on behavior. For example, in Washington, it was found that of all cases of harbor seal harassment from boat operation, none took place at distances >260 m, 25% occurred at a distance of 200-260 m, 50% at a distance of 100-200m, and 25% at a distance of <100 m (Suryan & Harvey 1999). The seasons of greatest concern are probably the spring and fall migratory periods and winter for birds and the breeding and pupping season (March – June) for harbor seals. In Drake's Estero, both human presence and boat operation are potential sources of disturbance to birds and harbor seals. For example, an oyster operation boat was observed to disturb 90 hauled out harbor seals, of which 7 adults and 7 pups flushed into the water, and around 300 black brant, which were flushed from an eelgrass bed where they were feeding (Allen 2007).

Summary and Recommendations

Oyster mariculture in Drake's Estero causes a number of environmental impacts. Those that are most significant are the preemption of space by culture racks that results in the loss of about 8 acres of eelgrass, the damage to eelgrass beds by boating (propeller scars and channel scour), the provision of suitable habitat for exotic fouling species by placing mariculture infrastructure in the estero, the placement of bottom culture bags on harbor seal haul-out areas, and disturbance to harbor seals and birds from pedestrians and boats. Some impacts are not mitigable, but the negative effects of others can be significantly reduced. I suggest that the following mitigation measures be implemented:

1. Oyster mariculture should not occur on tidal flats that are harbor seal haul-out and pupping sites.
2. Boat operation and other human activities should stay a safe distance away from haul-out areas. Data suggest that an adequate buffer would be between 100 and 200 meters, depending on the type of disturbance (Allen et al. 1984; Suryan & Harvey 1999; Johnson & Acevedo-Gutierrez 2007).
3. Boat routes to culture areas should be marked and traffic confined to those defined lanes. This would reduce both impacts to eelgrass and disturbance to wildlife.
4. No bottom culture should take place in eelgrass habitat and bottom bags that are currently in eelgrass habitat should be removed.
5. No new structures should be added and discarded materials and culture racks that are no longer used should be removed. These materials provide habitat for non-indigenous species and the racks are constructed of lumber that contains toxic compounds.
6. No aquaculture organisms from other areas or aquaculture materials, including shell, that have been used in the marine environment elsewhere should be placed in Drake's Estero.
7. To the extent feasible, mariculture operations should be spatially consolidated.

Literature Cited

Allen, S.G, D.G. Ainley, G.W. Page, and C.A. Ribic. 1984. The effect of disturbance of harbor seal haul out patterns at Bolinas Lagoon, California. Fishery Bulletin 82:493-500.

Allen, S., S. Waber, W. Holter, and D. Press. 2004. Long-term monitoring of harbor seals at Point Reyes, California: 5-year annual report, 1997-2001. Unpublished report of Point Reyes National Seashore.

Allen, S. 2007. NPS Trip report for April 26, 2007 (Drake's Estero harbor seal observations).

Anima, R. J. 1990. Pollution studies of Drakes Estero and Abbotts Lagoon, Point Reyes National Seashore, California, USA. National Park Service Report.

Backman, T.W. and D. C. Barilotti. 1976. Irradiance reduction: Effects on standing crops of the eelgrass *Zostera marina* in a coastal lagoon. Marine Biology 34:33-40.

Bell, S.S., M.O. Hall, S. Soffian, and K. Madley. 2002. Assessing the impact of boat propeller scars on fish and shrimp utilizing seagrass beds. Ecological Applications 12:206-217.

Bertin, X. and E. Chaumillon. 2006. The implication of oyster farming in increasing sedimentation rates in a macrotidal bay: the Marennes-Oléron Bay, France. Cahiers de Biologie Marine 47:19-22.

Brown, D. and B. Becker. 2007. NPS Trip reports for March 13, 2007 (Oyster rack, bag, line and eelgrass assessment) and March 20, 2007 (Eelgrass satellite imagery ground truthing).

Bullard, S. G., G. Lambert, M.R. Carman, M. R., et al. 2007. The colonial ascidian *Didemnum* sp A: Current distribution, basic biology and potential threat to marine communities of the northeast and west coasts of North America. Journal of Experimental Marine Biology and Ecology 342:99-108.

Burdick, D.M. and F.T. Short. 1999. The effects of boat docks on eelgrass beds in coastal waters of Massachusetts. Environmental Management 23:231-240.

Cottam, C. and D.A. Munro. 1954. Eelgrass status and environmental relations. The Journal of Wildlife Management 18:449-460.

Dawes, C.J., J. Andorfer, C. Rose, C. Uranowski, and N. Ehringer. 1997. Regrowth of the seagrass *Thalassia testudinum* into propeller scars. Aquatic Botany 59: 139-155.

De Casabianca, M.-L., T. Laugier, and D. Collart. 1997. Impact of shellfish farming eutrophication on benthic macrophyte communities in the Thau lagoon, France. *Aquaculture International* 5:301-214.

Elliott-Fisk, D., S. Allen, A. Harbin, J. Wechsler, D. Press, D. Schirokauer, and B. Becker. 2005. Drakes Estero assessment of oyster farming. Final completion report. A report to the Point Reyes National Seashore, National Park Service.

Everett, R.A., G.M. Ruiz, and J.T. Carlton. 1995. Effect of oyster mariculture on submerged aquatic vegetation: an experimental test in a Pacific Northwest estuary. *Marine Ecology Progress Series* 125:205-217.

Forrest, B.M. and R.G. Creese. 2006. Benthic impacts of intertidal oyster culture with consideration of taxonomic sufficiency. *Environmental Monitoring and Assessment* 112:159-176.

Ganter, B. 2000. Seagrass (*Zostera* spp.) as food for brent geese (*Branta bernicla*): an overview. *Helgoland Marine Research* 54:63-70.

Glasby, T.M., S.D. Connell, M.G. Holloway, and C.L. Hewitt. 2007. Nonindigenous biota on artificial structures: could habitat creation facilitate biological invasions? *Marine Biology* 151:887-895.

Griffin, K. 1997. Commercial oyster cultivation and eelgrass ecology in Tillamook Bay, Oregon. A literature review and synthesis. A report prepared for the The Tillamook Bay National Estuary Project

Harbin-Ireland, A.C. 2004. Effects of oyster mariculture on the benthic invertebrate community in Drake's Estero, Pt. Reyes Peninsula, California. M.S. Thesis, University of California at Davis.

Haven, D.S. and R. Morales-Alamo. 1966. Aspects of biodeposition by oysters and other invertebrate filter feeders. *Limnology and Oceanography* 11:487-498.

Hickey, C., G.W. Page, W.D. Shuford, S. Wanock, S. Abbot, M. Pitkin, and N. Warnock. 2003. Southern Pacific shorebird conservation plan: A strategy for supporting California's Central Valley and coastal shorebird populations. Version 1.1. PRBO Conservation Science.

Ito, S. and T. Imai. 1955. Ecology of oyster bed. I. On the decline of productivity due to repeated culture. *Tohoku Journal of Agricultural Research* 5: 251-268.

Johnson, A. and A. Acevedo-Gutierrez. 2007. Regulation compliance by vessels and disturbance of harbour seals (*Phoca vitulina*). *Canadian Journal of Zoology* 85:290-294.

Kelly, J. P., J. G. Evens, R. W. Stallcup, and D. Wimpfheimer. 1996. The effects of aquaculture on habitat use by wintering shorebirds. *California Fish and Game* 82: 160-174.

Madley, K., J. Krolick and B. Sargent. 2004. Assessment of boat propeller scar damage within the greater Charlotte harbor region. A report prepared for the Charlotte Harbor National Estuary Program.

Manna, J., D. Roberts, D. Press, and S. Allen. 2006. Harbor seal monitoring: San Francisco bay area 2006 annual report. National Park Service.

National Park Service. 2007. Drakes Estero: A sheltered wilderness estuary. Park News. Point Reyes National Seashore.

Newell, R.I.E., T.R. Fisher, R.R. Holyoke, and J.C. Cornwell. 2005. Influence of eastern oysters on nitrogen and phosphorus regeneration in Chesapeake Bay, USA. Pages 93-120 in R.F. Dame and S. Olenin, eds. *The comparative roles of suspension-feeders in ecosystems*. Springer: The Netherlands.

Orth, R.J., T.J.G. Carruthers, W.C. Dennison, C.M. Duarte, J.W. Fourqurean, K.L. Heck, A.R. Hughes, G.A. Kendrick, W.J. Kenworthy, S. Olyarnik, F.T. Short, M. Waycott, and S.L. Williams. 2006. A global crisis for seagrass ecosystems. *BioScience* 56:987-996.

Phillips, R.C. 1984. The ecology of eelgrass meadows in the Pacific Northwest: A community profile. U.S. Fish and Wildlife Service. 85 pp.

Rumrill, S.S. and V.K. Poulton. 2004. Ecological role and potential impacts of molluscan shellfish culture in the estuarine environment of Humboldt Bay, CA. A report to the Western Regional Aquaculture Center.

Sargent, J.F., T.J. Leary, D.W. Crewz and C.R. Kruer. 1995. Scarring of Florida's seagrasses: Assessment and management options. Florida Marine Research Institute Technical Report TR-1.

Stauffer, R.C. 1937. Changes in the invertebrate community of a lagoon after disappearance of the eel grass. *Ecology* 18:427-431.

Stillman, R.A., A.D. West, R.W.G. Caldow, S.E.A. Le V. Dit Durell. 2007. Predicting the effect of disturbance on coastal birds. *Ibis* 149:73-81.

Suryan, R.M. and J.T. Harvey. 1999. Variability in reactions of Pacific harbor seals, *Phoca vitulina richardsi*, to disturbance. *Fishery Bulletin* 97:332-339.

Uhrin, A.V. and J.G. Holmquist. 2003. Effects of propeller scarring on macrofaunal use of the seagrass *Thalassia testudinum*. *Marine Ecology Progress Series* 250: 61-70

Wechsler, J.F. 2005. Assessing the relationship between the ichthyofauna and oyster mariculture in a shallow coastal embayment, Drakes Estero, Point Reyes National Seashore. M.S. Thesis, Department of Geography, University of California at Davis.

Weis, J.S. and P. Weis. 1992. Transfer of contaminants from CCA-treated lumber to aquatic biota. *Journal of Experimental Marine Biology and Ecology*.

Weis, J.S. and P. Weis. 1996. The effects of using wood treated with chromated copper arsenate in shallow-water environments: A review. *Estuaries* 19:306-310.

Weis, P., J.S. Weis, and J.Couch. 1993. Histopathology and bioaccumulation in oysters *Crassostrea virginica* living on wood preserved with chromated copper arsenate. *Diseases of Aquatic Organisms* 17:41-46.

Weis, P., J.S. Weis, A. Greenberg, and T.J. Nosker. 1992. Toxicity of construction materials in the marine environment: A comparison of chromated-copper-arsenate-treated wood and recycled plastic. *Archives of Environmental Contamination and Toxicology* 22:99-106.

Zieman, J.C. 1976. The ecological effects of physical damage from motor boats on turtle grass beds of southern Florida. *Aquatic Botany* 2:127-139.

Figure 1. Drake's Estero and Estero de Limantour. Google Earth photograph.

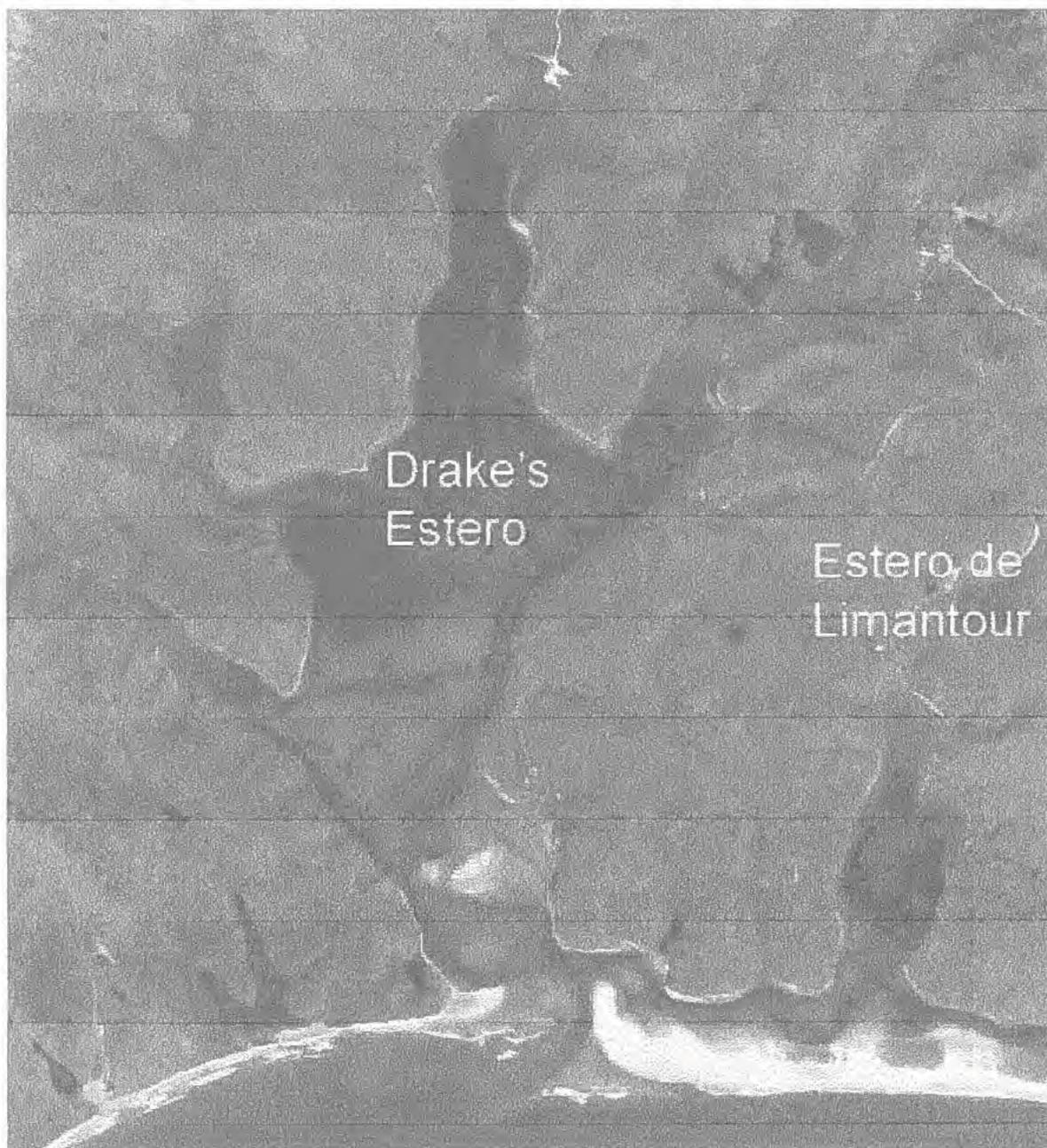
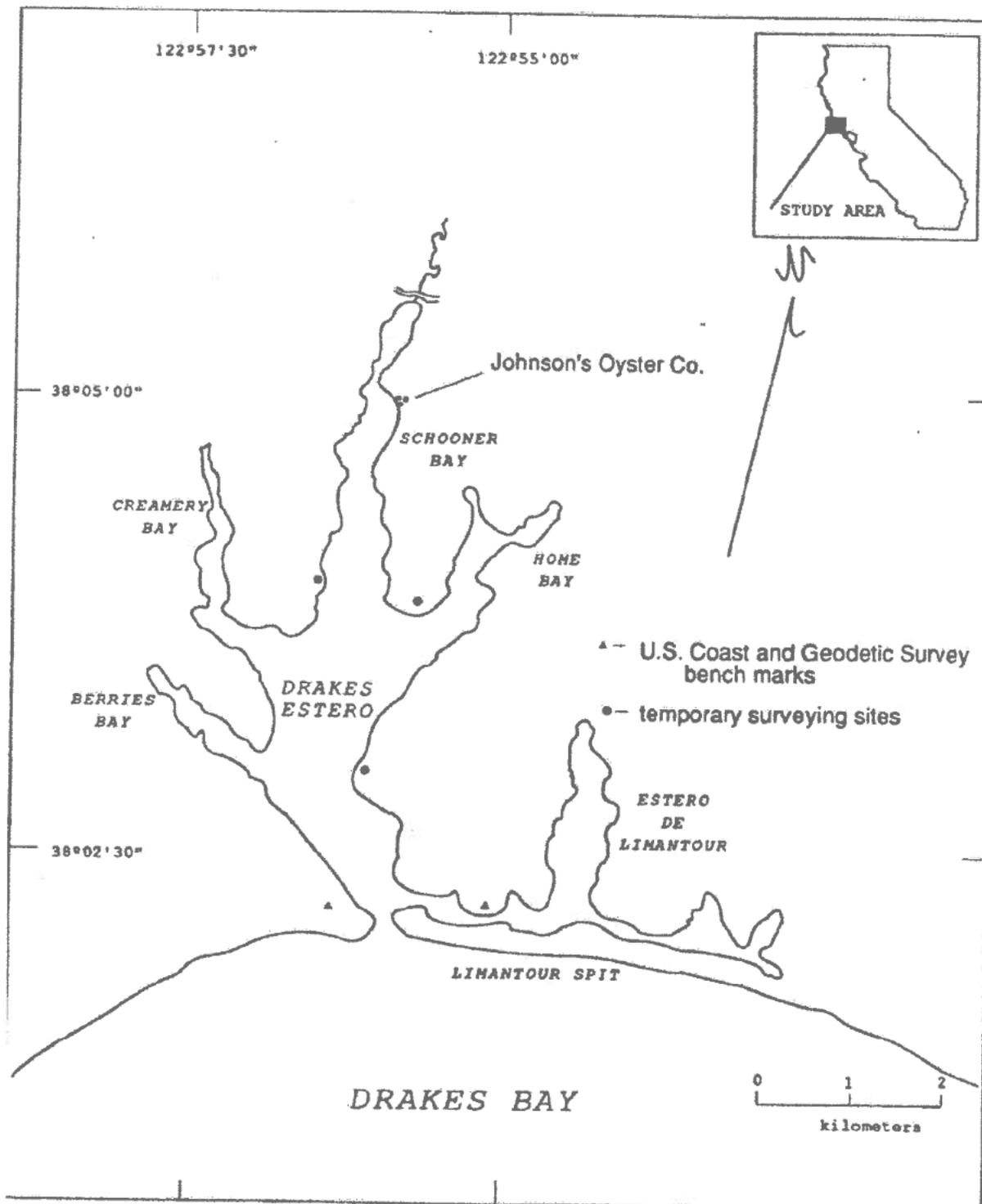


Figure 2. Schematic showing significant features of Drake's Estero (From Anima 1990). The Johnson's Oyster Company is now Drakes Bay Oyster Farm.





December 4, 2009

California Coastal Commission (CCC) Attn: Cassidy Teufel

Re: Drakes Bay Oyster Company (BDOC) Cease and Desist Order (CDO) W6-12-2007:

In light of the long history by this operator of significant violations of prior "production caps," we request that CCC staff review "current production levels." In light of the similarly long history by this operator of excuses for these violations, we also describe why arguments that BDOC requires a high aquaculture production cap (to remain profitable and/or to make back its initial investment) lack reasonable basis.

Background - Ongoing Profitability and "Expansion"

The California Department of Fish and Game (CDFG) Aquaculture Dept (per attached 6/7/07 email) does not consider as "expansion" any expansion of production below the maximum ever produced, just as BDOC does not consider as "expansion" of cultivated area any area that has ever been previously cultivated. Thus if a sand bar has not been cultivated in 70 years during which seals have repopulated the bar for birthing, then if BDOC were to suddenly place oyster bags on the pupping area, then by BDOC and CDFG Aquaculture Dept definitions, this would not be an expansion. So regarding "current production levels" it is critical to understand BDOC's and CDFG Aquaculture Dept's definition of "expansion."

Furthermore, aquaculture operations nearby BDOC appear profitable and renew their leases:

Tomales Bay Co's (figures per CDFG)	CDFG Lease #	Acres Leased	Acres In Production	% Leased Ac in Production
Marin Oyster Co	M-430-02,19	30	7	23%
Cove Mussel Co	M-430-06	10	7	70%
Charles Friend	M-430-04	62	20	32%
Hog Island Oyster Co	M-430-10,11,12,15	163	70	43%
Pt Reyes Oyster Co	M-430-14,13,17	92	30	33%
Tomales Bay Shellfish	M-430-05	156	75	48%
Tomales Bay Average		85.5	34.8	41%
Drakes Bay Oyster Co	M-428-01,02	1060	147	14%

Compared to Tomales Bay companies, BDOC (per the National Academy of Science) has significantly more "Acres in Production." Thus, in our opinion, BDOC could remain profitable at half its current size, equal to the two largest Tomales Bay companies. It is also possible that BDOC could remain profitable at 1/20th of its current size, or equal to the two smallest Tomales Bay companies.

Nonetheless, CDFG Aquaculture Dept (per 6/7/07 email) argues that BDOC cannot stay in business with a harvest level near the Fish and Game Code minimum of 170 lbs of harvest per acre. However, this argument does not account for economies of scale. The Marin Oyster Company might not be able to stay in business harvesting just 5,100 lbs of oysters per year (170 lbs x 30 Acres Leased), but this has little bearing on BDOC's operation whose harvest may be 100X larger. Furthermore, the Aquaculture Dept's measure of BDOC's minimum harvest is misleadingly low because the BDOC's "% Acres in Production" only 14% compared to the Tomales Bay average of 41%. If BDOC's "Acres Leased" were reduced to 358 acres and its "Acres in Production" remained unchanged in order to equal Tomales Bay's "% Leased Acres in Production", then the Aquaculture Dept's measure of BDOC's harvest per acre would triple without any change in BDOC harvest or operations.

The misleading arguments and metrics of the CDFG Aquaculture Dept underline our concern about using Aquaculture Dept data for CDO compliance purposes. The CDFG Aquaculture Dept's misleading arguments and metrics are, in our opinion, understandable given that the Department's budget and staff salaries are funded by the aquaculture industry. Our experience is that the Aquaculture Department acts in practice more in its facilitator role defending and promoting BDOC rather than in its theoretical regulator role insuring BDOC compliance with CDFG lease terms. We note that when the unpermitted Kumamoto oysters were removed from the Estero, staff from other CDFG Departments accompanied CDFG Aquaculture staff. Likewise, we urge CCC staff to independently verify CDFG Aquaculture Dept data used for CDO compliance.

Background- Making Back the Oyster Investment

We also believe that arguments that DBOC must maintain a high production limit in order "to make back the oyster investment" lack a reasonable basis. The attached April 2008 correspondence describes the Lunnys' significant violation of the NPS cattle limit that was based on US Fish and Wildlife environmental studies. Although NPS decided not to prosecute the Lunnys for fees and fines, the calculation relevant to "making back the oyster investment" is the excess profits that accrued to the Lunnys as a result of the cattle production cap violation.

The NPS permit to the Lunnys allowed 90 "animal units" on parkland or, for a grass-fed cow-calf operation, roughly 45 cows producing 45 harvestable 1000-lb yearlings annually. However, in contrast to this production cap, records obtained from the Marin Count Ag Commissioner show that several months before the Lunnys purchased the oyster operation, they began to ramp up the numbers from the permitted cap of 90 to over 500, thus harvesting not 45 yearlings per year but rather 281, 290 and 200 yearlings annually until the violation was stopped by PRNS in 2007.

This production cap violation created an excess of ~636 yearlings at ~1,000 lbs each at ~\$1.00 per pound, for a gross profit of ~\$636,000. While there are costs associated with cow-calf operations, among the largest are grazing fees that, in this case of violation, were not paid. We estimate that the Lunny family cleared an excess of \$500,000 from their violation. By way of comparison, a member of the Johnson family told us that the sale price for the oyster operation was \$425,000 (to which the Lunnys presumably added clean-up costs). In essence, the cattle violation generated the money used for the investment in and clean-up of the oyster operation.

We also suggest that there may be parallels between the history of compliance by the Lunnys with the limit on the number of cattle on parklands and the future expectation of compliance by the Lunnys with the limit of aquaculture production in park waters. In the case of the cattle violation, the Lunnys presented explanations that in our opinion were simply not credible, namely that they regularly rotated excess cattle off parklands despite that fact large numbers of cattle transfer trucks were not observed, that their organic and grass-fed certifications stated that they grazed all cattle on-site, and that the external ranch to which the organic cattle were claimed to have been rotated for over 3 years was only certified as organic shortly after PRNS informed the Lunnys that they had to remove the excess cattle. So if the cattle were rotated, then they were misrepresented as organic and if the cattle weren't rotated, then they were misrepresented as in compliance with the NPS cattle cap. Nevertheless, UC-Davis Coop Extension defended both the claimed cattle rotation and the integrity of the Lunny ranching practices. We believe this organization stands in the same relationship to the Lunny ranching operation as the CDFG Aquaculture Department does to the Lunny oyster operation.

DBOC's cultivation of Manila clams outside M-238-02 (even if now cleaned up) and the cultivation of any Kumamoto oysters were both violations of their respective production caps, just as was the Lunny Ranch's beef violation. Thus we wrote to the Fish and Game Commission: *"Currently, DBOC claims to be in compliance with the California Coastal Commission (CCC) Cease and Desist Order (CDO) # W6-12-2007 requiring DBOC to follow the stated terms of the CDFG leases, including that Manila clams are cultivated as specified only on the one acre Lease M-438-02. In response to the CCC, DBOC claims compliance with the CDO and asserts that Manila clams are currently being cultivated only on the one acre of Lease M-438-02. However, given that DBOC has had difficulty complying with numerous permit conditions in the past, the Sierra Club urges that the Commission not accept DBOC's assertion until verified by either CCC or PRNS. If DBOC's assertion is not correct, as we suspect, then they are misrepresenting compliance with the CDO and should not be granted added rights."*

Our above paragraph specifically omitted verification by CDFG Aquaculture staff because for the reasons cited, they do not act as regulators and instead simply accept DBOC assertions at face value, or even worse pass DBOC assertions along to other agencies as if verified when in fact they are not. Thus we request CCC staff to independently verify whether DBOC has actually corrected its violation and that the clam bags are either inside Lease M-438-02 or have been removed from the Estero.

“Current Production Level”

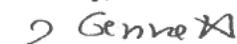
To date, there has been no way to independently check DBOC's count of harvested oysters and for reasons cited, we are uncomfortable with the lack of transparency in using the self-reported tax returns to measure “current production levels.” We note that all of the CDFG oyster tax forms requested in the CCC letter of Sept 10, 2008 (Jan – Aug 2008) were filled out and signed by Mr. Lunny on October 6th, 2008, ie they were filled out in response to the CCC letter rather than in response to the CDFG requiring that its forms be filed on time (the January form was over 6 months late). We also note that during the National Academy hearings, CDFG Aquaculture staff criticized PRNS for using estimated oyster production data in their 2008 seal analysis, but PRNS responded that they used estimates because current figures were not yet available. Yet here the CDFG Aquaculture Dept apparently took no action when these tax forms, key to both seal analysis and production analysis, were not turned in, again underlining our concern about using Aquaculture Dept data used for compliance purposes.

Using larvae purchases as an independent check on harvest figures, as previously suggested by CCC staff, does not seem useful, given that so many things can happen between larval receipt, seed set, grow out and harvest 2-4 years later. We therefore urge CCC staff to request and use the raw data underlying the tax return data as an independent check, much as DBOC oyster supporters requested and received the raw data underlying the NPS Seal analysis. There may be something of value in the raw harvest data that could inform the “current production level” discussion. Since this oyster tax return data has played such a key role in this “production level” discussion as well as the harbor seal discussion, we believe it critical for transparency so that the CCC and the public can understand how (or if) these summary tax return figures account for breakage, spoilage, donations, retail sales, etc.

Given that none of DBOC's Manila clams have matured (ie the production level based on harvest would be zero), we believe that one possible way to determine the “current production level” for Manila clams in Lease 438-02 is for CCC staff to arrange for an assessment in order to apply industry planting averages to suitable Manila clam cultivation acreage in Lease M-438-02. Such an assessment would overcome the problems presented by DBOC's violation of the CDFG lease terms by seemingly cultivating Manila clams in several places in Lease M-438-01 that totaled far in excess of what could be grown the one-acre of lease M-439-02. This again underlines our concern about relying on the CDFG Aquaculture Dept for compliance when they allowed or ignored DBOC cultivation of both Kumamoto Oysters and Manila clams in violation of CDFG's own lease terms (and the CCC CDO and the NPS Use Permit). For reasons previously outlined, we request that this assessment of normal production from Lease M-438-02 be done independently of the CDFG Aquaculture Dept.

It may be that this proposal for setting the Manila clam “current production level” could also be used for Pacific oysters. Ideally, there may be flyover photos or other surveys of bag locations and numbers as of the date of signing the CDO, and if so, then a direct picture could be seen of oyster production as of the date of the CDO. There also should be data at DBOC that specifies the number of oyster bags/strings in the Estero, their location and date planted or at the very least, there should be time cards for the oyster boat workers for the year prior to the CDO that may provide an indirect way of determining “current production levels.” However again, the violation by DBOC of the Manila clam lease provision, depending on its magnitude, could add significant worker hours that would have to be backed out of the analysis so as not to reward DBOC with added oyster production for what was in fact work done planting, tending and then removing unpermitted clams. Given Mr. Lunny's history of violations of prior production caps, our concern is that subsequent to the CDO, Mr. Lunny may have accelerated planting that by now could have filled every available site. Therefore as well as requesting raw data underlying the oyster tax returns, we also urge CCC staff to request time cards for oyster boat workers for the year prior to the CDO and the year following the CDO, as well as any flyover, survey, or DBOC data that may show the number, location, and planting date of oyster bags/strings in the Estero. We believe it crucial to get the “current production” number correct and thank you for your effort on this complex and difficult matter.

Sincerely,



Gordon Bennett Sierra Club – Marin Group Parks Chair

cc: PRNS

Thomas O. Moore
Calif. Dept. Fish and Game
Marine Aquaculture Coordinator
P.O. Box 1560
Bodega Bay, CA 94923
(707) 875-4261
(707) 875-4269 FAX
tmoore@dfg.ca.gov

>>> TMOORE 6/7/2007 12:38:28 PM >>>

John,

With regard to Ted Groholz's letter to the Commission (attached):

1) *C. ariakensis*- we agree about the potential risks and thus the request from the applicant to remove this oyster from the list of approved species that were requested.

2) Suminoo oyster *C. ariakensis* formerly *C. rivularis*- this is not an entirely new introduction to the west coast (see attached copy of import permit LTP-93-16 for *C. ariakensis/rivularis*) and seed was obtained from Taylor United in Washington state. It was imported and grown in Tomales Bay in 1993. It did not perform well and subsequently was not imported by the original applicants or other grower who also had it as an authorized species.

3) Didemnum- This tunicate came from outside Drakes Estero and has colonized just the oyster clusters. There is no other substrate for them to attach to or that they will attach to in the Drakes or Limantour Estero aside from the oysters or racks. No expansion of racks has occurred. Harvest of oysters is not done on the water due to the issue about loss of poly pipe spacers used in growing on racks there. Also see page 8 and 9 of the attached .pdf from Dr. Corey Goodman who contacted a leading expert on these tunicates at Woods Hole, who states that these things are endemic on the west coast and that the oysters or the racks are the only thing these will grow on there, they will not colonize soft sediments, the mud and siltstone that characterize the hard substratum in these esteros or eelgrass.

4) Issue of expansion- No expansion is taking place, production is way below Johnson Oyster co. production in the 1990s (see attached graph). In fact, Mr. Lunny needs to plant a minimum of 15 bushels/acre per year (300 shells/bushel of cultch) or 15,900 bushels for his allotted acreage. Or he needs to plant 5,000 single oysters per acre per year (5.3 million oysters). These are the minimums to show he is complying with Title 14 237 (i) (A) (B) for planting. He must also meet the production minimums of 2,000 oysters per acre after 3 years of acquiring his leases. The minimum is for his acreage is 2.12 million oysters harvested or 180, 200 lbs of oyster meats per year (Title 14 237 (i)(C)). In 2006, DBOC harvested 291,540 lbs in 2006. An oyster grower can not stay in business just meeting the minimums for planting or production. DBOC is producing 62% less than the 1995 peak production of 765,560 lbs by Johnson Oyster Co. when they were the leading oyster grower in the state. Currently, Coast Seafoods Co. in Eureka is the leading oyster producer with 2004 production of about 560,000 lbs of oyster meat from 300 acres (1,867 lbs per acre). DBOC is currently growing about 275 lbs per acre with a minimum harvest of 170 lbs per acre required by the state. JOCC at its peak produced 722 lbs per acre.

Just some info and facts, there is a lot of not quite correct information circulating about aquaculture in Drakes Estero.



SIERRA
CLUB
FOUNDED 1892

Gordon Bennett

July 16, 2007

To: Don Neubacher, Superintendent Point Reyes National Seashore (PRNS)

Dear Superintendent:

As a result of a Freedom of Information Act Request to PRNS, we have discovered that the Lunnys have been operating G Ranch without a Use Permit since 12/4/7/04 and are the only such permit-less ranchers in PRNS. As you know, it is illegal under 36 CFR 1.6 (g) (1) to engage in an activity subject to a permit requirement *without obtaining that permit*. Please explain why every other PRNS rancher operates within the law, yet the Lunnys are allowed to flaunt the law.

As a result of a Public Records Request to the Marin Agriculture Department, we have also discovered that the Animal Unit Months (AUMs) utilized on G Ranch averaged almost 500 AUMs, almost 4 times the permitted AUMs. This represents a fraud committed on the US taxpayer of over \$100,000 in unpaid fees. This gross overstocking also violates the US Fish and Wildlife Service's Biological Opinion, which serves as the environmental authorization for grazing throughout the Seashore. Even if the on-site forage has been supplemented by feed in order to reduce evidence of overgrazing, the amount of trampling and manure is still 4 times higher than expected. Thus the Lunny overstocking threatens endangered species present on G Ranch.

We read the excuse offered by the Lunnys that G ranch only "appeared" overstocked because the cattle were supposedly being rotated onto two additional sites for portions of the year. However, we read appraisal report of the first additional site, the adjacent Coast Guard property, which was leased on the basis of a carrying capacity of 30 AUMs. With the G Ranch's 90 AUMs, that is a combined total of 120 AUMs, not 500. We also obtained the organic certification of the other additional site in Nicasio, which was certified organic only for 2007. Because the Lunny herd is claimed organic, it could thus not have been rotated onto the yet-to-be organic Nicasio pasture in '04, '05, or '06 without eliminating the claimed organic certification. Since the grassfed site visit document also indicates that rotational grazing was practiced only within the combined G Ranch / Coast Guard site, we conclude that the off-site grazing excuse is fraudulent.

The three organic certifications and your most recent count of 250 animals do not count the progeny of the breeders that are intended for slaughter. A grassfed program requires that this slaughter herd be held for almost two years, about 18 months of which count as AUMs. This roughly doubles the AUMs of the breeder herd, yet PRNS in its 3/21/07 letter to the Lunnys assumes AUMs for the breeder herd only. We estimate that the Lunny Ranch has operated at ~500 AUMs proportionately 375 on G Ranch and 125 on Coast Guard. At \$7/AUM x (375-90 AUMs) x 12 months x 3 years ('04, '05, '06), the total fraud is \$71,820, not including the \$100 per day fine for violating the Use Permit.

We request that you either collect this significant money due to the US Taxpayer or explain under what authority you are granting a gift of public money to private individuals.

Thank You In Advance,

Gordon Bennett, Sierra Club

Cc: Senator Diane Feinstein



December 31, 2009

To California Coastal Commission (CCC): Attn: Peter Douglas, Executive Director

Re Drakes Bay Oyster Company (DBOC) Cease and Desist Order CCC-07-CD-11 (CDO)

Dear California Coastal Commission:

The Sierra Club expresses our deep concern that since signing the CDO, DBOC has violated:

- ▶ All three critically important harbor seal pup nursery areas, then
- ▶ The CCC order not to remove cultivation from the nursery without CCC supervision and now
- ▶ Continues to violate the CDO by growing clams in locations that create environmental risks.

The Sierra Club urges CCC that DBOC's pattern of violations and implausible excuses demands:

- ▶ Imposition of fines for continued violation of the CDO;
- ▶ A third-party CDO compliance monitor;
- ▶ Expansion of harbor seal protection areas and consolidation of cultivation areas.

Harbor Seal Protection Areas

The CCC ordered DBOC not to remove without CCC supervision clam bags in a harbor seal protection area that Mr. Lunny, the DBOC owner, asserted had been misplaced due to an "employee GPS error." Given that the correct site is subtidal and visually separate from the harbor seal sandbar, we question the credibility of the asserted "employee GPS error." Furthermore, Mr. Lunny also asserted to the CCC that the original move of the clam bags would be done under the direction of a licensed surveyor, not an employee. So at least one of Mr. Lunny's two contradicting assertions is not credible. Now Mr. Lunny has removed the clam bags from the seal area without CCC supervision and offers the further unsubstantiated assertion that no seals were present during the removal. However, this seal haulout is one of only three seal pup nursery sandbars never connected to the mainland. Seals continue to use haulouts covered by higher tides, but their greatest use occurs at lower tides when Mr. Lunny's employees removed the bags. Thus, if Mr. Lunny's assertion is credible that there were no seals present during the bag removal, then it is at least as credible that the reason there were no seals present was due to either the deterrence of the bags themselves and/or the activity associated with the bag removal. Regardless, Mr. Lunny has again violated an express order intended to insure protection of wildlife and his failure to pay within 15 days the stipulated penalty of \$61,250 for moving the bags into the seal area is itself a violation of CDO §17.0.

In addition to the current incident of clam bags inside seal protection area UEF, attached National Park Service (NPS) maps also show DBOC conducting 2008 (ie post CDO) cultivation activity inside the protection areas OB and EUN. These invasions of all three seal haulouts demonstrate our concern that Mr. Lunny's claimed "GPS" error is not an isolated incident. Furthermore, NPS maps show cultivation activity along the boundary of protection area UEF (presumably when the GPS was working). However, we believe boundaries of the "protection areas" are based on a misapplication of the NMFS Marine Mammal Viewing Guidelines that proposed a minimum approach distance of 100 yards. Ongoing cultivation activity along the length of protection area boundary is not a "viewing" activity and is not an "approach."

The National Academy of Sciences (NAS) Report on Shellfish Mariculture in Drakes pg 39-40 notes: *"The mean distance at which seals are flushed into the water by small boats and people ranges between 80 m and 530 m, with some disturbances recorded at distances of over 1,000 m (Appendix D). These empirical studies have been used to underpin zonation of marine protected areas, for example where a 1.5-km buffer exists around harbor seal haul-out sites in the Dutch Wadden Sea...and where a 500-m exclusion zone around breeding and molting haul-out sites has been included in the mariculture industry's best practice guidelines in Shetland (UK). The 100-yd (91-m) buffer between seal haul-out sites and mariculture activities... follows the guidelines of... the Marine Mammal Protection Act... Some oyster rack and oyster bag areas within Drake Estero are located within 500 m of sand flats used by harbor seals as haul-out sites. Based upon the findings in the studies outlined above and the informal observations of*

biologists who study seals, visits to these areas by oyster farm workers can be expected to lead to the short-term disturbance of any seals using these haul-out areas at the time. Depending upon visibility and wind conditions, disturbance may also occur at greater distances. Furthermore, the work by Brasseur and Reijnders (2001) suggests that seals could be disturbed before they come ashore if boats pass through haul-out areas at high tide."

NPS maps also show '07-'08 cultivation outside the Fish and Game (F+G) lease on UEN within 500m of sandbar A (unmarked bar to the southwest). This undermines the credibility of the much-publicized excuse that DBOC could not possibly have caused the 80% seal decline (2005-2007) on sandbar A because sandbar A was outside the F+G lease. But so was DBOC cultivation. These "location" incidents demonstrate our concern that existing "seal protection areas" are too small, too irregular, and too non-intuitively sited to protect seals. Per NAS, CCC should impose a buffer of 1500m during the pupping season and 500m at all other times until empirical studies show that other buffers result in no change in seal behavior ("take"). DBOC's unused rack should be repaired to consolidate cultivation areas well away from expanded and standardized seal areas that would not require a GPS to locate. After-the-fact fines deter, but going forward, expanded seal protection areas and consolidated cultivation areas would clearly help Mr. Lunny to comply without GPS error and thus seal moms to pup without disturbance.

Growing Clams

The CCC should enforce the existing terms of the CDO limiting clams to Lease M-438-02 despite the asserted "clerical error." No credible evidence has been presented of any clerical error and we continue to maintain that the 4-year statute of limitations for correcting clerical errors has long passed for a 1993 contract, yet Mr. Lunny continues to grow Manila clams in Lease M-438-01 based on the previously undisclosed "clerical error." Mr. Lunny offered as evidence of the error a 1993 letter from Johnson Oyster Company (JOC), requesting clams in Lease M-438-01 and a response from F+G allowing clams in Lease M-438-02. However, clerical errors do not occur when an agency with discretionary authority responds to a request to change a permit with a different permit condition. F+G staff described the asserted error in the 12/10/09 Fish and Game Commission meeting as "typographical," yet provided as evidence only a copy of the pre-1993 Lease M-438-02 for scallops. The implication was that since scallop habitat is subtidal yet clam habitat is intertidal, then the 1993 assignment of clams to Lease M-438-02, which is subtidal, must have been a "clerical error." However, F+G staff failed to mention that Lease M-438-02 includes methods (racks and trays) by which intertidal species such as Manila clams can be cultivated in subtidal areas. So the former lease M-438-02 is not inconsistent with clam cultivation and does not evidence a "typographical error."

Even if a clerical error does exist, F+G's ex post facto approval is not sufficient when the approvals of both CCC and the National Park Service (NPS) are required before the activity occurs. Furthermore, F+G itself has acknowledged that NPS is the primary regulatory authority in Drakes Estero and thus F+G cannot approve new clam production absent the assertion of a previous "clerical error." Mr. Lunny claims the F+G clam lease "clerical error" was just one of the things he had to clear up from JOC, but the JOC violations he agreed to clean up (as well as his own additional violations) were transparently described in the CDO. Yet while Mr. Lunny first asserted a "clerical error" in a personal email to F+G on Dec 29, 2006, he failed to disclose his intention to significantly change the terms of the "existing leases" that NPS and CCC incorporated into the 2007 CDO and the 2008 Use Permit, both of whose existing terms Mr. Lunny agreed to comply with. Mr. Lunny only disclosed the asserted "clerical error" to CCC and NPS after he was caught growing unauthorized clams.

The CCC ordered Mr. Lunny to move the clams to Lease M-438-02, the only area where his clams were permitted by NPS, F+G and CCC. Instead Mr. Lunny successfully appealed to F+G to grow clams only in Lease M-438-01, thus creating a regulatory inconsistency himself that Mr. Lunny then complained to the media that he was a victim of. Regardless, Mr. Lunny signed the CDO that requires clam cultivation in Lease area M-438-02. When his violation was discovered, he told the CCC that he would move the clams to Lease M-438-02. Then he said he had indeed moved the clams to Lease M-438-02. We urge that M-438-02 is where the clams belong now.

The CCC should continue to require that the clams be moved to Lease M-438-02 at whatever growing level is appropriate for that area (even if only a few clams) regardless of the number of clams grown without authorization in Lease M-438-01. Only after Mr. Lunny obtains the consent of all 3 agencies to grow clams in Lease M-438-01 should he begin to grow clams there.

Mr. Lunny in his December 9, 2009 letter to NPS makes the unsubstantiated claim that *"the clams were there (in lease M-438-01) prior to 1993-and have been there since...the production is the same."* However, that claim is not credible. Since the clams take 3-5 years to mature and no clams have been "produced" by DBOC since their acquisition of JOC in 2005, then no clams were planted in the Estero since at least ~2001 and the current planting must have taken place sometime after ~2006. We have asked NPS to survey the currently growing clams to independently assess their age and thus when they were planted. Our recent Public Records Act Request should provide the history of clam production, but regardless it is clear that given a production gap that extends at least back to ~2001, then production cannot be, as Mr. Lunny claims "the same." In our opinion, the authorization to grow clams in the 1-acre Lease M-438-02 vs the 1059-acre Lease M-438-01 represents a 105,800% increase. The Sierra Club's 12/02/09 letter to F+G concluded that this change is subject to environmental review under the California Environmental Quality Act (CEQA). NPS in its 12/08/09 letter to F+G added that the change is also subject to the National Environmental Policy Act (NEPA).

Environmental Risks

NPS's 12/08/09 letter to F+G supported two concerns raised in our 12/2/09 letter to F+G:

- 1) *Potential expansion of Manila clams as an invasive species is a major concern. While Manila clams have been introduced and have spread in other estuaries of California, there is currently no evidence to our knowledge that they escaped or invaded Drakes or Limantour Esteros...Before any expansion of the cultivation of this non-native species, a thorough survey should be conducted...*
- 2) *The addition of bag culture for cultivating manila clams throughout the estero has the added concern of providing a substrate for the highly invasive non-native tunicate, Didemnum"*

Re this second NPS concern, we note that in a 6/07/07 email, California Department of Fish and Game staff attempted to minimize this concern by repeating the opinions of neuroscientist Corey Goodman, who stated to the Marin Supervisors that he was told by an expert that the tunicate would not grow on eelgrass and *"There is no evidence that the Didemnum colonial tunicate has a negative effect on the ecology of Drakes Estero. It is found [only on] oyster racks, it cannot and has not spread to any other substrate..."* However reports from experts in marine biology directly contradict every one of the neuroscientist's claims. The National Academy noted (pg 52) *"Didemnum...has been reported to have colonized the limited natural solid mud and sandstone substrates and rocks at Bull Point in Drakes Estero. (pg 55) [and] has recently been reported colonizing eelgrass...Its rapid growth and competitive overtopping abilities make it an ecological threat to many native and nonnative invertebrate taxa."*

Our 12/2/09 letter to F+G also raised two additional concerns

- 3) Manila clam authorization in Lease M-438-01 will greatly increase cultivation activity. The unauthorized placement and subsequent removal of clam bags from the harbor seal protection areas demonstrates this concern. Resident and migrating birds on the Estero will also be impacted by increased cultivation activity.
- 4) Manila clam cultivation in Lease M-438-01 also could increase beyond natural levels the number of shellfish, which consume larvae from the coastal current. Drakes and Limantour Esteros were recently recognized as key links in a network of Marine Reserves designated to facilitate larval transfer.

These concerns underline the need for CEQA/NEPA analyses to inform any decision regarding clam growing in Lease M-438-01, where pre-decision cultivation should not be permitted.

Independent Monitor

Mr. Lunny claims he is a "small family farmer" battling oppressive government bureaucracies despite the fact that Mr. Lunny also owns a paving business with government contracts and a compost business with government subsidies. Furthermore, the July '08 Inspector General Report found no evidence to support Mr. Lunny's accusation that NPS was trying to drive him out of business. To the contrary, the Report showed Mr. Lunny had operated without NPS use permits, violations of federal law for which no penalties were ever assessed. Our review of the CDO indicates that Mr. Lunny has similarly violated virtually every one of its provisions yet has almost always been granted exceptions or extensions by the CCC staff. We suggest that the CCC's forbearance to-date is now beyond adequate. Mr. Lunny's pattern of violations demands a third-party CDO compliance monitor who can unravel Mr. Lunny's excuses and determine what is truth and what is in reality a sophisticated media campaign.

Summary

Mr. Lunny 12/9/09 letter to NPS claims: "*this matter [clam bags in the seal area] could have been addressed far more expeditiously had you or your staff simply picked up the telephone and called us.*" But Mr. Lunny has systematically dismissed all NPS communications about seal impacts and thus established the pattern that he now complains he is the victim of. Furthermore, Mr. Lunny failed to pick up the phone to disclose to NPS and CCC the asserted clerical error that significantly changed the terms of the "existing leases" that NPS and CCC accepted and Mr. Lunny agreed to follow. Mr. Lunny only disclosed the "clerical error" to CCC and NPS after he was caught. By failing to disclose this asserted "clerical error" and then by obtaining concurrence from F+G to grow Manila clams where not authorized by NPS or CCC, Mr. Lunny has himself created the regulatory conflict that he again complains he is the victim of.

Mr. Lunny has now not only been caught with unauthorized Kumamoto oysters and Manila clams but also with unauthorized cattle. The NPS Lunny Ranch permit allowed 90 "animal units" or roughly 45 cows producing 45 harvestable 1000-lb yearlings annually. However, Marin County Ag records show that just before Mr. Lunny purchased DBOC, he ramped up cattle from the permitted 90 to about 500, an egregious violation of the NPS permit and the U.S. Fish and Game Biological Opinion. Annual harvests rose from 45 to 281, 290 and 200, which at ~\$1/lb generated illicit profits of ~\$636,000 (which financed DBOC's \$425,000 purchase price and set-up costs). After the grazing violation was discovered and stopped, Mr. Lunny asserted the was not in violation because he rotated excess cattle off the ranch despite that fact he also stated on the ranch's grass-fed/organic certifications that he grazed all the cattle on the ranch. As with Mr. Lunny's two contradictory statements about the clam move, his two statements about grazing cannot both be true. If his cattle were rotated, then they were misrepresented to consumers as grassfed/organic and if they weren't rotated, then they were misrepresented to US taxpayers as products of correct NPS grazing fees. In either case, Mr. Lunny pocketed illicit profits.

Mr. Lunny has demonstrated a continuing pattern of violations including unauthorized growing of cattle, oysters, clams and who knows what else since Mr. Lunny "picks up the phone" only after he is discovered. This demands a third-party CDO compliance monitor. The Sierra Club urges the CCC not to follow F+G in approving any change in clam cultivation until credible evidence of a clerical error is obtained and even if so, then subsequent CEQA/NEPA analyses have occurred and a resulting NPS decision has been made. In the meantime the clams should be limited to Lease M-438-02 at the level appropriate to the habitat of Lease M-438-02 irrespective of the ~800 bags now growing in Lease M-438-01. Unlike profits reaped from his unauthorized grazing, profits from the unauthorized clam growing should not benefit and incentivize Mr. Lunny to further violations. Penalties should continue until the clams are moved to M-438-02 as Mr. Lunny agreed to do in the CDO, as he said he would do, and as he falsely confirmed he did do.

In hopes that 2010 will be kinder to the Estero's wildlife than 2009,



Gordon Bennett, Sierra Club Marin Group Parks Chair

cc: MMC, NPS, Senators Feinstein and Boxer, Rep. Woolsey, Marin Supervisors

SAVE OUR SEASHORE

40 Sunnyside Drive, Inverness CA 94937
415-663-1881 gbatmuirb@aol.com

March 30, 2011

To: NPS Washington Administrative Program Center, Att: Correspondence Control Unit (CCU)
1201 Eye Street NW, Washington, DC 20005 (doris_lowery@nps.gov)

Re: Complaint About Information Quality, Pursuant to Directors Order #11B

The Public Report on Allegations of Scientific Misconduct at Point Reyes National Seashore, California (the Report) www.doi.gov/news/pressreleases/loader.cfm?csModule=security/getfile&PageID=238859 contains factual inaccuracies that affect both public support for PRNS and PRNS volunteers.

Save Our Seashore (SOS) represents the public interest in its support for Point Reyes National Seashore (PRNS) and the purposes for which the public purchased PRNS. Our organization also represents the interests of its members who are NPS volunteers contributing their time and effort to support PRNS.

The Report states that the Office of the Solicitor (SOL) "*directed an attorney with substantial employment law experience to gather relevant information, make factual findings, and offer legal advice*" regarding the 11/22/10 allegation of scientific misconduct that "*targets six NPS employees*" and "*other Agency employees.*" Unfortunately, the Report goes beyond its mandate, expertise and experience to present unfounded scientific conclusions that accuse one NPS volunteer of violating either indirectly or directly the following, all of which cover apply to NPS volunteers as well as employees:

- 18 U.S. C. § 1001;
- "Scientific Misconduct" as defined by federal policies; and
- An applicable interim NPS Code on Scientific and Scholarly conduct.

These accusations against the NPS volunteer are not supported by or are contradicted by the evidence. Further undermining the accusations are statements in the Report concerning the scientific record of data gathered by NPS volunteers, including the falsely-accused volunteer, that are factually incorrect.

In many places, this Report correctly notes the inconclusive nature of the evidence and the existence of scientific controversy. Nevertheless, the report also draws unwarranted scientific conclusions and misstates the research record to create a scientifically unfounded negative bias against NPS, its employees and its volunteers, including the unfortunately falsely-accused volunteer.

We request that the Report's correct non-conclusionary language be used consistently through the Report and replace language that creates the impression that the Report has scientifically analyzed data and photos in sufficient detail and with sufficient scientific expertise to arrive at its own independent scientific conclusions about them. When these errors in the Report are corrected, it will be clear that no basis remains for the accusations against the NPS volunteer.

The basis of this Complaint consists of the following from the Report(pages 28, 29 and 32) "*Scientific or research misconduct would arise in the following situation: intentional acts produced a research record that did not accurately represent information found in the photographic data...Confining attention solely to the differences between the research record and the photographic materials, an objective eye focuses solely on the adequacy of the research record for May 8, 2007 and March 14, 2008....The research report did not accurately represent available information ... visually observed by the same observer on May 8, 2007 and March 14, 2008....Suspicion now surrounds the volunteer...*"

Our Complaints and proposed Remedies are attached as Exhibit One.

Signature	Gordon Bennett, President, SOS
-----------	--------------------------------

Exhibit 1: Complaint About Information Quality in Allegations of Scientific Misconduct at PRNS

Complaint #1: Footnote 5 (page 5) states, *“On or about September 30, 2010, S1, S2, and S3 [NPS employees] did review the photographic images from May 8, 2007, and determined that the camera’s limited field of view prevented confirmation of the visual observation made by the volunteer witness. However, the digital photos indirectly contradicted the human observation by showing seemingly undisturbed harbor seals near the location of the alleged harassment.”*

Reading the imprecise use of words in this footnote, the casual reader could easily, but incorrectly, have concluded that these NPS employees determined the conclusion of the first sentence as well as the accusative conclusion of the second sentence, but the relevant 9/30/10 email from NPS to the Marine Mammal Commission does not support this.

Furthermore, and to the contrary of the asserted contradiction, SOS concludes that the digital photographs do show disturbed seals and a boat wake at the time and at the location documented by the falsely-accused volunteer on the research record. SOS bases our conclusion of disturbance on over a decade of seal monitoring experience and is further supported by the professional opinion of Dr. Frances Gulland, Senior Scientist at the Marine Mammal Center, Sausalito, CA (see photos and commentary at www.savedrakesbay.org).

Even if DBOC denies responsibility for the disturbance, or other seal experts disagree that the photos unequivocally evidence a disturbance, the existence of legitimate scientific controversy does not afford this Report, which should apply its expertise within its employment law mandate, to render a scientific conclusion... particularly an unsupported scientific conclusion that falsely accuses a NPS volunteer.

Remedy #1: Thus we request that this section of the Report be corrected to state: *“However, the digital photos, according to experts in the field of marine mammal behavior indirectly-contradicted confirmed the human observation by showing, ~~seemingly undisturbed harbor seals~~ at the time of and near the location of the alleged harassment. The informant’s opinion is that no disturbance occurred. This Report is not qualified to make a judgment about this controversy. Lastly, since the camera captured only the western portion of OB, the observer’s record of disturbances at UEN and UEF and at the east end of OB where seals were marked as present on her map could not be confirmed.”*

Complaint #2 Footnote 10 (page 12) states, *“On or about September 30, 2010, S1, S2, and S3 [NPS employees] did review the photographic images from March 14, 2008 but did not review V1’s relevant research from that date. The NPS scientist noted that, consistent with the disturbance survey, the digital photos showed a DBOC boat present in upper Drakes Estero near the recorded time. Importantly, though, the camera’s limited field of view prevented confirmation of the visual observation made by the volunteer witness. Instead, the digital photos indirectly contradicted the human observation by showing seemingly undisturbed harbor seals near the location of the alleged harassment.”* Hearing the imprecise use of words in this footnote, the casual listener could easily, but incorrectly, have concluded that these NPS employees determined of the conclusions of the second and third sentences as well as the accusative conclusion of the fourth sentence, but the relevant 9/30/10 email from NPS to the Marine Mammal Commission does not support this.

The fourth sentence fails to point out that two NPS cameras were pointed at OB and UEF haulouts, both well away from (rather than “near”) the UEN haulout where the falsely-accused volunteer reported the harassment. Furthermore, their digital photographs fail to reveal any harbor seals, let alone “seemingly undisturbed” harbor seals. In short, the facts noted in that fourth sentence are simply wrong and thus provide no support whatsoever for this sentence’s scientific conclusion of an “indirect contradict[ion]” that falsely accuses a NPS volunteer. See also Complaint #8 for additional detail.

Remedy #2: Thus we request that this section of the Report be corrected to state: *Importantly, though, However, the camera’s ~~limited field of view~~ of a portion of OB and an inconclusive view of UEF prevented confirmation of the visual observation made by the volunteer witness at UEN. ~~Instead, the~~*

digital photos indirectly contradicted the human observation by showing seemingly undisturbed harbor seals near the location of the alleged harassment."

Complaint #3 The Report page 3 states (emphasis ours), *"Although volunteer observers had seen and documented a motor boat disturbing harbor seals in upper Drakes Estero on May 6, 2006, DBOC denied, without rebuttal from NPS, ownership of the subject motor boat. Thus the evidence insufficiently identified that disturbance, in the 2006 pupping season, as one caused by DBOC mariculture operations."*

However, the NPS record of mariculture related disturbances presented to the MMC still contains the May 6th 2006 disturbance. NPS did and continues to rebut the DBOC's claim and support the observation of the volunteer, as evidenced by the March 9, 2010 communication from David Press, Ecologist / Data Manager, SFAN I&M Program, NPS to MMC staff:

"During our discussion of disputed data points during the MMC meeting at Point Reyes, concerns were raised that certain motor boat records may not have been related to mariculture and may have entered the Estero from Drakes Bay. I have reviewed the data and spoken with others about this issue and remain confident that the disturbance records we have used in our analyses have been correctly attributed to the oyster farm....Most of the motor boat disturbance records identify the oyster farm as the source, document mariculture activity (i.e. harvesting, moving oyster bags, etc), or at least indicate that the boat came from or returned to the oyster farm. None of the database records indicate that a motor boat passed through the mouth of the Estero during a survey. Because of the monitoring protocol's inclusion of potential disturbances, I am confident that a motor boat coming into the Estero from Drakes Bay has never been observed by the monitoring program... "

SOS also notes that that DBOC has denied responsibility for every single one of observed harbor seals disturbances that have been made public, alleging instead that each of the eyewitnesses had lied, as noted in footnote 4 (*"The trustworthiness of each human observation remains the subject of heated debate"*). Thus DBOC's automatic denials should not by themselves disqualify the observation, but at best should define the observation as "contested."

Remedy #3: Thus we request that this section of the Report be corrected to state *"Although volunteer observers had seen and documented a motor boat disturbing harbor seals in upper Drakes Estero on May 6, 2006, DBOC denied, ~~without rebuttal from NPS~~, ownership of the subject motor boat and NPS has rebutted that denial. Thus the evidence insufficiently identified that disturbance, in the 2006 pupping season, as one caused by DBOC mariculture operations, and the event remains contested. This Report is not qualified to make a judgment about this controversy"*

Complaint #4 The Report page five notes, *"the informant...legitimately contested S1's...questionable mathematical calculations."* Footnote #6 then quotes S1 saying, *"Placement of bags on nursery areas has caused an 80-percent reduction"* and then the Report comments, *"significantly less than 80% depending on subsite(s)."* However, the 80% reduction, based on counts taken by NPS volunteers, including the falsely-accused volunteer, has been independently verified by mathematician Dr. Dominique Richard, who concluded (www.savedrakesbay.org/uploads/08-09-ARCHEOLOGY-OF-A-NUMBER.pdf):

"This analysis compared the April 23 figure of 19 to the 2004 peak of 108 on OB, which was then rounded down to an 80% reduction. Admittedly, the year of reference was not quoted, the seal haul out was not specified, and the percentage decline was rounded down most probably for simplicity. It must be noted, however, that if everyone were an experienced scientist or statistician cognizant of the duration of the seal data collections dates, then they surely should have interpreted the numbers provided in Dr. Allen's testimony as conditional since they were derived near the middle of the pupping season. In fact, as we know now after the final data points were analyzed, there was a subsequent and unexpected up-tick in the maximum seal count at OB on Friday May 4th ..."

"Unfortunately the claim for an 80% decline in seal population took a life of its own and became a sound bite "mantra" amplified through the media, which fueled a bitter divisiveness in the community.... At worse the Park's statements pointing to an 80% decline only reflected "precautionary principle" concerns based on an on-going interim assessment. The final 2007 declines (compared to the 2004 peaks) of 64.31% on sandbar OB and 41.94% on sandbar UEF, two of the sandbars most preferred by pupping seals that also happened to be near areas that had been fallow of oyster operations for some years and had just in 2007 seen renewed oyster operations, confirm this precautionary concern. Furthermore the data shows the "deception" and "misconduct" accusation raised by Dr. Goodman over the 80% figure has no basis in fact, since the 80% figure clearly can be derived and justified based on assumptions reasonable at the time of Dr. Allen's testimony."

Remedy #4 Thus, we request that this section of the Report be corrected to state: "while this 80% reduction was not clearly described as an interim figure valid at the time of S1's testimony for one of the two preferred pupping sites closest to renewed oyster operations, the final reduction at that site was 64% and the final reduction at the other pupping site was 42%."

Complaint #5 The Report page 8 states, *"The recent submission to Secretary Salazar alleges, in part, that failure to give informant the 2007 photos, which reveal no DBOC-caused disturbances of harbor seals in upper Drakes Estero, was intentional..."* Hearing the imprecise use of words in this sentence, the casual listener could easily, but incorrectly, have concluded that the Report had concluded, rather than the informant had asserted, that the 2007 photos had revealed no DBOC-caused disturbances. As noted in Complaint #1, there is credible photographic evidence that supports the report by the falsely-accused volunteer of a DBOC-caused disturbance on May 8, 2007. And this photographic documentation exists despite being (as the Report correctly notes): *"blurry, with varying degrees of murk... [due to] camera positions, poor resolution, significant distances, the absence of sound, narrow fields of view, loss of 59 ¾ seconds out of every minute...and the presence of wind, fog, and nearby foliage."* And, as www.nps.gov/pore/parkmgmt/loader.cfm?csModule=security/getfile&PageID=398425 shows, the camera in 2007 was not well positioned enough to view both the customary DBOC boat landing/work sites and also the OB haulout, rendering it virtually impossible to photographically connect seal behavior with DBOC activity.

Remedy #5: Thus, we request that this section of the Report be corrected to state, *"The recent submission to Secretary Salazar alleges, in part, that failure to give informant the 2007 photos, which the informant asserts reveal no DBOC-caused disturbances of harbor seals in upper Drakes Estero, was intentional..."*

Complaint #6 The Report's footnote #7 (page 9) references, *"...digital photos, which DOI now knows indirectly, contradict NPS conclusions and comments relevant to the disturbance event observed on May 8, 2007 and indirectly support the informant's position."* As noted in Complaint #1, there is credible scientific evidence supported by expert testimony and photos of a disturbance on May 8, 2007 that is "most parsimoniously" attributed to the DBOC oyster boat. This credible evidence supports the falsely-accused volunteer and contradicts the assertion of the informant.

Remedy #6: Thus, we request that this section of the Report be corrected to state, *"~~"...digital photos, which DOI now knows indirectly, contradict NPS conclusions and comments relevant to the disturbance event observed on May 8, 2007 and indirectly support the informant's position."~~, according to experts in the field of marine mammal behavior, confirmed the human observation by showing disturbed harbor seals at the time of and near the location of the alleged harassment. The informant's opinion is that no disturbance occurred. This Report is not qualified to make a judgment about this controversy. Lastly, since the camera captured only the western portion of OB, the observer's record of other disturbances (at UEN and UEF and at the eastern end of OB) could not be confirmed.*

Complaint #7 The Report's (page 11) states (bulleting ours) *"No evidence from V1 established that from March to May 2008 specifically including March 14, 2008,*

1. DBOC mariculture operations had harassed any harbor seals in upper Drakes Estero,
2. had displaced the pinnipeds from any subsites in upper Drakes Estero, or
3. had contributed to any reduction in the Drakes Estero harbor seal population, which did not significantly decline in 2008.
4. However, V1 did describe, as "images ...of interest" and as potential DBOC disturbance documentation, digital photos taken by the PC85 camera on April 4 and May 15, 2008. A video taken by V1 on the latter date also supports a "potential" DBOC disturbance of harbor seals"

Yet all those statements are contradicted by the evidence:

1. Reading-Room-Other-Documents-Upper-Drakes-Estero-Oyster-Activity-Worksheet contains the summary of S. Codde's observations from March to May 2008, which under the Disturbance column, note eleven codes of "Y" (i.e. indicating eleven eyewitness observations of oyster boat harassment of harbor seals in upper Drakes Estero). This portion of the research record, ignored by the Report, is the most pertinent, because the NPS volunteer/employee surveys of 2007 (total of 6 eyewitnessed disturbances) and 2009 (total of 1 eyewitnessed disturbance) were split among eight sub sites, with the three sites nearest oyster activity being the three furthest away, but with the observer's location roughly midpoint between all eight. However in 2008 (total of 12 eyewitnessed disturbances), S. Codde's surveys were taken only of the three oyster related subsite and were positioned midpoint of these three. Thus the potential to accurately record oyster disturbances in 2008 was significantly enhanced both by proximity and by the ability to focus on three rather than eight subsites.

2. [www.nps.gov/pore/readingroom/Videos/2008/tape_2/05_May/ \(15MAY08a.mov\)](http://www.nps.gov/pore/readingroom/Videos/2008/tape_2/05_May/ (15MAY08a.mov) and [www.nps.gov/pore/readingroom/Photos/2008/OB/05-15-08/ \(Images 1599-1604\)](http://www.nps.gov/pore/readingroom/Photos/2008/OB/05-15-08/ (Images 1599-1604) both show the harbor seals displaced (flushed) from subsite OB on May 15 by the oyster boat. The notes describe this flush as DBOC caused.

[www.nps.gov/pore/readingroom/Photos/2008/OB/04-07-08/ \(images 0568-05710\)](http://www.nps.gov/pore/readingroom/Photos/2008/OB/04-07-08/ (images 0568-05710) show a harbor seal displaced (flushed) from OB on April 3, 2008 by the oyster boat. This is described as a "possible" flush although the 2:07 photo shows the seal hauled out with the boat empty, the 2:08 photo shows the boat loaded and ready with the seal still hauled out, yet the 2:09 photo shows the boat speeding away with the seal gone.

Furthermore, the Report seemingly fails to understand that every time V1's handwritten records state that a DBOC boat entered or was in the OB channel between March 1 and June 30, then this represents a violation of either or both of the 1992 Seal Protection Agreement or the Harbor Seal Protection Protocol in DBOC's current Special Use Permit. There are at least 34 such references between 3/15/08 and 5/22/08, which represent a chronic displacement of DBOC activity into a protected seal area and a converse displacement of seals from the DBOC activity.

3. Similar to the Report's criticisms of S1's "clumsy" testimony in footnote 6, the Report provides no year as the basis for its 2008 comparison. Becker 2010 divides oyster production years into "high" and "low" and concludes that compared to the pre-DBOC year of 2004 (low oyster production), the 2008 year (high oyster production) resulted in a statistically significant seal population reductions (65 pups and 192 total seals since DBOC began operations). This strong statistical correlation also holds when the exact oyster poundage is used as the metric. www.nps.gov/pore/parkmgmt/loader.cfm?csModule=security/getfile&PageID=400381 states: "Concurrent with higher oyster harvest and after removing effects of other covariates, the proportion of Point Reyes regional seals using Drakes Estero declined by -0.07 ± 0.02 for seal pups (-65 ± 18 total pups), and -0.05 ± 0.02 for total counts (-192 ± 58 total seals)."
4. <http://www.nps.gov/pore/parkmgmt/loader.cfm?csModule=security/getfile&PageID=400390> contains the 6/6/08 email (page 233) from which the "images...of interest" quote is taken. However, nowhere in this email are the images described as "potential" DBOC disturbance

documentation. Images from camera PC85 clearly show a disturbance as the oyster boat is departing on both 4/3/08 and 5/15/08. Seeing the imprecise use of quotations around the word "potential" in this sentence, the casual listener could easily, but incorrectly, have concluded that V1 had significantly hedged his/her eyewitness account of both the May 15, 2008 event and his/her review of the photo documentation of both the April 3rd (not 4th) and May 15 disturbance events. Not so.

Remedy #7: *Thus, we request that this section of the Report be corrected to state, "~~No evidence from V1 established that from March to May 2008 specifically including March 14, 2008, V1 witnessed 11 incidents of DBOC mariculture operations had harassed any harbor seals in upper Drakes Estero, had at least two of which directly displaced the pinnipeds from any subsites in upper Drakes Estero, or had contributed to any reduction in the Drakes Estero harbor seal populations, which did not significantly decline in 2008. However, V1 did describe as "images ... of interest" and as potential DBOC disturbance documentation, as documented by digital photos taken by the PC85 camera on April 4 3 and May 15, 2008. A video taken by V1 on the latter date also supports a "potential" DBOC disturbance of harbor seals. Furthermore, the log by V1 of 2008 photos indicates chronic entry by DBOC boats into a protected harbor seal area, which could result in a displacement of the seals. Lastly, the peer-reviewed Becker 2010 paper concludes that for high oyster production years like 2008, the proportion of Point Reyes regional seals using Drakes Estero declined by -0.07 ± 0.02 for seal pups (-65 ± 18 total pups), and -0.05 ± 0.02 for total counts (-192 ± 58 total seals).~~"*

Complaint #8 *The Report (page 12) states (bulleting ours), "Notably, the absence of any mariculture-caused disturbances observed or documented by V1 and the camera applies to March 14, 2008, the date on which a volunteer observer,*

- 1. standing a significant distance away from the camera locations on the opposite side of Drakes Estero,*
- 2. witnessed a DBOC boat disturb four seals from a group of nineteen in upper Drakes Estero.*
- 3. Without question, V1 was present at the camera locations on that date, at the exact time, and was closer to the disturbance site than the volunteer observer,*
- 4. but s/he neither saw nor documented or filmed any compatible anthropogenic disturbance.*
- 5. The PC85 camera, aimed at the area of alleged pinniped disturbance, confirmed the presence of a DBOC boat at the relevant time, but photos do not confirm any harassment of harbor seals on that date.*
- 6. With regard to the harbor seal disturbance on March 14, 2008, the only date during that pupping season when DBOC activities allegedly harassed pinnipeds,*
- 7. S1 relied heavily, but without clear explanation, on the volunteer observer's report and completely dismissed, without timely analysis or review,*
- 8. the direct or indirect contradiction of that data as presented by the negative implications of V1's observations, the photographic images, and the video clips.*

The evidence in the record contradicts the Report:

- 1. The falsely-accused volunteer observer's location measured from the camera location is irrelevant. What is relevant is the falsely-accused volunteer observer's location relative to the observed disturbance, which is closer than V1's location. See map showing observer location at www.mmc.gov/drakes_estero/pdfs/becker_mms_2009.pdf (page 4) and map of camera (V1) location www.nps.gov/pore/parkmgmt/loader.cfm?csModule=security/getfile&PageID=400390 (page 113).*
- 2. The Report fails to clarify that the observed disturbance was reported at UEN, the southernmost of the three haulout sites in the upper Estero, while the camera was pointed at OB (see #5).*

3. The observed disturbance at UEN (Upper Estero Near) is closer to the falsely-accused volunteer observer than to V1 (see above referenced maps).
4. V1's location is roughly east of subsite OB and midway between UEF, the northernmost of the three haulout sites, and UEN, the southernmost haulout sites. From this midway location, it would not be physically possible for V1 to observe all three sites simultaneously, particularly when the site of interest is either the northernmost or the southernmost. See video 14MAY08b.mov at http://www.nps.gov/pore/readingroom/Videos/2008/tape_2/05_May/ where the camera is aimed north to UEF (zoomed at 3:21:12), then pans west to OB (zoomed at 3:21:40) and finally pans to south at UEN (zoomed at 3:22:01. Since the falsely-accused volunteer observed the March 14, 2008 disturbance at UEN, the southernmost site, it is reasonable to assume that V1 would have roughly a 1-in-3 chance of observing the same incident. Consequently, the strong implication in the Report of an apparent contradiction between the more distant observation of V1 and the closer observation of the falsely-accused volunteer is a speculation indirectly contradicted by evidence of their respective locations.
5. The Report fails to point out that the PC85 camera was aimed at the OB haulout (which also captured the northwest edge of the EUN sandbar unused by seal) rather than at the UEN haulout (along the southeast edge of the UEN sandbar), which was the area of alleged pinniped disturbance. Thus the camera confirmed the presence of a DBOC boat and workers at the relevant time on March 14, 2008 on the UEN sandbar, but the impacted UEN haulout was far to the left of the field of view of the PC85 camera. Furthermore, contrary to the Report, PC85 shows no seals present at OB. If seals were present at and remained undisturbed at OB, then it might be reasonable to question why the seals at UEN would have been disturbed without the same disturbance also being visible at OB. However, absent seals at OB, this line of speculation has no basis. Thus the photos of the PC85 camera can neither confirm nor deny the falsely-accused volunteer's report of harassment at the UEN haulout, where no camera was aimed.
6. As noted in Complaint #7, bullets 1) and 2), there exist eleven codes for V1 eyewitnessed disturbances for 2008 (not including 3/14/08), plus the camera images of 4/3/08.
7. Give the above, SOS believe there was a reasonable basis for S to have relied on the volunteer report, while also including V1's report as simply different, rather than contradictory.
8. As noted above, the evidence demonstrates a reasonable physical explanation for the different 3/14/08 observations of V1 and the falsely-accused volunteer. Furthermore, the 3/14/08 photographic images of OB and UEF are not relevant to and do not contradict the falsely-accused volunteer's recording of a disturbance at UEN. Lastly, the Report's implied contradiction between the falsely-accused volunteer's 3/14/08 data and "the video clips" has no basis in fact since neither www.nps.gov/pore/readingroom/Videos/2008/tape_1/03_March/ nor the "S. Codde" summary of observations indicate that any videos were taken on 3/14/08.

Remedy #8 Thus, we request that this section of the Report be deleted in its entirety and to restate, *"We investigated the facts surrounding V1's failure to observe any seal disturbance on March 14, 2008, the volunteer's record of an alleged seal disturbance on March 14, 2008 and the cameras failure to photograph the alleged seal disturbance. We note the following: the volunteer observer was closer to the site of the alleged disturbance than V1, who was required to split observational time between three sites so widely separated that only one could have been kept in V1's site at any one time. The UEN site of the alleged disturbance was V1's southernmost, thus making observations that would have been contemporaneous with the volunteer least likely. Furthermore, the PC85 camera was aimed at OB, not UEN, the site of the alleged disturbance. The camera nevertheless did confirm the nearby presence of a DBOC boat at the time the volunteer reported a disturbance caused by a boat. In short, the evidence is too inconclusive and inadequate to determine whether the volunteer's observation of 3/14/08 can be confirmed or contradicted.*

Complaint #9 The Report (page 13) states "S1 and S3 replied affirmatively and denied having any conscious thoughts that the withheld data directly or indirectly contradicted all harbor seal disturbance information, including the volunteer's observations of March 14, 2008...[and]...including data which could arguably be interpreted as showing that the DBOC mariculture operations do not disturb harbor seals or deter them from using traditional subsites." But as the Report also notes (correctly) on page 28, "In short, the limited information found in the inconclusive photographic research neither trumps nor disproves all the 2007 and 2008 DBOC-caused disturbances observed by volunteers and included in the research record."

Remedy #9 Thus, we request that this section of the Report be corrected to state, "S1 and S3 replied affirmatively and denied having any conscious thoughts that the withheld data directly or indirectly either contradicted or confirmed all harbor seal disturbance information, including the volunteer's observations of March 14, 2008...[and]...including largely inconclusive data which ~~could arguably~~ the informant asserts must be interpreted as showing that the DBOC mariculture operations do not disturb harbor seals or deter them from using traditional subsites and which others assert must be interpreted as showing that the DBOC mariculture operations do indeed disturb harbor seals and deter them from using traditional subsites. This Report is not qualified to make a judgment about this controversy."

Complaint #10 The Report (page 14) states, "S2's paper carefully evaluated harbor seal population counts and subsite attendance and analyzed mariculture -related disturbances in 1996, 2003, and 2006, none of which relate to DBOC operations, along with the three DBOC-caused disturbances witnessed by S1 on April 26, 2007.....for purposes of this public report, only the six disturbances in 2007 and the single disturbance in 2008 are relevant." DBOC began operations in 2005, thus the 2006 oyster disturbance is attributable to DBOC. As noted in Complaint #3, the 2006 disturbance recorded by volunteers has been disclaimed by DBOC and rebutted by NPS and thus remains contested.

Remedy #10 Thus, we request that this section of the Report be corrected to state, "S2's paper carefully evaluated harbor seal population counts and subsite attendance and analyzed mariculture -related disturbances in 1996, and 2003, and 2006, none of which relate to DBOC operations, along with the May 6, 2006 disturbance witnessed by volunteers, the three DBOC-caused disturbances witnessed by S1 on April 26, 2007.....for purposes of this public report's comments on S2's 2009 paper, only the one disturbance in 2006, the six disturbances in 2007 and the single disturbance in 2008 are relevant."

Complaint #11 The Report (page 15) states, "...the camera placed on the east side of Drakes Estero in 2007 and 2008, the associated digital photos, or the data collected by V1 in 2008, none of which evidenced any pinniped disturbance(s) and all of which either directly or indirectly conflicted with harbor seals disturbances observed by volunteers..." As noted in Complaint #7, the data collected by V1 (S. Codde's summary) recorded eleven eyewitness disturbances in 2008, one of which (5/15/08) was recorded by both photos and video. In addition to the eleven V1 observations, the research record for 2008 includes photos of one disturbance (4/3/08) not eyewitnessed by any observer and one disturbance eyewitnessed by the accused volunteer (3/14/08) that was not recorded by photo.

Remedy #11 Thus, we request that this section of the Report be corrected to state, "...the camera placed on the east side of Drakes Estero in 2007 and 2008, the associated digital photos, or the data collected by V1 in 2008, ~~none of which evidenced any~~ eleven pinniped disturbance(s). ~~and all of which~~ There is credible evidence, contested by the informant, of the photos confirming two of the observed disturbances (5/8/07 and 5/15/08), but the quality of the photos and placement of the cameras prevented the photos from either directly or indirectly conflicting with or confirming the remaining harbor seals disturbances observed by volunteers. This Report is not qualified to make a judgment about this controversy."

Complaint #12 The Report (page 18) states: "in addition, the text of the finished product addressed the Sunday issue by not only arguing that DBOC boats do operate on Drakes Estero on that day of the week

but also explained that 'NPS has time stamped images of a DBOC boat present on March 23, 2008, also a Sunday.' However, subsequent review of the murky images...evinced the inaccuracy of the quoted words and revealed the "DBOC boat" to be a log, a bird, or some object that "cannot be definitely identified as a DBOC motor boat." However the Report fails to point out that the 3/23/08 misidentification could possibly have been corrected had the photos been subject to extensive analysis to identify boats (because the resolution was generally too poor to identify seals, the photos were never subjected to this careful analysis). For example, SOS reviewed 2010 photos, which do show DBOC working on Sundays (see: www.nps.gov/pore/readingroom/Photos/2010/2010%20UEF/2.19_2.28/ images 6627-6640 and www.nps.gov/pore/readingroom/Photos/2010/2010%20UEF/3.19_3.30/ images 1695-1701,1813-1824.

Remedy #12 Thus, we request that this section of the Report be corrected to state *'in addition, the text of the finished product addressed the Sunday issue by not only arguing that DBOC boats do operate on Drakes Estero on that day of the week but also explained that 'NPS has time stamped images of a DBOC boat present on March 23, 2008, also a Sunday.'* However, subsequent review of the murky images...evinced the inaccuracy of the quoted words and revealed the "DBOC boat" to be a log, a bird, or some object that "cannot be definitely identified as a DBOC motor boat. Nonetheless, other images of DBOC boats operating in the Estero on Sundays (e.g. 2/28/10 and 3/21/10) support the NPS argument.

Complaint #13 The Report (page 19) states, "Arriving at that conclusion, which the 2007 and 2008 photographic data might have strengthened in favor of DBOC operations, the Committee recognized the need for more research and implicitly questioned the scientific value of the [Becker] 2009 paper through which 'NPS selectively present[ed] harbor seal survey data in Drake Estero and over-interpret[ed] the disturbance data which are incomplete and non-representative of the full spectrum of disturbance activities in the estero.'"

The Becker 2009 paper makes use of disturbance data collected by NPS volunteers, including data by the falsely-accused volunteer. But as noted in Complaint #9, the Report notes, "the limited information found in the inconclusive photographic research neither trumps nor disproves all the 2007 and 2008 DBOC-caused disturbances observed by volunteers and included in the research record." Thus these photos' impact on the Becker's 2009 paper could arguably favor either NPS or DBOC. Furthermore, the quote from the Committee's (www.mmc.gov/drakes_estero/pdfs/nas_shellfish_mariculutre.pdf) refers to the 2007 NPS "Clarification of Law and Policy," rather than the 2009 Becker paper and thus the Report incorrectly attributes the quote. Lastly, the Committee did not, as the Report states, question the "scientific value" of the Becker 2009 paper but rather the Committee stated, "the Becker et al. (2009) paper has limited value for understanding the long-term trends in seal counts in Drakes Estero..." The Becker 2009 paper was peer reviewed and published in the scientific journal "Marine Mammal Science" ...all of which is evidence of Becker 2009's "scientific value."

The Report presents only the one-sided scientific conclusion that volunteer disturbance data modified by the digital photos could have helped DBOC and if so, would have altered the conclusions of Becker's 2009. Yet this conclusion, whether correct or not, utterly fails to acknowledge the Becker 2010 paper at www.nps.gov/pore/parkmgmt/loader.cfm?csModule=security/getfile&PageID=400381 (page 7) that "addresses many of the questions and analysis recommendations that the National Academy Panel raised in its 2009 report."

Becker's 2010 paper notes (emphasis ours), "Regional population size, short-term human disturbance rate, and other factors were not important in explaining overall seal use of Drakes Estero." Thus, the conclusions of Becker 2010 do not rely on disturbance data...every one of the contested data events could be thrown out and the Becker 2010 conclusion would remain (emphasis ours), "This study, while correlational, supports the prediction that chronic human disturbance (as measured by mariculture activities) coupled with natural processes, affects seal haul out patterns at both the colony and regional scales." Without relying on disturbance data, Becker's 2010 paper found "patterns ...consistent with the findings in the earlier Becker et al. (2009) paper." In summary, the Report's apparent attempt to question the scientific validity Becker 2009 is "beating a dead horse." If the Report is going to assume

the role of scientific arbiter, as it appears to have done, then its silence on the Becker 2010 paper is a significant omission.

Remedy #13 Thus, we request that this section of the Report be corrected to state, *“Arriving at that conclusion, which the inconclusive 2007 and 2008 photographic data might have strengthened in favor of DBOC operations or weakened in favor of the NPS interpretation, the Committee recognized the need for more research that was not dependent on disturbance surveys and implicitly questioned the scientific value of the [Becker] 2009 paper through which “NPS selectively present[ed] harbor seal survey data in Drake Estero and over interpret[ed] the disturbance data which are incomplete and non-representative of the full spectrum of disturbance activities in the estero.” Accordingly, NPS worked to produce Becker 2010, a peer-reviewed paper that addresses many of the questions and analysis recommendations that the Committee raised in its 2009 report. Becker 2010 arrives at similar conclusions as Becker 2009 (strong statistical correlation between increased oyster harvest and decreased seal populations) without relying on contested volunteer reports or inconclusive photos.”*

Complaint #14 The Report (page 21) states (bulleting ours), *“No evidence gathered by V2 established that from April to August 2009,*

- 1. DBOC mariculture operations had harassed any harbor seals in upper Drakes Estero,*
- 2. had displaced the pinnipeds from any subsites in upper Drakes Estero, or*
- 3. had contributed to any reduction in the Drakes Estero harbor seal population, which did not significantly decline in 2009”.*

The Report misunderstands the research record:

1. The Report fails to include the 6/3/09 observation of a harbor seal disturbance by NPS volunteers (that was not picked up by the cameras). The Report also gives excessive weight to V2 evidence (photo logs) that consists wholly of a review of grainy inconclusive photos (i.e., V2 made no direct observations). It should be noted that of the 14 eyewitnessed disturbance events in the research record during the May 2007-August 2009 period when the cameras were operational, there is credible evidence of only two events that were simultaneously photographed. This indicates that either the eyewitnesses lied about the great majority of their observations or that the photos were so grainy and the cameras so misdirected that they were unable to confirm the volunteer observations.

This Report acknowledges in multiple places the latter conclusion about “inconclusive” photos, yet here appears to rely on those same “inconclusive” photos to create the incorrect impression for a casual reader that “no camera evidence of disturbances” is equivalent to “no disturbances occurred.” As should be clear from the 2008 V1 disturbance records, when observations are taken from a site midpoint to and close to oyster operations, rather than from the “seal volunteer” site midpoint to all seal haulouts but much further from oyster operations, the ability to accurately record disturbances related to oyster activity appears to be enhanced (i.e. eleven 2008 disturbances recorded from the site close to oyster operations, but only one 2008 disturbance recorded from the distant site).

2. Furthermore, the Report seemingly fails to understand that virtually every time that V2’s log states that a DBOC boat approached UEM or OB between March 1 and June 30, then this represents a violation of the Harbor Seal Protection Protocol in DBOC’s current Special Use Permit. There are numerous such references...all of which represent a chronic displacement of DBOC activity into a protected seal area and a converse displacement of seals from the DBOC activity.
3. Similar to the Report’s criticisms of S1’s “clumsy” testimony in footnote 6, the Report provides no year as the basis for its 2009 comparison. Becker 2010 divides oyster production years into “high” and “low” and concludes that compared to the pre-DBOC year of 2004 (low oyster production), the 2009 year (high oyster production) resulted in a statistically significant seal

population reductions (65 pups and 192 total seals since DBOC began operations). This strong statistical correlation also holds when the exact oyster poundage is used as the metric. www.nps.gov/pore/parkmgmt/loader.cfm?csModule=security/getfile&PageID=400381 states "Concurrent with higher oyster harvest and after removing effects of other covariates, the proportion of Point Reyes regional seals using Drakes Estero declined by -0.07 ± 0.02 for seal pups (-65 ± 18 total pups), and -0.05 ± 0.02 for total counts (-192 ± 58 total seals)."

Remedy #14 Thus, we request that this section of the Report be corrected to state, "No evidence gathered by V2 established that from April to August 2009, DBOC mariculture operations had harassed any harbor seals in upper Drakes Estero, however the photos on which V2's log was based are largely inconclusive and omit the 6/3/09 disturbance observed by NPS volunteers. Thus, the lack of photos of disturbances is not evidence sufficient to prove that the disturbances are not occurring, or had displaced the pinnipeds from any subsites in upper Drakes Estero. The log by V2 of 2009 photos also indicates chronic entry by DBOC boats into a protected harbor seal area, which could result in a displacement of the seals. or had contributed to any reduction in the Drakes Estero harbor seal population, which did not significantly decline in 2009". The Becker 2010 paper concludes that for high oyster production years like 2009, the proportion of Point Reyes regional seals using Drakes Estero declined by -0.07 ± 0.02 for seal pups (-65 ± 18 total pups), and -0.05 ± 0.02 for total counts (-192 ± 58 total seals)."

Complaint #15 The Report (page 23) states, "...digital photos, the data collected by V1 in 2008, or the data collected by V2 in 2009, none of which evidenced any pinniped disturbance(s) and all of which either directly or indirectly conflicted with harbor seal disturbances observed by volunteers from the southwest corner of Drakes Estero in April and May 2007 and March 2008."

First, there is no logical way that V2's review of 2009 photographic data could possibly conflict with observations by volunteers of incidents that occurred in 2007 and 2008. Second, there is no logical way digital photos, which began in May, 2007 could possibly conflict with observations by volunteers of incidents that occurred in April 2007. Third, per Complaint #1, there is credible 2007 photographic evidence that supports the falsely-accused volunteer's May 8, 2007 report. Fourth, as noted in Complaint #5, there is evidence of at least thirteen DBOC-caused disturbances in 2008 (eleven eyewitnessed by S. Codde, one of which was one documented by both video and still photos, one additional incident was documented by camera only, and the final incident was documented by the falsely-accused volunteer).

Remedy #15 Thus, we request that this section of the Report be corrected to state, "...digital photos, the data collected by V1 in 2008, or the data collected by V2 in 2009, ~~none of which evidenced any pinniped disturbance(s) and all of which either directly or indirectly conflicted with harbor seal disturbances observed by volunteers from the southwest corner of Drakes Estero in April and May 2007 and March 2008.~~"

Complaint #16 The Report (page 28) states, "That argument presupposes that only the blurry photos and accompanying logs can "accurately represent[]" their contents, which evidence no instances of harbor seal disturbances caused by DBOC mariculture operations at upper Drakes Estero during the pupping seasons in 2007-2010....Even without the photos and the accompanying logs, the research record accurately represents their content (i.e. no DBOC-caused disturbances) for most of 2007 and 2008 and of all of 2009 and 2010."

As noted in prior complaints, the research record includes a total of 20 eyewitness accounts of disturbances attributable to oyster activity, three of which were picked up by cameras, despite the majority of the photos being too grainy to show any seals at all.

Remedy #16 Thus, we request that this section of the Report be corrected to state, "'That argument presupposes that only the blurry photos and accompanying logs can "accurately represent[]" their contents, which the informant asserts evidence no instances of harbor seal disturbances caused by DBOC mariculture operations at upper Drakes Estero during the pupping seasons in 2007-2010, yet others

assert there is credible evidence of DBOC-caused disturbances. This Report is not qualified to make a judgment about this controversy Even without the photos and the accompanying logs, the research record accurately represents (irrespective of any controversy) their content; (i.e. no DBOC-caused disturbances) for most of 2007 and 2008 and of all of 2009 and 2010.

2007: A total of six disturbances: all eyewitnessed and all from seal counting surveys (no disturbance surveys undertaken). One of the eyewitnessed disturbances was simultaneously captured by photos;

2008: A total of thirteen disturbances: twelve eyewitnessed disturbances (one of which from a counting survey and eleven of which from disturbance surveys). One of the eyewitnessed disturbances was simultaneously captured by photos. One 2008 disturbance event was captured only by photos. In addition, there are at least 34 photographic records of DBOC boats inside a seal protection area, thus displacing seals.

2009: A total of one disturbance eyewitnessed from a counting survey (no disturbance surveys undertaken). In addition, there are numerous photographic records of DBOC boats inside a seal protection area, thus displacing seals.

2010: No disturbances recorded from counting surveys (no disturbance surveys undertaken), but numerous photographic records of DBOC boats inside a seal protection area, thus displacing seals.

Complaint #17 The Report (page 28) states, "With the exception of disturbance surveys generated by S1 on April 26 2007, and by volunteers on April 29, 2007, May 8, 2007, and March 14, 2008, the research record contains no data which demonstrates that DBOC mariculture operations harassed any marine mammals in the relevant location at the relevant time. Because the Silent Image camera first snapped digital photos on May 5, 2007, the research record lacks an accurate representation of the photographic images for only the latter two dates." Yet as noted above, the research record is substantially different; these sentences of Report are simply wrong and should be deleted.

Remedy #17 Thus, we request that this section of the Report be deleted in its entirety

Complaint #18 The Report (page 28) states "Such analysis specifically rejects the informant's claim that all DBOC-caused disturbance observations, even the harassment of harbor seals witnessed before installation of the camera in 2007, are discredited by the overwhelming and negative implications of the digital photos and handwritten logs, which show no marine mammals being disturbed by DBOC mariculture operations. In short, the limited information found on the inconclusive photographic research neither trumps nor disproves all 2007 and 2008 DBOC-caused disturbances observed by volunteers and included in the research record. Confining attention solely to the differences between the research record and the photographic material, an objective eye focuses solely on the adequacy of the research record for May 8, 2007 and March 14, 2008.

Remedy #18 Thus, we request that this section of the Report be corrected to state, "Such analysis specifically rejects the informant's claim that all DBOC-caused disturbance observations, even the harassment of harbor seals witnessed before installation of the camera in 2007, are discredited by the overwhelming and negative implications of the digital photos and handwritten logs, which the informant asserts show no marine mammals being disturbed by DBOC mariculture operations. Yet others assert there is credible evidence of DBOC-caused disturbances. This Report is not qualified to make a judgment about this controversy. In short, the limited information found on the inconclusive photographic research neither trumps nor disproves all 2007 and 2008 DBOC-caused disturbances observed by volunteers and included in the research record. ~~Confining attention solely to the differences between the research record and the photographic material, an objective eye focuses solely on the adequacy of the research record for May 8, 2007 and March 14, 2008.~~

Complaint #19 The Report (page 29) states, "It follows that scientific or research misconduct would arise in the following situation: intentional acts produced a research record that did not accurately represent information found in the photographic data on May 8, 2007, and March 14, 2008." As noted previously,

the photographic data is largely inconclusive and can only be used to confirm an eyewitness account when the photos are of exactly the same spot at exactly the same time and have sufficient resolution and clarity. That combination of confirming factors almost never occurred.

Remedy #19 Thus, we request that this section of the Report be corrected to state, *"It follows that scientific or research misconduct would arise in the following situation: intentional acts produced a research record that did not accurately represent information found in the photographic data on May 8, 2007, and March 14, 2008 when the photos are of exactly the same spot at exactly the same time and have sufficient resolution and clarity. That combination of confirming factors almost never occurred."*

Complaint #20 The Report (page 29) states, *"S1 and SE2 had no reason to reference the camera or possible photographic contradiction of that (May 8, 2007) visual observation, or the accuracy of the photographic content represented in the research record. Although suspicion now surrounds the volunteer's visual observation of a harbor seal disturbance allegedly caused by DBOC mariculture operations in upper Drakes Estero on May 8, 2007, concerns about the accuracy and weight of that observation remained wholly unknown to S1 and SE2 on that date."*

Remedy #20 Thus, we request that this section of the Report be corrected to state, *"S1 and SE2 had no reason to reference the camera or possible photographic contradiction of that (May 8, 2007) visual observation, or the accuracy of the photographic content represented in the research record. Although suspicion now surrounds the volunteer's visual observation of a harbor seal disturbance allegedly caused by DBOC mariculture operations in upper Drakes Estero on May 8, 2007, concerns about the accuracy and weight of that observation which remained wholly unknown to S1 and SE2 on that date."*

Complaint #21 The Report (page 30) states, *"...numerous, largely inconclusive digital photos from a remote wildlife camera showing nothing more than benign DBOC mariculture operations round harbor seals at upper Drakes Estero..."*

Remedy #21 Thus, we request that this section of the Report be corrected to state, *"...numerous, largely inconclusive digital photos from a remote wildlife camera showing which was aimed at only one of three seal haulouts and which produced blurry images with barely enough resolution to identify seals. While many of the images show nothing more than benign DBOC mariculture operations round harbor seals at upper Drakes Estero, some images and eyewitness reports from NPS volunteers and staff show by the time of the July 2007 meeting an uptick (none in 2005, one in 2006, six in 2007) in DBOC-caused disturbances as DBOC operations expanded toward seal haulout sites in 2007. The informant denies these events as DBOC-caused disturbances. This Report is not qualified to make a judgment about this controversy"*

Complaint #22 The Report (page 31) states, *"Information contained in the research record reveals that volunteers and NPS employees conducted a total of 56 surveys in 2007, and a total of 40 surveys in 2008. During the 56 surveys conducted in 2007, witnesses observed only six harbor seal disturbance caused by DBOC mariculture operations on April 26, 2007 (three disturbances); April 29, 2007, (two disturbances); and May 8, 2007 (one disturbance). During the 40 surveys conducted in 2008, only one volunteer witnessed a DBOC-caused disturbance March 14, 2008."*

Remedy #22 Thus, we request that this section of the Report be corrected to state, *"Information contained in the research record reveals that volunteers and NPS employees conducted a total of 56 surveys in 2007, and a total of 40 surveys plus in 2008. During the 56 surveys conducted in 2007, witnesses observed ~~only~~ six harbor seal disturbance caused by DBOC mariculture operations on April 26, 2007 (three disturbances); April 29, 2007, (two disturbances); and May 8, 2007 (one disturbance). During the 40 surveys conducted in 2008, ~~only one volunteer witnessed a DBOC-caused disturbance March 14, 2008~~ twelve eyewitness disturbances were recorded along with one disturbance recorded by photos only.*

Complaint #23 The Report (page 31) states, *"the relevant and materiality of V1's research and the grainy, inconclusive, and seemingly unhelpful (to NPS) photographic images."*

Remedy #23 Thus, we request that this section of the Report be corrected to state, “the relevant and materiality of V1’s research and the grainy, inconclusive, and seemingly unhelpful (to NPS) photographic images, which the informant asserts show no DBOC-case disturbances, yet others assert show credible evidence of DBOC-caused disturbances. This Report is not qualified to make a judgment about this controversy.”

Complaint #24 The Report (page 32) states, “...employees showed no appreciation for the fact that the research record did not accurately represent available information which indirectly exonerated DBOC mariculture operations as the cause of harbor seal disturbances visually observed by the same volunteer on May 8, 2007 and March 14, 2008. Indeed, the NPS employees should have, but did not attach evidential value to research which failed to confirm, directly and specifically, observations made by a volunteer on those two dates. The subject photographic research, though poor in quality and low in value, undeniably bolstered DBOC arguments that no mariculture operations harassed any harbor seals in upper Drakes Estero either in May 2007, or in March 2008.”

Yet, of the fourteen eyewitnessed disturbance events in the research record during the May 2007-August 2009 period when the cameras were operational, there are only two events simultaneously recorded. Thus, there are only two logical possibilities: either the eyewitnesses were lying about all but two of their observations or the quality of the photos was so poor that the lack of confirming photos cannot be the prime determinant of the veracity of the observation. In the first case, all twelve of the un-photographed observations (including the 3/14/08 observation by the falsely-accused volunteer) should be equally under “suspicion.” In the second case, none of the twelve un-photographed observations should be under suspicion. In no case should the falsely accused volunteer be singled out.

Remedy #24 Thus, we request that this section of the Report be corrected to state, “... employees showed no appreciation for the fact that the research record did not accurately represent available information which indirectly exonerated DBOC mariculture operations as the cause of harbor seal disturbances visually observed by the same volunteer on May 8, 2007 and March 14, 2008. Indeed, the NPS employees should have, but did not attach evidential value to research which failed to confirm or deny, directly and specifically, observations made by a volunteers on those two dates. The subject photographic research, though poor in quality and low in value, undeniably could have, with better design, either bolstered DBOC arguments that no mariculture operations harassed any harbor seals in upper Drakes Estero or bolstered observations by NPS volunteers and staff that showed an uptick in disturbances alleged as caused by DBOC. either in May 2007, or in March 2008. The informant asserts the photos show no DBOC-caused disturbances, yet others assert the photos show credible evidence of DBOC-caused disturbances. This Report is not qualified to make a judgment about this controversy.”

Complaint #25 The Report (page 32) states. “someone in their chain of command...should have...demanded disclosure of all research which a reasonable objective scientist could interpret as data suggesting that DBOC mariculture operations did not disturb harbor seals at upper Drakes Estero on May 8, 2007 or March 14, 2008.”

Remedy #25 Thus, we request that this section of the Report be corrected to state, “someone in their chain of command...should have... discovered the Interim Guidance document sent specifically only to members of the NPS Leadership Council, then distributed the Interim Guidance document to relevant PRNS employees and volunteers and explained that it now mandated that data even from research that appeared to be useless should nevertheless be processed thoroughly an expeditiously and that the definition of “draft” data formerly exempt from FOIA request had now been changed to mandate that even “draft” data be released and thus demanded disclosure of all research which a reasonable objective scientist could interpret as data suggesting that DBOC mariculture operations did not disturb harbor seals at upper Drakes Estero on May 8, 2007 or March 14, 2008.” could have, with better design and/or equipment, either bolstered DBOC arguments that no mariculture operations harassed any harbor seals in upper Drakes Estero or bolstered observations by NPS volunteers and staff that showed an uptick in disturbances caused by DBOC.

SUMMARY

As the above Complaints make clear, the Report goes beyond its mandate, expertise and experience to present unfounded scientific conclusions that result in an accusation that one specific NPS volunteer either directly or indirectly violated:

- 18 U.S. C. § 1001;
- "Scientific Misconduct" as defined by federal policies; and
- An applicable interim NPS Code on Scientific and Scholarly conduct.

These accusations against the NPS volunteer, which relate to her/his records of observations on May 8, 2007 and March 14, 2008, are in the first instance contradicted by the evidence and in the second instance are not supported by the preponderance of evidence.

Further undermining the accusations are statements in the Report concerning the scientific record of data gathered by NPS volunteers (including the falsely-accused volunteer) that are factually incorrect.

Save Our Seashore, requests that the many factual scientific errors and unsubstantiated scientific conclusions in the Report be corrected. We also request removal of the specific accusations against the one NPS volunteer, and by logical extension against each of the many NPS volunteers and staff who may have eyewitnessed harbor seal disturbances but did not to have their observations confirmed by largely inconclusive photos from remote and often misdirected cameras.

To: Marine Mammal Commission (MMC), Executive Director Dr. Ragen

Re: Save Our Seashore's Review of Dr. Goodman's data and his attacks on the NPS Becker 2011 analysis concluding that oyster operations impact harbor seals in Drakes Estero

Date: October 5, 2011

Dr. Goodman attacks NPS using faulty data, faulty analysis, baseless accusations, meaninglessly tautological statistics and unverifiable data withheld from NPS and other reviewers.

Dr. Goodman's faulty accusations regarding NPS data requests

Save Our Seashore (SOS) regrets that the Drakes Bay Oyster Company (DBOC) withheld data from the National Park Service (NPS) in spite of the promise by DBOC's owner Mr. Lunny at the February 23, 2010 MMC hearing in Point Reyes, to provide to NPS what were then asserted to be detailed planting and harvesting records. We understand that between that February, 2010 MMC meeting and October, 2010, NPS scientist Dr. Becker made requests both by telephone and by documentable email for meetings to initiate that data transfer, but every one of these meetings was unilaterally cancelled by DBOC. NPS ultimately concluded that DBOC was not going to honor its promise and thus submitted the Becker 2011 paper on October 14, 2010 to a peer-reviewed process for scientific publication. Thus Dr. Goodman's accusation (summary pg. 15) that "*Between those two dates [February 23, 2010 and October 14, 2010], Becker never asked Lunny for the DBOC data*" is patently and demonstrably false.

Clearly, it would have been in DBOC's own interest to provide all of its data to NPS if, as claimed, that data supported DBOC's position that its operations have no impact on harbor seals. Ironically, much of this presumably carefully-selected "data" clearly contradicts both DBOC's own position and thus the conclusions in Dr. Goodman's analysis based on that contradicting data. Regardless, Dr. Goodman attempts to use this wholly unverifiable DBOC "data" to attack NPS. SOS believes Dr. Goodman's and DBOC's actions regarding this withheld "data" clearly violate the MMC policy on Scientific Integrity (http://www.mmc.gov/commission_policies/pdfs/sci_integrity_policy.pdf) as well as the MMC policy on data quality http://www.mmc.gov/commission_policies/pdfs/data_quality_guidelines.pdf. We therefore ask below that the MMC take certain actions to correct these violations.

Dr. Goodman's reliance on preferential and unverifiable data

NPS has released all the data that formed the basis for its statistical analysis of oyster impacts on seals. This wholly transparent process has thus allowed Dr. Goodman to attack, others to comment and (in our case) to replicate the NPS analysis. In contrast, Dr. Goodman used preferential selections from DBOC data (withheld from NPS and others) to create the unverifiable illusion of support for his analysis of harbor seals that claims to contradict the NPS analysis. Furthermore, Dr. Goodman quotes extensively (Part 2 Slides 5-7 and 13-14) from the February 2010 Marine Mammal Commission Hearing in Point Reyes, yet the MMC has not released any transcript of this meeting.

Consequently, there is presently no way of knowing whether the preferential and unverifiable data, including quotes from the claimed transcripts of the MMC meeting, is representative, accurate, within the proper context, or even whether it exists at all. Save Our Seashore believes that Dr. Goodman should be required to play by the same rules that all parties agree to in the MMC statistical review of the NPS seal analysis. We thus request that the Marine Mammal Commission require that:

1. Dr. Goodman provide access to all reviewers within 48 hours to all non-public data on which Dr. Goodman's analysis preferentially relies, or that
2. Dr. Goodman retract those portions of his harbor seal analysis that rely on that preferential and unverifiable data, or that
3. The Marine Mammal Commission refuse to accept that preferential and unverifiable data and that the MMC and decline to consider those portions of Dr. Goodman's harbor seal analysis that rely on that same data.

Dr. Goodman's Faulty Criticisms of NPS re Bed #17

Dr. Goodman misquotes Becker 2011 (Part 2 slide 51) as claiming, *"There were no oysters harvested at OB & UEN in last five JOC years (2000-2004)."* In fact Becker stated (pg. 6) that there were *"few or no bags"* in these areas. Thus DBOC's scanty (and unverifiable) California Department of Public Health (CDPH) records of harvest (9 days in 2001 plus 2 days in 2003 out of a total of 1826 days from 2000-2004) does not contradict Becker. Dr. Goodman then asserts (slide 51) that his misquote of Becker 2011 *"is contradicted by CDPH records [and] by JOC and DBOC employees, managers, and owners [because] the reason was simple: bed #17 is the only place where JOC or DBOC can harvest after rainfall, and thus is key for maintaining harvest in months such as March and into April."* (Part 2, Slide 48). Three pieces of evidence either do not support or directly contradict Dr. Goodman's faulty accusation of NPS:

1. The attached maps (11-10-SOS-3-ReviewOfGoodmanExhibit) from the various California Department of Public Health (CDPH) Management Plans for Drakes Estero clearly show bed # 17 from October 2000 (Exhibit pg. 1) to January 2005 (Exhibit pg. 2) near Barries Bay at the far west end of the UEN sandbar and well outside of the "Approved Area" (which is the harvest area that is not subject to rainfall closures). Dr. Goodman does not disclose that his Part 2, Slide 48 Map actually depicts the location where DBOC **moved bed # 17** sometime **after** the 2000-2004 period that Becker described as having "few or no bags." This move can be seen in the January 2007 Map (Exhibit pg. 3) shows that Bed #17 then in the center/east of the UEN sandbar, adjacent to the Seal Protection Area and inside the "Approved Area." Thus, Dr. Goodman's own "evidence" does not support his faulty accusation of NPS.
2. Dr. Goodman's Part 2, Slide 50 reproduces claimed CDPH forms with handwritten notes referencing bed #17. However, both forms state (emphasis ours), *"This form is for the use of California certified shellfish growers who harvest from conditionally approved areas."* If, as Dr. Goodman asserts, bed #17 was located in an "Approved Area," then harvest from bed #17 would have been recorded on a wholly different CDPH form. Again, Dr. Goodman's own "evidence" does not support his faulty accusation of NPS.
3. Furthermore, this same Part 2 Slide 50 shows handwritten notations on the claimed CDPH forms referring to bed #17 as "Called Raincheck" (1/2/03) and "Closed" (4/14-15/03). If bed #17 had been, as Dr. Goodman incorrectly claims in an "Approved Area" from 2000-2004, then there would have been no need to call in for a "Raincheck" and bed #17 would not need to have been "Closed" after a rainfall. Dr. Goodman's preferential and unverifiable data presumably selected for maximum support of his assertion actually contradicts his faulty accusation of NPS.

Dr. Goodman's Faulty Accusations of NPS re Bed # 20

Dr. Goodman's Accusations of NPS re Bed # 20 are faulty because the asserted CDPH forms (Part 2, slide 50) show no handwritten references to bed #20 at all, thus Dr. Goodman's proffered evidence does not support his accusation. Furthermore, Dr. Goodman's quotes from Jorge Mata, *"every year since 1984 to the present, oyster bag culture was used in harvest area #20 and 17."* However, Mr. Mata is a self-interested individual whose statement about Bed #20 has no credibility because of his demonstrably misleading statement about bed #17, which as the foreman for JOC and DBOC, Mr. Mata was responsible for moving and likely numbering. However, Dr. Goodman's quotes from Mr. Mata about bed #17 fail to disclose two crucial clarifying facts:

- a. That bed #17, as noted above, had been significantly relocated after January 2006 into the "Approved Area" adjacent to the Seal Protection Area; and that
- b. Moving old bed #17 (instead of creating a bed with a new number) on top of Water Quality Station #17 created the misleading impression to the casual reviewer that bed #17 had always been located in the middle of UEN. To compound this first misleading action, oyster harvest resumed in January, 2008 at the far western location of former bed #17, but with a new bed number #42 (see Exhibit pg. 4). These two misleading actions provided Dr. Goodman with the false basis for his attacks on NPS.

Dr. Goodman's "Photoshopped" Criticisms re Seal Use of the West End of the Lateral Channel

Given Dr. Goodman's unjustified inflation of the claimed handwritten CDPH records, then his reliance on the map at Part 2, Slide 19 is ironic. It is clear from the California Department of Fish and Game (CDFG) map at the MMC website (http://www.mmc.gov/drakes_estero/pdfs/moore_surveynotes52091.pdf) that Dr. Goodman has proffered as his evidence a unique version of that 1992 map that has been "photoshopped" and cropped such that all of the handwritten records by CDFG's Tom Moore that contradict Dr. Goodman's assertions have been eliminated. If this effort had been undertaken in the context of NPS policy, Save Our Seashore believes it could qualify as "scientific misconduct," which as the Frost Report (Department of the Interior, Office of the Solicitor pg. 1-2) notes, does not include *"honest error or differences of opinion"* but rather requires...an intent to defraud, deceive or mislead *"by manipulating research material or changing or omitting data..."*

This 1991/92 map's handwritten records, omitted in Dr. Goodman's analysis, are important because they prove incorrect the assertions and implications in Dr. Goodman's analysis that seals only use the eastern end of the lateral channel (Part 2, slide 13). That 1991/92 map on the MMC website shows light notations of exact counts and locations for seals, including at *"13:50 25"* off the point above Barries Bay at the west end of the Lateral Channel. This important evidence, produced by CDFG, on the CDFG map at the MMC website was "photoshopped" away in Dr. Goodman's presentation (presumably using a high contrast that did not pick up these unambiguous but faint notes handwritten during the survey).

The second page of notes to this same 1991/92 map on the MMC website additionally corroborates seals hauled out at the western end of the Lateral Channel (*"11:00 -12 doz mammals off point by #17"*), but this page was cropped from the CDFG map on the MMC website in Dr. Goodman's analysis. The photoshopped and cropped version of this 1991/92 map is then used by Dr. Goodman (Summary Slide 17) to justify his attack on NPS in which he falsely claims *"But this [NPS] answer is contradicted by...the 1991-1992 NPS-NOAA-CDFG map."* In reality however, the un-photoshopped and un-cropped 1991-1992 NPS-NOAA-CDFG map contradicts Dr. Goodman.

Similar records of seal use outside the eastern "Seal Protection Areas" (to which harbor seals have been "assigned" by agency agreement without being signatories) can be found at http://mmc.gov/drakes_estero/pdfs/ltr_hunter_sansing_103091.pdf and at http://mmc.gov/drakes_estero/pdfs/ltr_sansing_hunter_91991.pdf.

While Dr. Goodman would like the public to believe that all these changes in historic seal use are due to "eelgrass" and "mother nature," we believe a much more likely explanation is incremental displacement by oyster activity. Even now, harbor seals have been observed using this western haulout on a Sunday (when DBOC boats were not present), thus further corroborating that the western UEN end of the Lateral Channel remains suitable habitat likely to be more intensely used by seals if it were not for the chronic weekday presence of DBOC boats and workers.

Whether or not harbor seal use of haulouts west of the current "Seal Protection Areas" has declined over the years, Dr. Goodman's analysis ignores the potential importance of the western section of the Lateral Channel for other non-haulout seal activities such as foraging, mating or simple transit between the western and eastern haulouts...all of which activities can be significantly impacted by the presence of boats and workers. DBOC's use of the Lateral Channel to access the current location of beds #17 and #20 in effect drives a wedge between the eastern and western haulouts. The shortest and most likely route for seals to move between these haulouts is the Lateral Channel itself, notwithstanding that the western end may contain more eelgrass, which is not per se a deterrent to all seal use.

Dr. Goodman's false assertions re DBOC use of the West End of the Lateral Channel

The NPS "wildlife" cameras document DBOC boats present in the Lateral Channel virtually every weekday, even when such activity during breeding season is violation of the "Seal Protection Protocols" in Exhibit C of DBOC's Special Use Permit, which states, *"During the breeding season, March 1 through June 30, the "Main Channel" and "Lateral Channel" of Drakes Estero will be closed to boat traffic."*

Dr. Goodman's *"aerial photo from April 26, 2011 (courtesy of Todd Pickering and John Hulls)"* (Part 2 Slide 33) documents the extent of these chronic violations. As you can clearly see, the boat has landed during the breeding season more than halfway down the Lateral Channel as measured from its western end to the smaller northern channel that marks the boundary of the "Seal Protection Area." It is only by a twist of semantics that Dr. Goodman can claim (Summary page 4) that, *"Since January 1992, oyster boats have used the shallow west channel to enter and park along the far west end of the lateral channel...during pupping season."* Similar twisted semantics can be found on Goodman's Part 2 Slide 10, which claim that *"In early April 2007 (i.e. within the breeding season)... Lunny told Jorge Mata to stop entering the west end of lateral channel...during pupping season."* If this unverifiable statement is true, it is yet another admission that the 1992 Seal Protections supposedly in effect were routinely violated.

Furthermore, sound intensity increases by the square of the declining distance, thus the chronic incursion of DBOC boats into the Lateral Channel during the breeding season means that the noise from a boat heard through the air at the boundary of the Seal Protection Area would be four times as loud as the noise from that boat at the physical (rather than the semantic) west end of the Lateral Channel twice as far away. Noise is intensified in Drakes Estero, reflected back by steep cliff and ridges and boat noise travels even better through water. Is it any wonder then that Mr. Lunny, DBOC's owner, states (Part 2, Slide 13), *"we don't see the harbor seals hauling out along the lateral channel now."*

SUMMARY

Dr. Goodman's criticisms of NPS and his alternate theories are not supported or contradicted by his:

- Patently false accusation about NPS not requesting DBOC data
- Reliance on preferential data that is unverifiable by other reviewers;
- Significant data errors re Beds #17 and #20;
- Significant omission of contradicting data re the seal haulout at the Lateral Channel's west end and elsewhere in the Estero;
- Unjustified assumptions and claims regarding the Lateral Channel supposedly closed during breeding season, but actually subject to chronic incursions by DBOC;

We believe that Dr. Goodman (under the pretense of their supposedly requested anonymity) could get no reputable, professional statisticians to sign on to his fatally-flawed statistical analyses. Dr. Goodman's statistical criticisms of Becker as well as his alternate statistical theories are contradicted by Dr. Richard's attached analysis of Dr. Goodman's significant statistical errors, including:

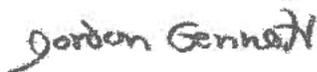
- The elimination of oyster harvest as a covariant without statistical justification,
- Claimed "better" models logically flawed by inclusion of dependent variable as a covariant and
- Dr. Goodman's assertion of acreage data that actually contradicts his own assertion.

In Save Our Seashore's opinion, Dr. Goodman's significant errors and omissions and false accusations in his analysis of NPS's Becker 2011 are simply a continuation of behavior that the Frost Report

- Page 5 described as *"verbal and written assaults on NPS scientist and officials who [Dr. Goodman] has repeatedly accused of misrepresentation."*
- Page 8 noted that [Dr. Goodman] *"reviewed the data, unilaterally concluded that the provided information did not support comments made by NPS....rejected the possibility of honest but different scientific opinions, and immediately accused [NPS]...of fabricated or falsified claims."*
- Page 15 noted that Dr. Goodman *"immediately attached labels of 'false' and 'misrepresentation' and 'misleading' to every to every scientific assertion with which [he] disagreed."*
- And Page 16 described Dr. Goodman's accusations of NPS science as *"false science...false explanations, false data and false explanations"* and further noted that Dr. Goodman's behavior was not an effort to provide constructive scientific criticism while maintaining scholarly disagreement, but rather as *"an effort to destroy the credibility [of the science and the scientists]...and flatline... [NPS] data."*

Save Our Seashore had hoped that the structure of the MMC "statistical review" would provide Dr. Goodman with a legitimate opportunity to turn a new leaf. Instead, Dr. Goodman's actions in this review reinforce the appearance of an a-priori bias to vindicate DBOC regardless of any independently reviewable data. We regard Dr. Goodman's review as evidencing a significant descent into the banality of scientific hectoring from what might otherwise be Dr. Goodman's potential ability to contribute to both the advancement of science and the public understanding of science.

Sincerely and Regretfully,



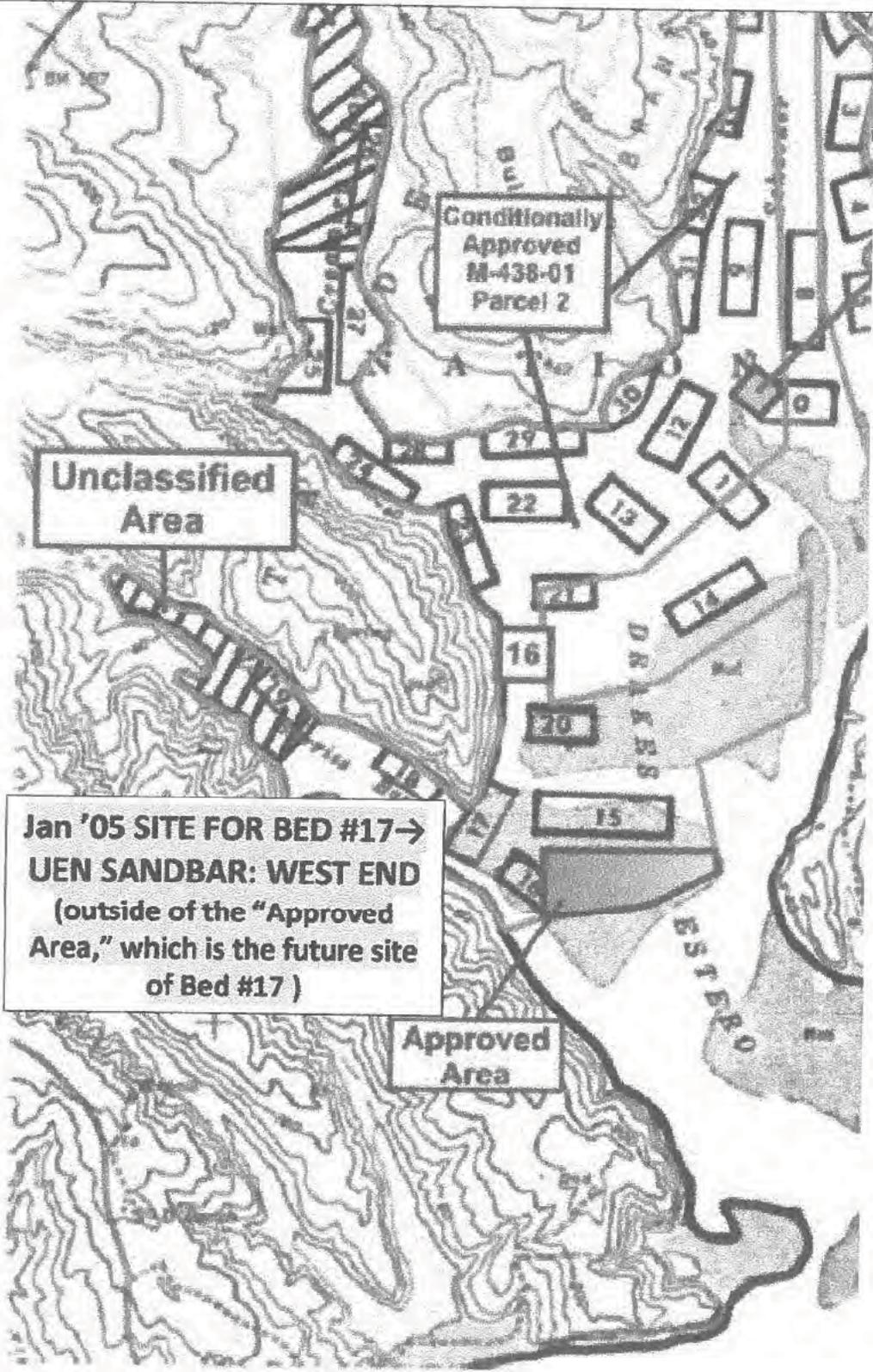
Gordon Bennett, President, SOS

CDPH BED LOCATIONS - OCT 2000

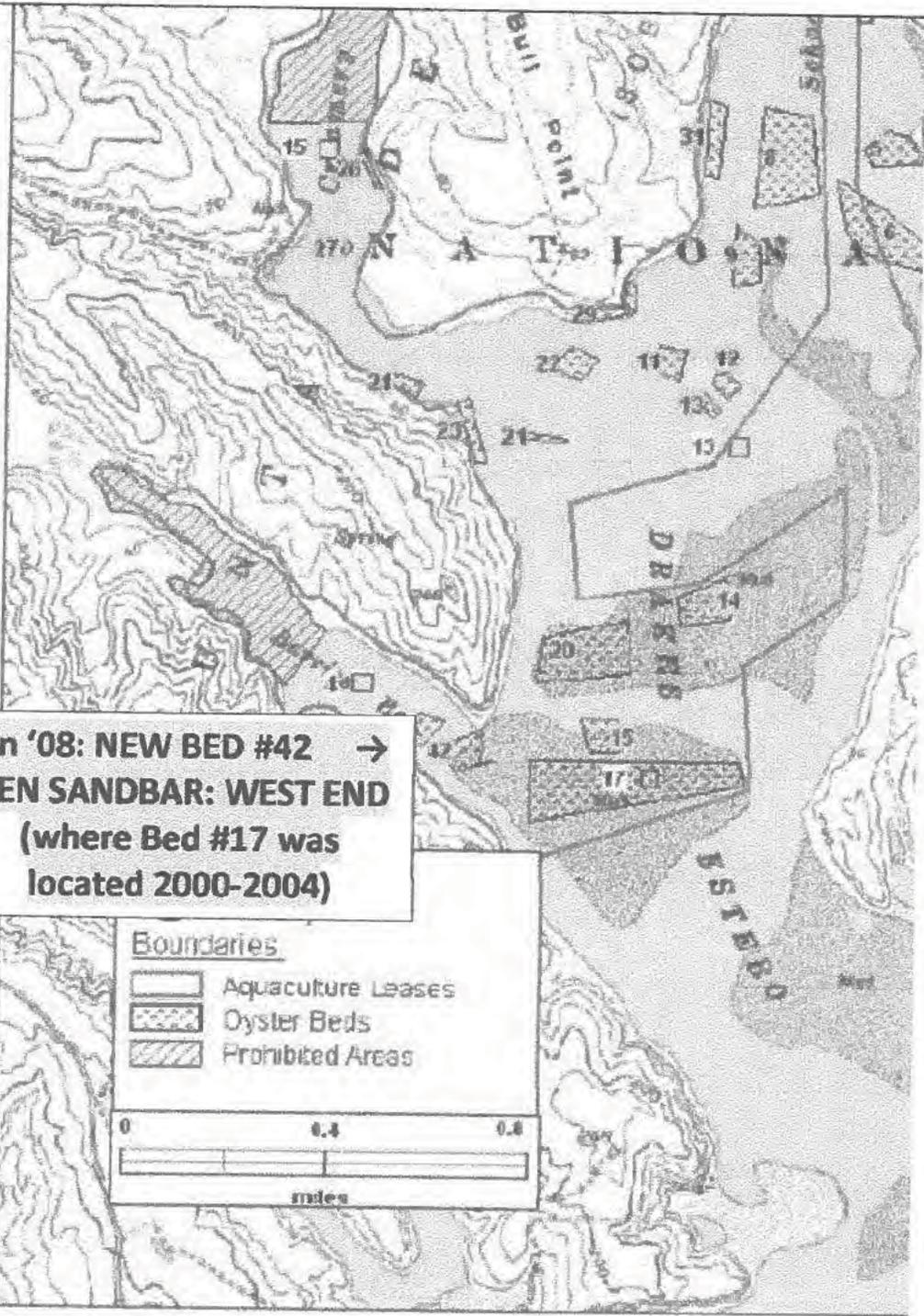


**Oct '00 SITE FOR BED #17
UEN SANDBAR: WEST END →**
Note: Bed #17 (inside rectangle) is outside the "Approved Area," which is the future site of Bed #17 and which contains Water Quality Station #17 (white circle)

CDPH BED LOCATIONS - JAN 2005



CDPH BED LOCATIONS - JAN 2008



**Jan '08: NEW BED #42 →
UEN SANDBAR: WEST END
(where Bed #17 was
located 2000-2004)**

Boundaries

-  Aquaculture Leases
-  Oyster Beds
-  Prohibited Areas

0 0.4 0.8
miles

REVIEW OF Dr. GOODMAN'S RESPONSE TO BECKER (2011)

Dominique M. Richard, Ph.D. October 4, 2011

Dr. Goodman's rejection of Becker 2011 is fatally flawed in both logic and statistics.

Dr. Goodman does not even bother to challenge the Becker's (intra)colony scale analysis (that Dr. Harwood describes as "clear" and "convincing"). Instead, Dr. Goodman attempts to circumvent this "inconvenient truth" by attacking Becker's regional scale analysis. Any expansion from localized impacts to regional impacts and then to worldwide impacts will, by definition, show increasingly more diffuse impacts. Dr. Goodman attempts to exploit this triviality (by attacking Becker's regional analysis) may be a prelude to discrediting Becker's (intra)colony analysis. However, Dr. Goodman's attempt will fool only the statistically uneducated because Becker's analyses are statistically separate and Dr. Goodman's hammer is made of glass because it has no statistical or logical integrity.

Dr. Goodman ignores all Becker analysis except for those summarized in Table 3 (a "regional-scale" analysis) "since those numbers represent the major finding of spatial displacement as cited in the title". Dr. Goodman then constructs his regional argument in three steps using linear regression as a primary tool and assessing its results by considering the coefficient of determination and its level of significance:

- **Elimination of Oyster Harvest:** Dr. Goodman first considers how the proportion of pups in Drakes Estero varies as a function of the High/Low {1,0} level of oyster harvest and rationalizes, without statistical basis, his removing extreme data points of this dataset which significantly reduce the significance of the relationship. Thus, he is able to claim that the size of the oyster harvest has no effect on seal geographical distribution.
- **Better Models:** To reinforce his point, Dr. Goodman then proposes a set of better models that do not include oyster harvest as a covariate but only uses "data provided by NPS" to demonstrate that the oyster operation has no bearing on seal distribution and that instead all changes observed in the Estero are due to the working of "mother nature."
- **Contested Acreage Data:** To tighten his argument, Dr. Goodman turns to the analysis which relates oyster harvest to the acreage used for growing the oysters (Figure 4), a relationship that is critical to explain the spatial displacement imposed on the seal. Here again he contests a number of data points to weaken the strong relationship that NPS claims, however as explained below and elsewhere, Dr. Goodman's contestation of these acreages are without merit.

In the following we will review the details of each of Dr. Goodman's three-step analysis of regional impacts to assess its appropriateness and/or robustness.

1. Dr. Goodman's Claim that the Size of Oyster Harvest Does Not Affect Seal Distribution.

First, Dr. Goodman evaluated the regression relating the proportion of pups in the Estero to the High/Low level of harvest, to yield a coefficient of determination of 0.2146 with a significance level of $p < 0.041$, which is not a very strong result. Dr. Goodman then proceeds to concurrently plot the time series of the proportion of pup in Drakes Estero, the proportion of pups on Double point and the total number of seals to claim that "to the eye" [the combination of proportion of pups at double point and total seals] look better than annual oyster harvest [to explain the change of proportion at Drakes Estero]." Armed with this "visually" (but not statistically) based evidence, he concludes that the 2003 and 2004 data points are uniquely determined by the rogue elephant seal at Double point and should therefore be removed. To conclude his argument he then also suggests, that the 1983-1984 data points should also be removed because they were not under the seal protection protocols JOC entered in 1992

(in our related letter on Dr. Harwood's review, SOS contests Dr. Goodman's rationale for removal of these years). Dr. Goodman then conducted another regression without the "non-typical" 1983, 1984, 2003, and 2004 data yielding a coefficient of determination of 0 with a significance $p < 0.9824$ or ABSOLUTELY NO relation between oyster harvest High/Low and the proportion of pups in the Estero.

However it is worth noting that in wildlife biology, there is almost never a "typical" year and that post hoc rationales can almost always be constructed to include or exclude data in order to achieve a desired result.

- Moreover, Dr. Goodman's resulting model described above was evaluated in Becker (2011); it is in position 5 in Table 3 showing the same statistics that Dr. Goodman calculated.
- Second, this model is 3.3 points away from the minimum QAICc which makes it a model only mildly worth considering. Indeed "As a rule of thumb, models having their AIC within 1–2 of the minimum have substantial support and should receive consideration in making inferences. Models having their AIC within about 4–7 of the minimum have considerably less support" Burnham & Anderson (2002, 446).

So, on the face of it Dr. Goodman agrees with Becker (2011) but the post hoc removal of the data he elects to do on a non-statistical basis ("visual evidence" from graphs of time series and reference to protocols that we argue elsewhere should not have had any effect on seal population) exhibits the appearance of an a-priori bias to ignore the complexity of the problem in order to vindicate DBOC regardless of evidence derived from the data.

2. Dr. Goodman's Claim of Finding Better Models

So, after having eliminated oyster harvest as an explanation for the proportion of seals in the Estero with questionable post hoc decisions, Dr. Goodman proceeds to demonstrate that models limited to covariate reflecting "the work of mother nature" can be shown to be significantly better than those proposed in Becker (2011). He thus derives 6 models with large coefficient of determination and significance level s beyond those reported in Becker (2011). Comparing the best model proposed by Dr. Goodman to the best model published by NPS does indeed shows a thousand fold increase in significance level; however, this is like comparing apples to bricks.

Closer scrutiny in analyzing these better models shows significant logical flaws in Dr. Goodman's reasoning as well as significant flaws in Dr. Goodman's statistical techniques.

First, he only considers the coefficient of determination and its level of significance without reporting the level of significance of the regression coefficients, which are specific to each variable.

Second, his assessment of a thousand-fold improvement is very misleading. Indeed, since this level represents the probability that the results found are only due to chance and since Becker's top model shows a level of significance that is already quite low, a 1000-fold difference represents an infinitesimal change in significance.

Third, taking Dr. Goodman's second model (proportion of pups at Drakes as a function of DP pups and total regional seals) as an example, we could build a equivalent model with the explicit components of the total regional seals (i.e., regional seals = adult in Drakes + Adult not in Drakes + Pups in Drakes + Pups not in Drakes). This model has an even better coefficient of determination (0.9279) with and a higher significance level ($p < 0.000000042286$). However when considering the significance level of the individual covariate, we find that only the variable "pup in Drakes" and "pup not in Drakes", which are also part of the dependent variable, are statistically significant. Not disclosing this important fact allows Dr. Goodman to run a logically-flawed regression that looks good but is totally devoid of meaning.

The other five top models and a few others that Dr. Goodman claims are better than the best of Becker (2011) suffer from a similar flaw (i.e., implicitly introducing the dependent variable as a covariate).

In summary, all of Dr. Goodman's better models reduce to a tautology where the proportion of pups in Drakes explains the proportion of pups in Drakes. The brick of a tautological argument will, by definition, always be heavier than the apple of the best-reasoned argument. Stripping away the statistically nonsensical arguments, the rest of Dr. Goodman's better models all include oyster harvest as a significant covariate and thus support Becker 2011. In short, Dr. Goodman's own analyses confirm the opposite of what he claims.

Note also that even if Dr. Goodman had proposed good models (i.e. that did not introduce a dependent variable as a covariant), the R2 technique that he chooses remains a blunt instrument more appropriate for simple linear regression models. In contrast the Akaike Information Criteria (AIC) and its derivative (QAICc) used in Becker 2011 uses the "principle of parsimony" to trade off the maximum value of the likelihood function with the number of variables included in the model so as to provide a more robust solution (high likelihood, few variables) to complex multivariate models such as are commonly found in analyses of wildlife responses. In effect, using R2 instead of AIC as a performance metric would slightly change the order of the selected models but, more importantly, it would also lack a precise way to eliminate models not worth of consideration. Given the known limitations of R2 and the prevalent use of AIC in wildlife analyses, it is surprising that Dr. Goodman did not extend his statistical analysis past R2 to AIC.

3. Dr. Goodman's Contest of the NPS Acreage Data

To secure his flawed argument, Dr. Goodman questions the relationship between oyster harvest and acreage used for oyster growing displayed on Figure 4. He specifically targets the 2005 and the 2007 acreage that he considers overestimated. However if both these acreages are reduced in half the value of the coefficient of correlation between acreage and oyster harvest actually increases (i.e., there is better correlation) and its significance level decreases (i.e., more significant correlation). It is only when the 2007 acreage alone is reduced to 15% of its original value that the correlation begins to degrade to a possible coefficient of correlation of 0.84 ($p < 0.0229$) when the 2007 acreage is ignored vs. 0.91 ($p < 0.003$) as reported in Becker (2011). In fact and in contradiction to Dr. Goodman's attempts, the best way to reduce the value and the significance of the correlation would be to INCREASE the 2007 acreage.

Conclusion

Dr. Goodman appears to exhibit a strong bias, given that his review of Becker (2011) seemingly fails to find any redeeming quality to any analysis NPS provided. It was not for lack of opportunities since, for the record, Becker (2011) does recognize the influence of Double Point (particularly in the 2003 season) but the statistics of this single covariate is insufficient to explain the change in the proportion of pup in Drakes; it further shows that it is only with the addition of oyster harvest and the max number of seals on sandbar "A" that one can obtain a significant and robust model.

In our view, Dr. Goodman fails to demonstrate that oyster harvest has no effect on the proportion of pups in Drakes Estero and cannot provide any statistically robust or logically reasonable alternative explanation for the changes observed in the data.

Dominique M. Richard, Ph.D.

Note to MMC on the 1992 Seal Protocols.

The 4/28/92 document http://www.mmc.gov/drakes_estero/pdfs/ltr_san_hulbrock_42892.pdf lays out NPS's written understanding of the Jan 15, 1992 verbal agreement and includes a "Figure 1" map (attached as page 2) that identifies the "main channel," western channel" and "lateral channel." The "Lateral Channel" (darkest color) runs to the end of the OB/UEN sandbars at its intersection with the "Western Channel." Below the "Figure 1" map is the description "*Lateral Channel – Closed March 15 – June 1.*"

This 5/15/92 document http://www.mmc.gov/drakes_estero/pdfs/ltr_hulbrock_san_51592.pdf lays out CDFG's written understanding of the Jan 15 1992 verbal agreement, which differs somewhat from NPS's. For the sake of clarity, SOS has included as page three an underlined/struckthrough version showing CDFG changes from the NPS draft (none of which alters the Figure 1 Map's language describing the "Lateral Channel" as "Closed March 15 through June 1"). This 5/15/92 letter also makes clearer Pg. 1, paragraph 3) that "*The three of us all recollect that operation in this western channel was required for the minimal servicing of beds 1, 2, and 3. We remember the agreement from JOC not to use the lateral channel, but to use the western channel, and then to travel by foot if necessary to reach the beds.*" Thus the phrase "*between beds #2 and #3 and bed #1*" in the full text of the 5/15/92 Protocol ("*The 'lateral channel' between beds #2 and #3 and bed #1 (Figure 1.) are closed to boat traffic from March 15 through June 1.*") should be read as a descriptor of the location of the lateral channel, and not as a geographic limitation on the closure of the Lateral Channel. Such a reading implying a geographically limited closure would be incorrect because it would be inconsistent with both the "travel by foot" language of this same 5/15/92 letter, as well as inconsistent with the Figure 1. Map and its "*Lateral Channel -Closed*" description in the prior 4/28/92 NPS letter (that CDFG did not amend).

Thus there is no exception in either the 4/28/92 Map or related 5/15/92 Agreement for oyster boats during the pupping season to use the western end of the lateral channel as implied by Dr. Goodman. The entire Lateral Channel is closed during the pupping season, and oyster boats should be using only the western channel to approach and land on the sandbars from which western landing spot to then access any beds by foot. By separate letter (11-09-SOS-2-ReviewOfGoodmanData, pg. 4) we have provided the MMC with evidence of routine DBOC violations of this closure of the "Lateral Channel" that we believe have resulted in the displacement of seals from preferred pupping sites in the Estero.

The 5/15/92 "Record of Agreement" includes the final terms of the Seal Protocols and the 4/28/92 Letter includes the descriptions and Map of the final Seal Protections agreed to by all parties (the document at http://www.mmc.gov/drakes_estero/pdfs/ltr_san_hulbrock_6292.pdf is simply NPS's acceptance).

I hope this clarifies the 1992 Protocol's terms and the geographic areas that those terms were intended to apply to.

Sincerely,



Gordon Bennett, SOS President

10/5/11

Drakes Estero Harbor Seal Pupping Season Closures

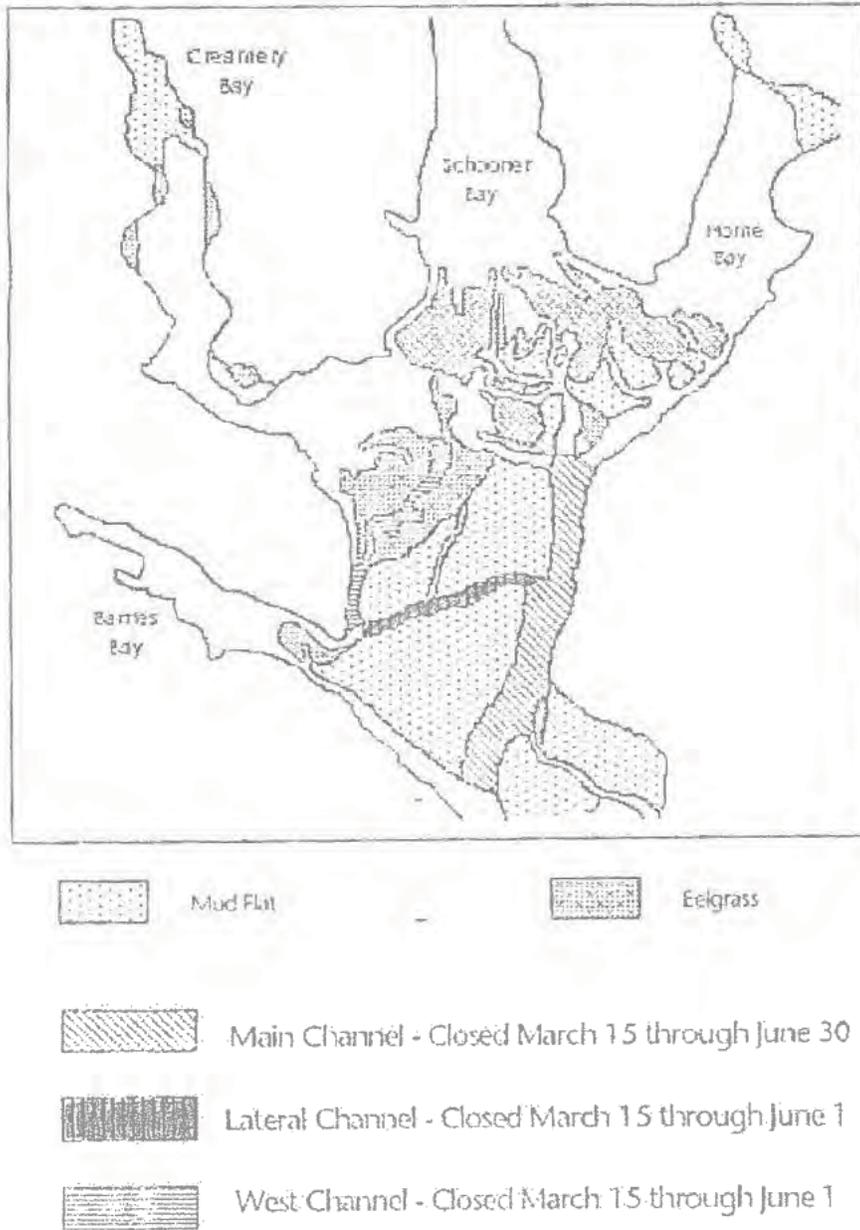


Figure 1

Record of Agreement
Regarding
Drake's Estero Oyster Farming
and
Harbor Seal Protection

As a result of a meeting held January 15, 1992 between the National Park Service (NPS), National Marine Fisheries (NMFS), the California Department of Fish and Game (DFG) and Johnson's Oyster Company (JOC), a series of operating procedures ~~and restrictions were~~ was agreed upon to minimize the disturbance to harbor seals resulting from JOC oystering operations. The following items were mutually agreed to by all parties:

- During the pupping season, March 15 through June 30, the main channel (Figure 1.) of Drake's Estero will be closed to boat traffic.
- ~~— The western channel between Creamery Bay and Barries Bay (Figure 1.) will be closed to boat traffic between March 15 and June 1.~~
- The "lateral channel" between beds #2 and #3 and bed #1 (Figure 1.) are closed to boat traffic from March 15 through June 1.
- Oyster seeding operations in beds #1, #2 and #3, located between Creamery Bay and Barries Bay, ~~may begin on~~ be deferred until June 1, if possible. Earlier commencement dates, if any, may be permitted on a case by case basis should be coordinated between JOC and NPS.
- The "lateral channel" should be used as little as possible between June 1 and June 30. Oyster beds #2 and #3 should be approached from the north at low speed, and the beds themselves planted from north to south so that disturbance near the "lateral channel" will occur toward the end of the pupping season.

R² USED by Dr. GOODMAN vs. AIC USED by DR. BECKER

In the two different and competing analyses of NPS harbor seal data, Dr. Goodman derived his solutions using the **Least Mean Squared** method and prioritized them with R². In contrast, Dr. Becker derived solutions using the **Fisher Maximum Likelihood** method and prioritized them with the AIC criterion. These two approaches are related in that they are both optimization methods seeking to “best fit” the data to a proposed model. In fact, under a condition of normal error (i.e. the histogram of the residuals – plot of count vs. residual value – follows the shape of a bell curve) they yield the same parameter estimates for the same model. However they fundamentally differ in their ability to compare models and/or consolidate models as well as in their flexibility to adapt to non-normal situations.

The **Least Mean Squared** (Dr. Goodman’s) method typically assesses the “goodness of fit” with two set of metrics:

1. Dr. Goodman uses the adjusted R² which compensates for possible over fitting caused by the use of a large number of covariates, but does not fundamentally change the R² method. R² (the coefficient of determination) measures the amount of variance explained by a model and as such is bounded between 0 and 1. The higher the R² the better the fit of the data to the proposed model.
2. A t-test of both R² and of the covariates demonstrates their significance in the model. Typically any t-test result higher than 0.05 indicates the non-significance of the associated R² or covariate.

The **Fisher Maximum Likelihood** (Dr. Becker’s) Method uses the Akaike Information Criterion (AIC) and its derivative (QAICc) to complement the traditional R² and significance level evaluations. It uses the “principle of parsimony” to trade off the maximum value of the likelihood function with the number of variables included in the model. Thus AIC provides a more robust solution (i.e. higher likelihood, using fewer variables) than R² for complex multivariate models (such as are commonly found in analysis of wildlife behavior).

AIC is defined as minus twice the information measure of the maximum likelihood (or log likelihood) plus twice the number of covariates included in the model. It can be further adjusted for small sample size and over-dispersion (i.e. departure from the assumed distribution of the dependent variable). AIC performs several functions

1. Like R², it can be used to compare the “goodness of fit” of several models with the best fit model exhibiting the lowest AIC.
2. It can also be used to order several models with respect to the information they bring to the evaluation of a response variable. Note however that the model ordering derived from AIC would not necessarily match the ordering derived from R² that Dr. Goodman used.
3. AIC is also used to select the top models of an ordered set of models (typically those that are no more than 4 AIC units from the minimum AIC are worth considering)
4. It can also be used to calculate the probability of each model to be the “true” model with the lowest AIC yielding the highest probability. These probabilities are then used to evaluate the relative **weight** of each model of an ordered set of models.
5. Lastly in the multi-model inference paradigm used in Becker (2011), these model-weights can be used to calculate the aggregated parameter-estimate for each variable. In contrast,

R² USED by Dr. GOODMAN vs. AIC USED by DR. BECKER

Dr. Goodman cannot order models with respect to R² to compare his results with Becker's individual models and, furthermore, he also cannot use multi-model inference using R² to compare his results with Becker's aggregate model. So in addition to the irrelevance of his models, Dr. Goodman is not following a proper protocol for comparison.

In conclusion, the Fisher Maximum Likelihood (Dr. Becker's) AIC method has access to the same metrics as the Least Mean Squared (Dr. Goodman's) R² method. However, the AIC criterion is customarily used in the situation common in the analysis of wildlife behavior (and many other situations) where the assumption of normality cannot be met. Furthermore, with multivariate models AIC can provide a more robust solution (higher likelihood using few variables). Finally, when using a multi-model inference technique only AIC can reliably maximize the information derived from the data under analysis so as to provide a strong aggregate model. Thus Dr. Becker's use of AIC is most appropriate to the problem and data available in the analysis of harbor seal behavior in Drakes Estero.

To the contrary, Dr. Goodman's use of the R² method is more appropriate for analysis of single problems. When applied to more complex multi-model problems, R² does not provide a statistical tool able to distinguish between a high R² solution using fewer variables and a higher R² solution necessitating more variables (e.g. the pup models 1 & 2 of Table 3 in Becker 2011). To use an example, Dr. Goodman's models are like blind men touching an elephant to try to discover what kind of animal it is. Each blind man feels a different part, but only one part, of the elephant.

- The first man feels the elephant's eyelash and concludes that an animal with such a soft eyelash must be something warm and cuddly and likely not an elephant.
- The second man feels portion of the trunk and recognizes that its moist flexibility means that the animal is on a short list of either a tapir or an elephant.
- The third man feels the size of the legs and recognizes that the huge legs mean the animal is on a short list of a hippo, rhino or elephant.

In Dr. Becker's multi-model analysis, the three blind men (Becker's models) talk to one another and discover that one animal, the elephant, likely fits all three of their experiences. In Dr. Goodman's single-model approach, not only do the blind men not compare notes, but in addition, the first blind man asserts that because soft eyelash (in his opinion) eliminates elephants from consideration, then the elephant must be eliminated as a possibility from the other two men's short lists.

Thus the ordering of model according to R² that Dr. Goodman puts forward cannot reliably reflect the likelihood of each model and is intrinsically unable to rely on multi-model inference which the crux of Becker's results. Thus, while there is nothing intrinsically incorrect about Dr. Goodman's R² method, in the context of analyzing harbor seal behavior in Drakes Estero, Dr. Goodman is trying to fit an R² peg into a round hole.

MATHEMATICAL ANALYSIS OF DR GOODMAN'S PROPOSED MODELS

Model Flaw # 1 Implicit Inclusion of a Dependent Variable as a Covariate Through Use of Aggregate Variables

Let: PPDE = Proportion of Pups in Drakes Estero
PDP = Number of Pups on Double Point
TS = Total Number of Seals
PDE = Number of Pups in Drakes Estero
PNDE = Number of Pups not in Drakes Estero
ADE = Number of Adults in Drakes Estero
ANDE = Number of Adults not in Drakes Estero

Dr. Goodman proposed to evaluate the regression model formulated as:

$$PPDE = \alpha * PDP + \beta * TS + \zeta + \varepsilon \quad (1)$$

Where α , β are regression coefficients, ζ is the constant regression term and ε is the error to be minimized.

The results of this evaluation are as follows: Adj R-sq =0.7985 $p < 3.59077E-06$

Note, however that: $TS = PDE + PNDE + ADE + ANDE$ (2)

So substituting equation (2) into equation (1) yields:

$$PPDE = \alpha * PDP + \beta * PDE + \gamma * PNDE + \delta * ADE + \eta * ANDE + \zeta + \varepsilon \quad (3)$$

Where α , β , γ , δ , η are regression coefficients, ζ is the constant regression term and ε is the error to be minimized.

The evaluation of this regression yields: Adj R-sq =0.9279 $p < 4.22862E-09$

However, when considering the significance of the each variable included in this model we get:

$\alpha = 0.00002564$	$p=0.8060$
$\beta = 0.00072203$	$p=0.0015$
$\gamma = -0.00026636$	$p=0.0129$
$\delta = -0.00001331$	$p=0.7458$
$\eta = -0.00001840$	$p=0.3497$
$\zeta = 0.03083000$	$p<0.0001$

So the only significant regression coefficients ($p < 0.05$) are β , associated with PDE and γ , associated with PNDE which are the same variables that are included in the independent variables PPDE:

$$PPDE = PDE / (PDE + PNDE) \quad (4)$$

Thus the model Dr. Goodman proposed is irrelevant
because the variables PDE and PNDE are included in both the dependant and the independent side of the regression equation.

Model Flaw # 2
Implicit Inclusion of a Dependent Variable as a Covariate
Through Constraints Relating Dependent and Independent Variables

Let: PPDE = Proportion of pups in Drake's Estero
PPDP = Proportion of pups on Double Point
PPOS = Proportion of pups on other sites

Dr. Goodman proposed to evaluate the regression model formulated as:

$$PPDE = \alpha * PPDP + \zeta + \varepsilon \quad (1)$$

Where α is a regression coefficient, ζ is the constant regression term and ε is the error to be minimized.

Note, however that: $PPDP = 1 - PPDE - PPOS$ (2)

Equation (2) can be substituted in equation (1)

$$PPDE = \alpha * (1 - PPDE - PPOS) + \zeta + \varepsilon$$

The result rearranged is:

$$PPDE = -\alpha * PPDE + (\zeta + \alpha) + (\varepsilon - \alpha * PPOS)$$

simplified with the following changes in variable definition

$$\gamma = -\alpha$$

$$\delta = \zeta + \alpha$$

$$\varepsilon' = (\varepsilon - \alpha * PPOS) \quad (\text{i.e. PPOS is included as noise})$$

to yield:

$$PPDE = \gamma * PPDE + \delta + \varepsilon' \quad (3)$$

Equation (3) is equivalent to equation (1).

Thus the model Dr. Goodman proposed yields insignificant results
because the independent variable is explicitly regressed against itself.

JUSTIFICATION OF THE USE OF 1982 AND 1983 DATA IN BECKER 2011

To show that the 1982-1983 data can be used in conjunction with 1997-2009 data, we need to demonstrate that the time series of the variable under analysis is stationary, meaning that the statistics of its time series is statistically stable over time.

REGIONAL LEVEL

Practically, at the regional level, we need to test that the average proportion of pups in the Estero in '82 and '83 is statistically equal to the proportion of pup in the Estero between 1997 and 2009. To test this hypothesis, we conducted a two tailed t-test comparing the 2 means (22.52% and 27.90% respectively) to see if they are statistically different. This comparison yielded a t equal to -1.23 with a significance level of $p < 0.2405$, which is high enough to accept the null hypothesis that the means are equal.

This means that the series 1983 through 2009 is statistically stationary so it is appropriate to use '82 & '83 along with 1997-2009 in this regional level analysis.

COLONY LEVEL

For completeness, we conducted a similar analysis at the colony level, which uses a different database and found that, in that case, the series of proportion of pups in the upper Estero was also statistically stable. Specifically, this comparison yielded a t equal to -1.45 with a significance level of $p < 0.1687$, which is high enough to accept the null hypothesis that the means are equal. This means that the series 1983 through 2009 is statistically stationary, so it is appropriate to use '82 & '83 along with 1997-2009 in this analysis. Finally we note that in the colony analysis, the GEE methodology (which complements the 1982-1983, 1997-2009 horizons with data from 1986-1987, 1989, 1991-1993) corroborates the results from the GLMM analysis which only uses 1982-1983, 1997-2009 horizon.

On the face of this convergence alone, it stands to reason that including 1982 and 1983 with 1997-2009 for purpose of analysis at the colony level is justified.

≈ Save Our Seashore ≈

40 Sunnyside Drive, Inverness CA 94937

gbatmuirb@aol.com 415-663-1881

December 7, 2011

To: Marin County Board of Supervisors, California Coastal Commission, Marine Mammal Commission, Senators Boxer and Feinstein and Congresswoman Woolsey

Save Our Seashore (SOS) was a key participant in the Marine Mammal Commission (MMC) review of the Drakes Estero Seal Study by the National Park Service (NPS). The NPS Study found (and later the MMC Report confirmed) that, despite repeated and well-publicized denials by the Drakes Bay Oyster Company (DBOC), *"mariculture activities in the estuary do disturb harbor seals."*

However, the August Goodman/Lewis Review and the most recent November Goodman/Lewis Letters requested by Marin County Supervisor Kinsey both attempt to use flawed science and flawed statistics to overturn the NPS Study (and the MMC Report) in an effort to support DBOC's commercial operations in an area that is supposed to have the highest level of environmental protections in the country. In the opinion of Save Our Seashore, it is deeply unfortunate that public money continues to be wasted supporting this attempt by DBOC to prevent the NPS from transferring Drakes Estero to Wilderness as Congress intended.

Save Our Seashore summarizes the two-year Marine Mammal Commission process as follows:

- The MMC Report concluded that the NPS used valid data and reasonable analytical methods to reach justifiable scientific conclusions.
- The MMC Report thus supported the NPS science and disagreed with Dr. Goodman's claims of "scientific misconduct."
- Save Our Seashore's analysis of the August the Goodman/Lewis Review summarized in this letter (as well as the MMC Report itself) exposed their August Review as lacking statistical and scientific credibility.
- Save Our Seashore's further analysis later in this letter of the recent November Goodman/Lewis Letters demonstrates that their November Letters similarly lack statistical and scientific credibility.
- Prior investigations have dismissed Dr. Goodman's claims of NPS "intentional scientific misconduct" as baseless. Now the MMC Report has effectively dismissed Dr. Goodman's claims of a "scientific motive" for the claimed "misconduct" as similarly baseless.
- Save Our Seashore's observations of Goodman/Lewis conduct have been independently confirmed as valid by the MMC Report, but SOS has not yet decided whether to request additional investigations into possible Goodman/Lewis "scientific misconduct."

SOS provided its analysis of the Goodman/Lewis Review to the MMC, which forwarded it to Dr. Goodman on October 5th. SOS regrets that in response, Dr. Goodman chose to threaten SOS with a lawsuit in an attempt to silence its First Amendment rights instead of correcting his upcoming October 16th public presentation, which used the same points the SOS analysis had shown to be erroneous (which the MMC later confirmed). Thus, Dr. Goodman's public presentation was at best a misleading misrepresentation of publicly available information. To inform the public and interested public officials, SOS in this letter first summarizes our prior analysis of the August Goodman/Lewis Report and then newly analyzes the recent Goodman/Lewis Letters per the following...

Save Our Seashore's Summary of its Prior Analysis of the August Goodman/Lewis Review

SOS, as later did the MMC, analyzed and dismissed all key Goodman/Lewis assertions, including:

- claims that the NPS Study used inadequate annual **Harvest Data**,
 - claims that NPS had no evidence of **Mariculture/Seal overlap**,
 - claims that the NPS incorrectly assessed **Oyster Acreage**,
 - claims that NPS used **Selective Data**,
 - claims that NPS/MMC had failed to consider the Goodman/Lewis **Alternative Models**, and
 - claims that NPS had no **Photographs** of disturbances likely caused by mariculture operations.
1. **Harvest Data:** The Goodman/Lewis Review departed from science and falsely accused the NPS of never asking Drakes Bay Oyster Company (DBOC) for additional detailed harvest records that might supplement the annual harvest data that the NPS used in its study. However, the NPS did request the records, but DBOC declined to provide those records. MMC Report on page 42 states: *"the Park Service appears to have made a good faith effort to explore the [detailed harvest] issue in more detail and, without the benefit of such cooperation, its secondary analyses [using annual harvest] are reasonable and broadly consistent with the hypothesized pattern."* Nevertheless, the Goodman/Lewis Review repeatedly criticizes the NPS for use of annual harvest data absent the detailed harvest records. DBOC is required by public health law to maintain and hold these detailed harvest records. But DBOC continues to withhold these same records from the NPS that Goodman/Lewis then blame the NPS for not having. This contradictory argument exposes the futility of any proposed "Collaborative Management," in which the NPS is expected to collaborate with DBOC, while DBOC can willfully not-collaborate with the NPS. This reinforces why SOS believes Drakes Estero is unmanageable with the current tenant.
 2. **Mariculture/Seal Overlap:** The Goodman/Lewis Review "cherry-picked" data on mariculture/seal overlap. Their Review omitted a map that the MMC described on page 44 as of "notable" accuracy but which contradicted Goodman/Lewis assertions that mariculture activity and seal haulouts do not overlap. At the same time, Goodman/Lewis championed another map whose accuracy MMC Report stated was "difficult to determine" from which all data contradicting the Goodman/Lewis assertions was missing. As the MMC Report page 49 notes, *"Cherry picking refers to the selective treatment of specific data [and] can involve the addition or removal of data if the reason for either course is simply to influence the outcome of an analysis."*
 3. **Oyster Acreage:** The Goodman/Lewis Review claimed that the strength of the NPS conclusions should be reduced because NPS 2007 oyster acreage estimate should be decreased. In contrast, the SOS statistical analysis showed that decreasing the 2007 acreage would actually strengthen NPS conclusions. The MMC Report (page 41) dismissed the Goodman/Lewis claims: *"a statistically significant relationship between acres of mariculture equipment and annual oyster harvest...is likely to remain...even if the total acreage for 2007 was lowered..."*
 4. **Selective Data:** Although the National Academy had suggested that NPS add data to the prior NPS seal study, the additional data proved "inconvenient" for Goodman/Lewis, who then asserted that 40% of the low-harvest data and 20% of the total harvest data should be removed. SOS provided both empirical and statistical arguments demonstrating why these data points should be retained. Our arguments were confirmed by the MMC Report's page 50: *"The Commission does not agree that data from 1982 and 1983 necessarily should be excluded... the Commission believes is more appropriate, is to retain [2003 and 2004]..."*
 5. **Alternative Models:** The SOS analysis found that the Goodman/Lewis Review's Alternative Models were logically-flawed non-science that included the dependent variable as a covariant. The MMC Report confirmed on page 51 and 52 that the Goodman/Lewis *"regression results are artificially linked and inflated"* and that *"superficial statistical tests"* were misleading because the type of test chosen was unable to disclose the logical flaw made in their Alternative Models.

6. **Photographs:** The MMC report notes, *"The combination of video and still photography provides convincing evidence of seal disturbance that likely was caused by the sound of the boat..."* However, other incidents remain disputed because DBOC claims that the observed/photographed boats are not DBOC's. The MMC states (page 20) *"An alternative explanation would be that...boats unrelated to the Company enter the estuary and cause disturbance...the occupants of such boats may appear to conduct activities related to mariculture, although they are not affiliated with the Company."* This "alternative explanation" thus postulates a "shadow fleet" whose only launch site is adjacent to the DBOC worksite (where only DBOC is allowed to launch motor boats) and whose occupants poach DBOC's oysters and disturb seals (yet these illegal boats and law-breakers have never been reported by DBOC). The MMC recommends (page 57), *"This source of uncertainty could be [easily] resolved by marking all mariculture boats and workers..."* DBOC offered to mark its boats two years ago, but still refuses to resolve the "uncertainty." This contradiction again illustrates the problem of "Collaborative Management" in which the NPS is expected to collaborate by not being able to identify DBOC boats, while DBOC continues not-to-collaborate by refusing to make their boats identifiable by the NPS.
7. **Lack of Transparency:** The SOS analysis demonstrates that the Goodman/Lewis Review suffers from a lack of transparency by ignoring SOS's explicit 10/5/11 request for access to data supporting their harvest assertions (MMC Report page 42) and their eelgrass assertions (MMC Report page 45). This unilaterally asserted data is thus unverifiable. Yet the recent 11/27/11 Goodman/Lewis Letters now complain, *"Additional materials... were not shared with us. We were not given the opportunity to make the following evaluation and comment."* This further contradictory argument asserts that transparency applies to the NPS, SOS, and MMC, yet Goodman/Lewis and DBOC can express conclusions about data they continue to withhold from other reviewers. This double-standard again exposes the futility of any proposed "Collaborative Management."
8. **Unsubstantiated Data:** The Goodman/Lewis Review claimed that only Bed 17 was harvested in the rain. And that Bed 20 was harvested in 2001-2004. And that both claims were "independently verified" by the Health Department. The SOS analysis showed that the records did not support either claim and were simply the company's own records passed to the Health Department and then claimed as "independently verified." The MMC Report stated on page 42: *"[DBOC] records provided to the Commission do not substantiate that claim...do not indicate any harvests from bed 20...[harvest] was not restricted to...bed 17...when it rained."*
9. **False Claims:** The Goodman/Lewis Review claimed that *"Since January 1992, oyster boats... park along the far west end of the lateral channel...during pupping season."* Yet the Goodman/Lewis Review demonstrated its own assertion as false with a photo of an oyster boat parked halfway down the "seasonally dosed" Lateral Channel. Although the MMC Report did not address compliance, the Coastal Commission's Nov 22 letter stated, *"Staff independently verified the validity and veracity of the images and associated documentation."*

Save Our Seashore's New Analysis of the Recent November Goodman/Lewis Letters

In response to numerous MMC findings dismissive of the August Goodman/Lewis Review, the recent Goodman/Lewis Letters lodges accusations against the MMC, which by reference incorporate other agencies including the NPS, the Department of the Interior, the Coastal Commission, and the Office of the Inspector General. All these agencies have been accused by Dr. Goodman and/or DBOC of ethical and/or scientific failures that in SOS's opinion are traceable simply to the agencies' failure to support Drakes Bay Oyster Company's lobbying effort. SOS analyses and disputes four accusations in the recent Goodman/Lewis Letters regarding: Scope of Work, Schedule of Work, Open Process, and Alternative Models...then our technical attachment statistically analyses and rejects both the Goodman/Lewis claim that NPS data should be removed and the Goodman/Lewis claim that their new models and criticisms should be accepted.

Scope of MMC Work: The recent Goodman/Lewis Letters claim, “MMC failed to discuss this issue with... Dr. Goodman or Mr. Lewis, failed to make or recommend minor modifications to Goodman’s models, and failed to consider the biological significance of Goodman’s models (II -1). However, the 7/28/11 MMC email to Dr. Goodman and others specified the scope of the MMC Review, “...The review is focused on the statistical methods used in Becker [i.e. not Goodman]...the question [of] whether the statistical analyses used in the [Becker, i.e. not Goodman] paper are reasonable given the nature of the questions asked and the data available.” Nevertheless, the MMC Report did in fact include “a response to criticisms” of Becker, (see page 5 of this letter) but subsequent to the Report’s publication, the MMC need not and should not include a further response to further criticisms authored by Goodman/Lewis. If Dr. Goodman wants feedback, he should submit his paper, as the NPS did, to peer-review. Use of public money to review a paper authored by supporters of a commercial business is not an appropriate use of public funds. The Goodman/Lewis Letters are an attempt to place an ex post facto straw-man obligation on the MMC to support their follow-on accusations blaming the MMC for not correcting their own errors. Thus, these new Goodman/Lewis accusations are false.

Schedule of MMC Work: The Goodman/Lewis Letters admit to the fatal logical flaws in their Review’s statistical models, but claim the models “were easily modified, tested, and validated...All that was required was one email or phone conversation, and five minutes of statistical analysis...(II-4). However, the Goodman/Lewis letters once again mislead and fail to disclose the entire story. In fact, on October 5th, the MMC did provide Dr. Goodman with the SOS letter documenting the above errors. The Goodman/Lewis Letters continue, “Dr. Goodman had [only] two weeks to examine the data, repeat Becker 2011, do further analysis, devise and test new models, and write his report.” The Goodman/Lewis Letters once again resort to ex post facto straw-man arguments that set the stage for follow-on complaints. SOS wrote to the MMC on August 8th to “call your attention to our concern that most of the ‘Requests’ submitted by Dr. Goodman in his 8/1/11 letter are irrelevant...and serve to delay...We do not believe that you intended that this Review devolve into an introductory course on statistics...We view these ‘Requests’ as efforts to lay the groundwork for future assertions that ‘inadequate time’ was allocated and thus the conclusions from the [MMC] Review must be discounted.” The SOS August 8th prediction has proved correct. Dr. Goodman is himself responsible for the schedule for which the Goodman/Lewis Letters now blame the MMC. Thus these new Goodman/Lewis accusations are false.

MMC’s Open Process: The Goodman/Lewis Letters also claim “NPS rejected the MMC plan...to conduct an open process.” In fact and consistent with the October 8th letter, SOS itself rejected the MMC plan that it believed could have resulted in a non-productive dash of advocacies unrelated to the agreed scope of the MMC Review that was “focused on the statistical methods used in Becker et al.” Constructively, the MMC then suggested an open process whereby each party (NPS, DBOC, SOS, and MMC) would send their nominated professional statisticians to engage in professional discourse absent all non-statistician advocates. But DBOC/Dr. Goodman rejected the MMC’s second effort to negotiate an open process because DBOC was unwilling to provide the names of their professional statisticians, who, DBOC/Dr. Goodman claimed, were willing to represent DBOC only “anonymously.” It is manifestly obvious that despite the many other credentials that Dr. Goodman claims, he is not a “professional statistician.” Furthermore, it is the contrary opinion of SOS that DBOC/Dr. Goodman can find no professional statistician willing to risk their professional reputation by openly supporting the fatally flawed methods in the Goodman/Lewis Review and Letters. This is again a straw-man argument supporting false assertions that the MMC failed to offer an open process. In fact, DBOC/Dr. Goodman rejected the very process that the Goodman/Lewis Letters now complain would have provided them the opportunity to understand their own statistical flaws. Thus these new Goodman/Lewis accusations are false.

Alternative Models: The Goodman/Lewis Letters also assert, “The MMC...refused to ask NPS to properly test their model...as requested by Congress...” (I-4) The Senate Report stated, “The Committee urges the Commission to thoroughly examine the reviews...prepared by other statisticians... This should include a response to criticisms that the

study... did not accurately interpret aerial photographs [of oyster acreage] and public health records...[and] should include an analysis of the study's statistical significance if the 1982-1983 and/or 2003-2004 data are removed." As noted earlier, the MMC Report did indeed "thoroughly examine" the Goodman/Lewis Review but dismissed its assertions about Oyster Acreage and Public Health records, and also rejected its assertions that NPS data should be removed (page 50): "Any arguments to exclude these data should be based on evidence that the data deviate in some fundamental way that is not addressed in the analysis." Thus these new Goodman/Lewis accusations are false.

Summary

The MMC Report is a scientific analysis, not a political response. Unusual events during wildlife studies are the scientific norm, not the exception. Unfortunately, requests to remove data from scientific studies also appear to be a new political norm. In Drakes Estero, an elephant seal impacted harbor seals, as did a pupping island joining the mainland, as did recurring ENSO climate events. Through all of these individual exceptions, however, the NPS study showed that higher/lower levels of oyster harvest also played a significant role. By removing 40% of the low harvest data from a study assessing possible harvest impacts, the capacity for meaningful analysis is removed, which SOS believes is the point.

SOS believes that an "a-priori" desire to "flatline" NPS study to support the commercial interests of the oyster company drives the request to remove data. In fact, the 2011 Solicitor-General's report confirmed that Dr. Goodman conducted:

"Verbal and written assaults on NPS scientist and officials who [Dr. Goodman] has repeatedly accused of misrepresentation...Reviewed the [NPS] data, unilaterally concluded that [it] did not support comments made by NPS....rejected the possibility of honest but different scientific opinions...immediately accused [NPS]...of fabricated or falsified claims...[and] Immediately attached labels of 'false' and 'misrepresentation' and 'misleading' to every to every scientific assertion with which [he] disagreed."
And that: Dr. Goodman and DBOC's owner were "admittedly driven by these thought and goals... to destroy the credibility [of the science and the scientists]...and flatline... [NPS] data...which would negate any statistical correlation between...an increase in mariculture activities...and displacement of marine mammals..."

Regardless of whether Dr. Goodman's true motives can ever be ascertained, the NPS science stands on its own. Public trust managers appreciate that requiring cause-and-effect "proof" on highly-protected public lands effectively precludes responsible management. This is precisely why private interests desiring to exploit public lands insist that they have unfettered rights unless public trust managers can "prove" their activities are harmful. In contrast, multivariate statistical analysis provides a cost-effective and mathematically valid method to explore statistically significant correlations. The NPS directs its resource managers to adopt the "Precautionary Principle" and Drakes Estero is afforded the very highest protection of any area in the entire country. Thus the NPS statistically significant correlation between higher shellfish harvests and fewer harbor seals provides more than adequate justification for NPS management actions.

Beyond statistical significance, however, is the spotlight these events shine on a well-funded but un-cooperative park tenant who attacks both NPS science and NPS scientists in order to extend recently-purchased commercial rights in a highly protected area that (they knew before they bought the remaining rights) was intended to be closed to commercial activity in 2012. It would be a devastating policy precedent to overturn what should be the highest level of NPS Wilderness protections so that a select few can indulge in oysters grown in an area intended for seal pups. SOS hopes you agree with the 12/2/11 letter from Jeff Ruch, Director of Public Employees for Environmental Responsibility: "It's well past time to end harassment of park service staff and to give this superlative seashore the protections it was promised."

Sincerely,



Gordon Bennett, President, Save Our Seashore

Following is the SOS technical report that concurs with MMC to retain NPS data and rejects the Goodman/Lewis new models and assertions...

The MMC acceptance of NPS models was justified and renewed claims that '82, '83 and '03 and '04 should be removed from the NPS analysis should be rejected.

Dr. Goodman argues against the acceptance of the NPS model by claiming that the 2003 data is distorted by the presence of a rogue elephant seal at double point and should therefore be considered an outlier that should be removed if a standard test can demonstrate its leverage on the result of the analysis. While this discussion about the leverage of outlier is correct in the case of a single regression it does not apply to the NPS analysis for the following reasons.

- a. In his initial review of Becker (2011) – part I, Dr. Goodman already made the argument that the 2003 and 2004 (as well as 1982 and 1983) data needed to be eliminated, because the change in ratio of pups in the Estero in these years were respectively due, he claimed, to the overwhelming effect of the rogue elephant seal and the 1992 protocol. This unproven assumption was used to justify the elimination of influence of the oyster harvest on the ratio of pups in the Estero. As a result, Dr. Goodman was able to construct an argument to contest the relevance of the fifth model proposed in Becker (Table 3 p.11) and then to extrapolate this conclusion to all models including oyster harvest as a covariate. As we have already explained in the October 5th letter, and the MMC concurred in their Report, why this analysis in the first Goodman Review is fatally flawed.
- b. In the recent Goodman/Lewis Letter (Analysis of MMC Report I) Dr. Goodman proceeds to a more systematic comparison between his top model and Becker's top model. This comparison consists in comparing behavior of the R^2 of the two top models when the 2003 data is removed. The results of this experiment (page 8 of the report) seem to support the notion that 2003 has too much leverage on the best model that Becker proposed and should therefore be eliminated. A check on the profile of the residual series of this model appears to confirm this conclusion. Thus, Dr. Goodman concludes that this elimination would have a significant effect on Becker's conclusion but would not affect his own. However, like the analysis in the prior Goodman Review, the analysis in this Goodman/Lewis Letter is flawed:
 - As commented earlier, the regression that Dr. Goodman proposed is over-fitted through the use of the same data to derive the dependent variable and to define a covariate. This grossly overstates the R^2 and thereby minimizes the leverage of the 2003 data on his model.
 - More critically the comparison at the individual regression level is not an appropriate comparison because the method that Becker uses relies on an aggregate model derived from the five models selected and weighted with the AIC (Table 4 p.11).

When checking the residual series of this aggregated model, the importance of this 2003 outlier (whose importance Dr. Goodman's flawed analysis artificially inflated) actually disappears. This change from importance to impotence occurs because the weighted sum of the aggregated model's regression coefficients accounts for the 2003 increase in the pup ratio in the Estero. Although "*Lewis had repeated Goodman's analysis with the same statistical method as used in the Becker 2011 paper (GLM using AIC),*" it appears that neither Lewis nor Goodman understand the statistical usefulness of the results. Otherwise, why did they fail to rank their models and Becker's models according to their AIC?

The fact that Goodman and Lewis found the same results with the GLM/Maximum likelihood and least mean square techniques is not surprising as these two methods will always give the same parameter estimates, and thus the individual regression results will remain the same. However, this obscures this important statistical point: the relevant model in the NPS study is the aggregate model, a construct that cannot be derived from the least mean square technique and has therefore not been appropriately evaluated in Goodman and Lewis's response.

Thus, the MMC acceptance of the NPS model is justified and neither the 2003-2004 nor the 1982-1983 data should be removed from the analysis.

The MMC is justified in rejecting Dr. Goodman's new "top" models and his new claim of co-dependency in Becker's models.

Dr. Goodman conceded that the implicit inclusion of the pup's populations in his top model could be contested and therefore substituted the adult population in its place. There are two problems with this substitution:

- a. When separating the adults in the Estero and those not in the Estero, we note that only the adult count in the Estero is significant, so the model proposed is not appropriate.
- b. Furthermore we also note that the number of seals in the Estero is strongly correlated with the number of pups in the Estero, so the substitution that Dr. Goodman proposes simply replaces the series of number of pups in the Estero with a series that is collinear to it (i.e., adults and pups are related through their birth rate) thereby retaining the co-dependency that existed before albeit at a reduced level.
- c. As an aside, we also believe that Dr. Goodman's inclusion in his best model of the protocol 92 (whose influence on the data analyzed does not have a shred of evidence) compounds the problem by inflating the R^2 and thereby exaggerating the difference with Becker's best model.

Dr. Goodman claims that Becker made the same error but was subjected to a different standard. He attempts to demonstrate this by expanding some of Becker's covariate (like Pups at Double point which appears in his first two models) to include some of the terms that appear in the dependent variable. But the issue is not one of substitution!

The substitutions that the MMC report applied to Goodman's best models were a strict decomposition of an aggregate into its components and were only derived as an alternate model to show that pup population in and out of the Estero were the only significant variables in the total seal count. Furthermore because these variables were also direct terms of the dependent variable, the regression results reflect the explicit functional relationship between these variables (as expressed in the formula for the proportion of pups in the Estero) rather than a purely statistical relationship between variables not functionally related.

In other words, knowing the expression for the proportion of pups in the Estero, we know *a-priori* (i.e. before any statistical evaluation) that when the number of pups in the Estero increases, this proportion will then increase. In the same manner, we also know that, when the number of pups not in the Estero increases, this proportion will then decrease. These changes occur because the degree of freedom in the regression is drastically reduced.

In contrast, in all the cases that Dr. Goodman identifies as being Becker's same error, there is no such explicit functional relationship between the variables he highlights. For instance there is no a-priori reason to believe that the proportion in pups on sand bar A has a significant impact on the proportion of seal in the upper Estero or that the number of pups on Double Point has an a-priori relationship with the total number of pups not in the Estero.

Thus, the MMC was justified in rejecting both Dr. Goodman's top models and his claim of co-dependency in Becker's models.



Marin Audubon Society

P.O. Box 599 | MILL VALLEY, CA 94942-0599 | MARINAUDUBON.ORG

DEC 8 2011 PM 2:15

December 8, 2011

Cicely Muldoon, Superintendent
 Pt. Reyes National Seashore
 1 Bear Valley Rd.
 Pt. Reyes Station, California 94956

RE: COMMENTS ON DRAFT ENVIRONMENTAL IMPACT STATEMENT DEIS FOR
 DRAKES BAY OYSTER COMPANY SPECIAL USE PERMIT

Dear Ms. Muldoon:

Thank you for the opportunity to comment on the DEIS for the Drake's Bay Oyster Company (DBOC) Special Use Permit. On behalf of our approximately 2,000 members in Marin and other counties, we urge adoption of Alternative A. Alternative A is the only alternative that complies with the provisions and directives of the various applicable federal laws, regulations and policies and is the Alternative that provides the most complete protection for the resources of the Estero.

This letter discusses our recommendation for the preferred alternative as well as questions and issues that should be addressed in the Draft Environmental Impact Statement (DEIS). We found the information and analysis provided in the DEIS in the overall to be thorough and unbiased, however, there are some areas in which the information was not fully adequate and impacts were not fully identified and/or addressed. For some impacts, supporting documentation is limited and the evaluation of the significance of various impacts is often minimized.

Alternative A would have many benefits for Drake's Estero and resources that depend on it. It would restore foraging habitat for shorebirds and waterfowl; improve the habitat for special status species Red-legged Frog, Coho Salmon and Steelhead and possibly provide habitat that would encourage Western Snowy Plover to use offshore portions for foraging by eliminating disturbance; restore native habitat for native shorebirds and Black Brandt, a species whose population is declining, and for many other migratory species; would result in improved water quality; remove a major source of potential invasive species; remove disturbance to harbor seal adults and pups; and enable native eelgrass habitat to restore and expand. For these reasons it would have major, long-term beneficial impacts on the estuary resources. To choose any other alternative is putting the interest of a private for-profit business above the interest of the public.

Compliance with Applicable laws, Regulations and Policies

In its role of managing the habitats on federal lands, the Park Service operates under and must comply with many applicable laws, treaties, Policies and Management Plans. The most basic of these laws is the Organic Act of 1916 that established the Park Service to "...*promote and regulate the use of the Federal areas known as national parks, ... by such means and measures as to...conserve the scenery and the natural ... objects and the wildlife therein and to provide for the enjoyment of the same in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations.*" Alternative A best complies with and furthers this purpose.

NPS Management policies state "*The Service will strive to protect the full range of genetic types of native plant and animal populations in the park by perpetuating natural evolutionary processes and minimize human interference with evolving genetic diversity.*" Alternative A best complies with this policy.

MOU between USFWS and the NPS provides that the two agencies will jointly incorporate bird conservation measures and action in order to promote the conservation of migratory birds. Alternative A best carries out this recommendation.

Pacific Flyway Management Plan for Brant (2002) calls for continued protection of critical habitats and mitigation for impacts such as loss or degradation of eelgrass beds, disturbance of wintering flocks, and exclusion of brant from traditional habitat sites. Only alternative A would comply with this provision.

Southern Pacific Shorebird Conservation Plan (2003) recognizes that tidal flats are the primary foraging habitats for many species of shorebirds and that oyster culture restricts access to potential food resources. The Plan calls for "restricting further development of tidal flats for oyster culture." Only Alternative A would comply with this recommendation.

ANALYSIS OF ADEQUACY OF DEIS

Avian Impact Analysis

The Wildlife Impact analyses address the effects of the project on native birds, marine mammals and eelgrass. The bird discussion focuses on impacts to shorebirds, however, other avian species that use the Estero are not addressed in the impact analysis.

Birds are impacted in various ways by the oyster operation, most notably, activities to tend the mariculture beds adversely impact shorebirds and Brant.

Shorebirds

The presence of bottom cultures, bags and racks can cover approximately 84 acres of intertidal substrate preventing certain shorebirds from foraging for prey. While large shorebirds such as willet may forage among the racks, the racks still take up foraging habitat and space where native species could be growing.

Small shorebirds (dunlin, least and western sandpipers) that depend on flocking to protect themselves from predators would be precluded from using the covered areas. They require open expanses to communicate cues and respond by taking flight from avian predators.

Shorebird Impact Analysis:

The impacts of the existing operation, and all Alternatives except A, on shorebirds, due to disturbance and direct loss of 84-acres of habitat, should be evaluated as moderate to major and long term. The increased production limit to 840,000 under Alternative D would cause a significant increase in the adverse impacts. Additional impacts would include more boat activity, more noise, larger areas of coverage of intertidal foraging habitat, long-term loss of eelgrass and ongoing threat of invasion by exotic species.

Analysis of Impacts to Black Brant:

Brandt is a species of special concern that depend on eelgrass for survival, particularly for foraging. The discussion of impacts to Black Brant is addressed under other categories, eelgrass primarily. Additional discussion should be provided about Black Brant and why this Estero is such an important habitat. That information should include the status of the Pacific Coast Black Brant population, their nesting, feeding and migration needs and patterns. For example, it is important to know that Brandt rely heavily on one main food source. Ninety five percent of the brant diet is composed on eelgrass.

Eelgrass habitat is directly displaced or destroyed by the 95 wooden oyster racks covering approximately 7 acres. This use is causing a loss of 7 acres of eelgrass habitat, thereby reducing the primary food source for this species that has been declining over the last 20 years. The Black Brant Pacific Coast population has undergone a significant population decline in recent decades.

Drake's Estero supports 50-60% of the Pacific Flyway population during Spring staging for migration and during the overwintering period. This means that Drakes Estero plays an extremely important role in the survival of this population of Black Brant. What are the reasons for the population decline? Incremental habitat loss, including the loss at Drakes Estero, may be a critical factor. A more complete discussion of the status of the Brant population and the importance of Drake s Estero in supporting this declining species is needed.

As Brant do not dive, they have limited feeding opportunities. Discuss the impacts of the mariculture structures and the activities to manage the structures on the Brant. We would expect that Brant attempting to feed, gather grit, and rest, are adversely impacted. Would it be expected that removal of the oyster operations would expand their use of the eelgrass beds and enable them to feed with no or fewer disturbances?

Impacts to Other Migratory Waterfowl and Diving Birds

The DEIS basically addresses only shorebirds and Brant. The discussions should be expanded to address other waterfowl as well as diving birds (e.g. grebes, terns, pelicans, and pelagic species) that use or that would be anticipated to use the Estero waters if there was not disturbance. The

effects of the mariculture operations on these species in and their ability to use the Estero should be addressed. We expect that many other migratory species are disturbed by the presence of boats, noise and adversely impacted in other ways, including reduction of food source. .

Analysis of Impacts to Brant and other Waterbirds:

Alternative A would remove several important sources of impact to migratory bird species and therefore should be considered to provide major, and long-term benefits. Alternative A best protects migratory birds throughout the year and especially during Spring migration which is the critical time for refueling and resting in Drakes Estero. Only alternative A includes a closed access gate during the spring period which provides the most effective prevention of kayak disturbance during this closed period.

Adverse impacts to wildlife from Alternatives B through D, particularly when considered cumulatively would be long-term, adverse and major - evaluation of the significance of the impacts to birds is minimized.

Impacts of Boat Activity:

The impact of boat use to service the oyster beds can occur from several causes: presence of people and boats and noise. Boat trips disturb Black Brandt, other birds species as well as Harbor Seals. The impact of boats managing the oyster racks is understated. The shellfish culture operations requires up to 12, 40-minute trips per day amounting to 1,500 trips per year. The DEIS should address whether these figures are or can be verified as apparently DBOC has not provided sufficient information about the number of boats in use. What is the anticipated number of trips to service the additional facilities proposed under Alternatives B, C and D?

Impact Analysis:

Adoption of Alternative A would remove a significant number of ongoing boat trips causing disturbance to birds. The removal of DBOC boats and other management activities would do more than minimize the potential for flushing and disruption of normal biological activities, such as foraging and resting. It would remove a major source of disturbance that causes birds to flush, use up energy, thereby contributing to the loss of energy and possible inability to reproduce. Such disturbances are of particular concern when they occur during migration, when considered with the other disturbance impacts along the migration route, increase susceptibility to predation due to inability to hear warning calls from other birds of their own species and possibly resulting in the inability to breed successfully due to poor body condition

Impacts of Noise:

Noise from loud radios has been mentioned (Stallcup) as an adverse impact that is causing migratory birds to avoid the Estero waters. This impact has not been addressed. What other species, waterfowl, pelicans, other diving birds, etc, could be expected to use the habitats if it were not for the these and other noises from people?

Impacts of Litter

The DEIS should address the impacts of litter and debris discarded from picnic areas as well as the oyster operation. Among the impacts that should be addressed is the impacts on birds attracted by the debris left by the oyster operation and picnicking.

The plastic litter end up on beaches and shorelines where it breaks down into smaller pieces, enters the food chain and can be ingested by wildlife. The adverse impact of plastic litter in the ocean and on the food chain should be addressed. We also wonder why DBOC has not been responsible to clean up this litter?

Impacts of Kayaks

Even though they do not have motors, kayaks do disturb birds. Only Alternative A would protect the Estero during spring migration season by locking the road access for kayakers and ceasing the oyster operation. Should Alternative A not be chosen, in order to reduce boat impacts the NPS should initiate a program of prohibiting any boat access during migration.

Impact Analysis

Alternative A would remove or significantly reduce the adverse impacts of litter and noise from the habitat of Drakes Estero. In addition, the presence of people in kayaks could and would be eliminated or substantially reduced during the important pupping season for harbor seals and hopefully even during bird migration.

Potential Impact of Removing Native Species

DBOC is interested in experimenting with growing native oysters and wants to harvest native oyster larvae to use as the stock. First of all, would this practice be legal in a National Park? Should this idea proceed to be seriously considered, the potential for adverse impacts to the population of the native oyster population, or to the species that depend on the native oyster larvae and native oysters, should be addressed. Would removing native oysters adversely impact the ecosystem, by depleting the plankton food source for native species or other impacts? What other impacts could result from increased boat use and other practices required to gather the larvae?

Special Status Species

The primary special status species that would be impacted are Salmon and steelhead. Eelgrass is a food source for many native fish species. The DEIS should address the importance of the eelgrass beds for native fish, particularly salmon and steelhead and the impact of the reduced eelgrass beds on these species.

Impact analysis

Alternative A is the only alternative that would restore eelgrass habitat for special status fish as well as other special status species.

Impacts to Harbor Seals

The EIS should be revised to include the conclusion of the Marine Mammal Commission

analysis: "...the information examined during the course of this review is sufficient to conclude that, from time to time, mariculture activities in the estuary do disturb harbor seals. The Commission also believes that the data provide reasonable evidence of a correlation between mariculture activities and seal haul out use, but that evidence is not sufficient to conclude causation." We do not understand how it can be concluded that "mariculture activities...do disturb seals" but that those mariculture activities do not "cause" the disturbance. To us, it appears these statements are saying the same thing.

The Marine Mammal Commission's report are confined to the science of evaluating the uncertainties. Should the political decision be made that the mariculture operation can continue for ten more years, implementing each of their recommendation should be made conditions of the special use permit.

The National Academy of Sciences study panel describes various disturbances and the greater distance at which these can occur. NAS (2009) also urges a precautionary approach. NAS (2010) states "Displacement from key areas may also result from disturbances attributable to the activities of mariculture workers (Becker et al., 2009). This disturbance may be caused directly by the presence of workers on intertidal areas or by boats associated with mariculture activity. In addition, marine mammals may respond to noise from mariculture-related boat traffic."

What should be the buffer zone to best protect harbor seals? Why is it 100 yards? The current 100 yard buffer in the current harbor seal protection zone is arbitrary. It is not science based.

NAS (2009) Report (page 49) states: "Some oyster rack and oyster bag areas within Drake Estero are located within 500 m of sand flats used by harbor seals as haul-out sites. Based upon the findings in the studies outlined above and the informal observations of biologists who study seals, visits to these areas by oyster farm workers can be expected to lead to the short-term disturbance of any seals using these haul-out areas at the time. Depending upon visibility and wind conditions, disturbance may also occur at greater distances. Furthermore, the work by Brasseur and Reijnders (2001) suggests that seals could be disturbed before they come ashore if boats pass through haul-out areas at high tide. It would be challenging to design a study that could demonstrate whether or not short-term responses to disturbance have long-term population consequences for harbor seals, and no studies of this kind have yet been conducted anywhere. This would require long-term study of known individuals, and high-quality data on those individuals' exposure both to disturbances and to other potential environmental stressors. In the absence of additional research, a precautionary approach to management would seek to reduce types of disturbance that affect behavior during the breeding season to avoid potential population effects that would only be evident with long-term monitoring."

Impacts to Wetlands

What is the acreage of historic wetland that has been filled or otherwise lost along the shoreline to construct and operate the current facilities? Was there tidal marsh historically along the entire shoreline where the buildings are currently located? Five acres of wetlands would be restored (p 306) when the mariculture operation is ended.

According to the discussion on page 301, "Restoration of the developed shoreline area following SUP expiration would include wetlands restoration practices that would, in turn, improve bird habitat areas affecting approximately five acres." Although a specific plan need not be included now, there at least should be a description of the location(s) and type of wetlands that the DBOC operation has filled or otherwise destroyed or impacted, where the restoration would take place and what wetland type would be provided.

Alternatives B and C would allow dredging of a 30 X 60 foot area immediately around the floating dock for boat access. Where would the material be disposed of should be addressed. Simply saying it would be disposed of in a legal location is insufficient as that location may have adverse environmental impacts. At a very minimum, the NPS should commit to requiring environmental review for any future dredging.

Alternative D would increase production by 70%. Impacts associated with Alternative D would be even greater. It would install a 1500 foot intake structure and pipeline. This would cover and "fill" waters of the U.S., replacement of the current processing plant with a much larger structure envisioned in Option 2. Impacts of this proposed new structure are not well described or discussed. It appears from the figure provided that the new structure would stretch across the shoreline where the current facilities is located. The height and square footage of the structures should be presented. Would wildlife movement to the wetlands or Estero waters be blocked or in anyway hampered by the huge long structure (figure 2.13) p 111 across the shoreline? Would this huge structure block or in any way impede the access of any wildlife species to the Estero shoreline and waters? Would any views be blocked by this structure? Could it be seen from Sir Francis Drake Blvd?

Impact Assessment:

Alternative A is the only alternative that would remove fill and structures from wetlands and restore wetlands to natural conditions. Up to 5 linear miles of racks, 4,700 posts, and 22 acres of bags would be removed from mudflats/sand bars, thereby removing erosive forces and restore the natural hydrodynamics to up to 142 acres. Alternative A is also the only alternative that would avoid the impacts of dredging and buildings, with Alternative D, impacts of additional buildings.

Impacts on Eelgrass

The DEIS reports that eelgrass provides habitat for fish but the ecological importance of this habitat is not clear. The DEIR should provide a comprehensive discussion of eelgrass, its value to the marine ecosystem and the many species it supports.

The status of eelgrass populations along the California coast, and other coasts on which species that are impacted by the DBOC mariculture operation, depend, should be presented. Eelgrass in San Francisco Bay is considerably reduced from historic levels. Perhaps that is why Brant are not seen in San Francisco Bay to any extent now.

The Southern California eelgrass mitigation policy is discussed briefly with the implication being that it could be used here. Before such a policy is ever adopted for Northern California, certain aspects need to be clarified: what is the history of success of eelgrass restorations in the Bay Area and Northern California, and why would an exclusion policy for 10 years be acceptable for the Bay area when there is such a limited amount of eelgrass habitat available in this vicinity?

Impact Assessment:

Alternative A is the only Alternative that would remove boating impacts to eelgrass resulting a major, beneficial, long-term impact.

Water Quality Impacts

Most of Drake's Estero is a shallow open embayment with low fresh water input. The DEIS discusses that degradation of the quality of the waters of the Estero results from three sources: runoff from cattle operation, biological effects of the oysters and actions associated with the mariculture operation.

Water Quality Benefits/Impacts of Non-native Bivalves

The DEIS should provide additional discussion and analysis of the ecological effects of the native and the cultivated bivalves. With the current populations of native bivalves in Drakes Estero, how important is the filtering capacity of the cultivated bivalves? Do native bivalves provide this necessary service adequately? What is the level of nutrient material discharged by the non-native bivalves? What is the level of nutrient material discharged by native species? Is there a need for extra filtering capacity now? Would there be any benefit if the non-native bivalves were eliminated? Why would it be necessary for non-native shellfish to contribute to processing nutrient material, except to clean up their own waste?

We can't see that there would be a need for water quality improvement services from non-native bivalves in a natural system where the only adverse impact to water quality comes from those non-native organisms themselves. Only the non-native oysters in the mariculture beds are discharging an abundance of additional material into the estuary waters that possibly can't be "treated" by native oysters because of the quantity.

Impacts of Wood Preservatives

The impacts of the release of wood preservatives from the wood racks and docks into the aquatic environment is dismissed on the basis that it is "not expected to continue ." (P 339) The Alternative B discussion states that the chemical treatment for marine use is chromate copper arsenate and that most remains affixed to the wooden fibers although some may leach out. It is claimed that most would enter the water within the first 90 days of installation.

While most of the existing wood racks may be too old to be leaching preservatives, needed replacement and repairs would result in new racks with preservatives leaching into the water. This impact is still dismissed because “any wood preservatives that may leach into the water would be diluted to non-toxic levels by daily flushing.” How much daily flushing is there be in the upper reaches of the estuary? What would assure new racks would not be placed in the poorly flushed areas? Furthermore, as the saying goes - “dilution is not the solution to pollution.” What would be the effect on the species and environment adjacent to the new racks until the next tide? Would any of the pollutant persist in the substrate? What is the effect on the aquatic environment, on fish that may be nearby, of the leaching within 90 days? Aren’t there now prohibitions to using these preservatives in sensitive aquatic ecosystems such as this? Additional information is needed to evaluate the actual significance of this potential impact?

Alternative D would place even more wooden structures and would replace the dock, both with preservatives. How many more racks and stakes would be replaced or added and over what period of time, should be known in order to determine the potential impact of this activity? Intentionally discharging pollutants by placing wood stakes with preservatives should be prohibited anywhere in any national park, particularly a potential wilderness.

Impacts of Plastic Debris

What are the permit requirements, if any, for the operators to collect and clean up debris, plastic spacers, pieces of wood, and styrofoam floats that may separate from the growing structures? If there are no such permit requirements we must ask why not? If there are, please evaluate the compliance of the operator with the condition. As stated earlier, plastic is a significant concern because of its adverse impacts on the ecosystem breaks into small pieces and is consumed by birds and fish,

Potential Impacts from Water Treatment System

Are there any known unauthorized discharges or other problems with the wastewater treatment system? If so how are they handled in such a remote location?

Water Quality Monitoring

Where are test sites for water quality monitoring? How close are they to the oyster operations? Do they adequately capture high levels of nutrients and/or any water quality issues that may result from the oyster beds?

Impact of Stakes: Sedimentation or Erosion

The impact of the stakes in the oyster beds is described as causing erosion. In San Francisco Bay the experience is that the placement of anything in the water column, stakes, pilings etc. causes the water to slow and drop sediment. Please explain why, as described in the DEIS, the opposite seems to occur in Drake’s Estero? Why are the stakes not resulting in the deposition of sediments instead of erosion?

Impacts of Removing Water from the Estero

Water is pumped from the Estero for processing. The DEIS should address the potential impact,

if any, of removing estuary water? How is the water returned to the estuary? Is it warmer than the natural water temperature? Does it contain any substances that could impact benthic or other species nearby?

Impact Analysis:

Alternative A appears to be the only alternative that removes sources of pollution and toxic materials from Drakes Estero, therefore, it should be evaluated as moderate to major, beneficial, long-term impact.

Invasive Species

Invasive Species Executive Order 13112 ASEC. 2. Federal Agency Duties states in part (a) Each Federal Agency whose actions may affect the status of invasive species shall:....(2) prevent the introduction of invasive species and...(3a) not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species.” The DEIS should evaluate the project’s compliance with this EO.

Four non-native species are used by DBOC, posing existing, ongoing and cumulative risks to the native species and ecosystem of Drake’s Estero:

- Pacific Oyster (©. Gigas) - is listed as invasive in other countries. This species presents a risk of invasion. Although it has not naturalized in Drake’s Estero, this species has naturalized in South Africa after a long period (more than 30 years) of use in mariculture and there are similar reports from other estuaries in Scandinavia and the Los Angeles Harbor.
- European flat oyster - is listed as invasive species by the NPS. Should a feral population establish, it would be a significant risk to the native oyster population.
- Manila Clam - this non-native species has already escaped and established a population, placing the native oysters at risk. There should be further analysis of the impact of this species escaping and becoming naturalized.
- *Didemnum vexillum* - This invasive tunicate species grows extensively on shellfish and mariculture gear and has recently been reported colonizing on eelgrass in Tomales Bay and Drakes Estero. This tunicate is reported to have a number of potential adverse impacts. It colonizes soft substrates, including eelgrass blades, reducing portions of the blades available for photosynthesis which could reduce biomass and render the eelgrass blades inedible by Black Brandt. The potential for this species to overwhelm the eelgrass beds is a significant concern and should be addressed.

With four non-native species each with a history of invasions, the DEIS must revisit the threat/risk of these species continuing to be raised, and possibly expanded, for an additional ten years. What would the adverse impacts on native species, the food chain and ecosystem should one or more of these exotic species become feral.

Impact Analysis

Alternatives B, C, and D do not comply with Management Policy 4.4.4.1 “In general new exotic species shall not be introduced into parks. In rare situations,...an exotic species may be

introduced or maintained to meet specific, identified management needs when all feasible and prudent measures to minimize the risk of harm have been taken.” Only Alternative A would implement all feasible and prudent measures to minimize the risk of harm.

All alternatives except A would violate the invasive species policies which call for prevention and rapid action to eliminate the risks. Impacts would be noticeable and could appreciably affect individual species, communities or natural processes. The cumulative impact should be identified as long-term, major and adverse.

Other Impacts/Issues that Need to be Addressed

Considering all of the adverse impacts identified by the EIS and others, and the cost to the NPS to oversee this operation, the question must be asked what is DBOC actually paying the federal government for this lease? How are the American people, who actually own the waters and habitats, benefitting from this operation? DBOC is undoubtedly making a profit from this endeavor, which they deserve. The question, however, is are the American people benefitting in comparison with the impacts on the valuable public resources?

What precedent would the extension of an extended permit set for other national parks? Is this a legacy the political leaders and decision-makers want to leave for the nation?

The DEIS reports that the DBOC operators are considering growing native oysters and removing larvae of native oysters to accomplish this. This is a matter of serious concern as it could reduce or deplete the population levels of native oysters and reduced food source for other species. The impacts of this activity should be thoroughly addressed should it be seriously considered. We would expect there would be public review as to the potential impacts on the ecosystem, and permitting would be required to ensure impacts are limited.

What is the potential for extending the lease - particularly for the additional construction in Alternative D, particularly Option 2 - to contribute to, or encourage, the owner to seek an additional years when the original extension ends? What is there to stop the current owner from selling the business, and a new owner to ask for another extension? With a precedent set for one ten-year period - this pater could conceivably go on indefinitely.

We notice that the failure of DBOC to submit various reports and plans (e.g. boat routes, vessel tracking system, etc.) is mentioned in several impact discussions. Please provide a comprehensive listing of the plans, reports and surveys etc. that DBOC is responsible to submit and a discussion of DBOC’s compliance with submittal requirements, particularly including those they have been submitted late or not been submitted at all. In view of the past history of at least some delay or non-conformance with permit requirements as is evident from the DEIS discussions, please address the means available to the Park Service to require maps, reports, evaluations, results of surveys, tests, etc. in a timely manner. And, please describe the enforcement measures available to the NPS to ensure compliance with permit requirements such as to avoid boat activity in certain locations?

From time to time, there are comments about the importance oysters as a food source. It would be useful to have some analysis of this contention. The analysis should include the costs of oysters and availability to the public. It is our observation that oysters are certainly not a staple food in this area, but are actually a luxury item. Would the closing of this facility really result in a significant loss of an important food source? It should also be noted that this is not the only operation producing oysters. There are other oyster-producing businesses along nearby Tomales Bay, as well as along the Pacific coastline to the north, that provide this product to the public. Further, these same other mariculture operations can also provide oyster shells to habitat restoration projects, as DBOC has done, to benefit species.

In view of the already significant costs to the federal taxpayer to study and evaluate this mariculture operation, should the extension of the SUP and BUO be considered, any approval should be conditioned upon the requirements that the mariculture operator provide the funding for all reports, additional studies and other requirements. These costs should no longer fall on the NPS or the public.

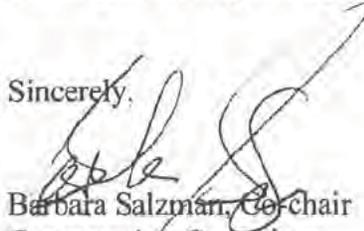
Additional Requirements Needed

The Marin Mammal Commission report (section 5.3, pages 59-60), provided an extensive list of recommended research and monitoring activities to fill identified data gaps. These recommendations largely address impacts to harbor seals, although some overlap and would also address impacts to other resources. Should the SUP be extended for ten more years under any of the alternatives except A, all of these recommendations should be required as conditions of the permit. The mariculture operator must be required to fund all of these activities for the length of the project.

Furthermore, similar additional research and monitoring activities must be developed and required to address potential impacts to birds (shorebirds, waterfowl particularly Brant), eelgrass, and water quality. In addition, mapping must be provided, approved and required for the vessel routes. The route should be one that protects all natural resources.

Thank you for responding to our questions and concerns.

Sincerely,


Barbara Salzman, Co-chair
Conservation Committee


Phil Peterson Co-chair
Conservation Committee



RECEIVED

2011 DEC -9 PM 2: 13

POINT REYES NS



December 9, 2011

Superintendent Cicely Muldoon
Point Reyes National Seashore
1 Bear Valley Road
Point Reyes Station, CA 94956

Re: Support for Alternative A, Full Wilderness Protection for Drakes Estero

Dear Superintendent Muldoon,

The Environmental Action Committee of West Marin (EAC) offers the following comments on the National Park Service's (NPS) Draft Environmental Impact Statement (Draft EIS) to decide whether to issue a new Special Use Permit (SUP) for Drakes Bay Oyster Company (DBOC) to operate a commercial shellfish operation within federally designated potential Wilderness in the Point Reyes National Seashore (Park or Seashore). We strongly urge the Seashore, the NPS, and the Secretary of Interior to uphold 95 years of federal law and policy and support Alternative A, the environmentally preferable alternative to restore Drakes Estero to full wilderness as long-intended.

Formed in 1971 and based in Point Reyes Station, EAC is a grassroots environmental advocacy organization dedicated to the protection and appreciation of West Marin County's unparalleled diversity of marine and terrestrial wildlife and habitats. EAC has worked and continues to work with wilderness advocates across the country to secure wilderness protections for Drakes Estero, the ecological heart of the Seashore.

Thank you for considering EAC's Draft EIS comments in support of Alternative A.

Executive Summary

When considering all relevant laws, policies and best available scientific information, the No Action Alternative A is the only legally and scientifically supportable outcome. As explained in detail below, the following points mandate this conclusion.

1. Alternative A, which NPS correctly has described as the environmentally preferable alternative, is the only alternative that comports with 95 years of federal law and policy.

2. The scope of the Secretary of Interior's authority and discretion to issue a SUP is defined by the nation's wilderness laws, NPS management policies, and other applicable environmental laws, as well as by the conclusions in the Final EIS.
3. The best available science, when viewed in light of the express purpose of the Draft EIS and NPS management policies, provides overwhelming evidence that the Secretary must restore the Estero to wilderness.
4. The Draft EIS is conservative in its scientific conclusions because it asserts that impacts from mariculture on eelgrass, shorebirds, wilderness values, as well as the proliferation of plastic and invasive species, are "moderate" long-term adverse impacts when in fact these are "major" long-term adverse impacts.
5. The Action Alternatives (B, C, or D) would allow industrial-scale commercial mariculture operations that have significant major adverse impacts on Drakes Estero in contravention of federal laws and policy.
6. DBOC's continuous failure to comply with the terms of its special use permit, its repeated violations of California Coastal Commission regulations, and its failure to secure appropriate permits from federal and state agencies prior to developing the Estero, all constitute egregious behavior that both precludes an "adaptive management" alternative and requires the Secretary to deny a new SUP for DBOC.
7. Any decision by the Secretary other than one that would facilitate the wilderness status of Drakes Estero would violate the public trust agreement made in 1976 and could set a dangerous precedent for management of this nation's public lands, national forests, and the National Wilderness Preservation System.

I. Alternative A Is the Only Alternative Fully Supported by Federal Laws and NPS Management Policies.

The Final EIS and its analysis must be guided by the project objectives, including to "manage natural resources to support their protection, restoration and preservation," and to "manage wilderness to preserve the character and qualities for which they were designated."¹

These project objectives are supported by the Seashore's 1962 enabling legislation, which states that the Seashore was created "to save and preserve, for the purposes of public recreation, benefit, and inspiration" a portion of the nation's diminishing seashore.² Indeed, that legislation charges the Park Service with administering the Seashore "without impairment of its natural values" and in a manner that is "supportive of the maximum protection, restoration, and preservation of the natural environment."³

The Final EIS must analyze the extent to which the project objectives, as well as the very purposes of the Seashore, will be served by each of the alternatives considered. As we show, only Alternative A is in accord with the articulated project objectives and the Seashore's mission and purpose. Additionally, only Alternative A comports with the legal and policy mandates governing NPS's stewardship obligations with respect to Drakes Estero.

¹ Draft EIS, p. 5.

² 16 U.S.C. § 459c.

³ 16 U.S.C. § 459c-6.

A. Drakes Estero is Biologically Significant and Warrants Wilderness Protections.

Biodiversity is the foundation of all life on Earth, including human beings. The global loss of biodiversity is well documented and is proceeding at an unprecedented rate.⁴ According to some scientists, the current rate of biodiversity loss is on the order of a sixth mass extinction, not unlike the level of species loss that occurred when the dinosaurs went extinct 65 million years. The San Francisco Bay Area and the California Floristic Province, of which Point Reyes and Drakes Estero are important parts, are considered global biodiversity hotspots.⁵ National Park Service policies support federal efforts to combat human-caused extinction and species loss.⁶

The Draft EIS appropriately identifies the immense biological significance of Drakes Estero. The Estero is a shallow tidal area comprised of mudflats and extensive eelgrass beds that are part of a vital food chain providing foraging and breeding grounds for birds, fish and pinnipeds. It has one of the largest harbor seal populations in California and is one of the primary seal pupping sites.

The coastal resources within Drakes Estero wilderness area contribute to the biological diversity in the Seashore and are home to a variety of shellfish, birds, and other marine wildlife.⁷ The Draft EIS identifies the Estero as “an exceptional nursery that provides abundant food, resting habitat, and shelter for a wide array of marine organisms and migratory waterbirds, including brant and North American species of pelicans. The northern California coast, including the Seashore, is one of the few major upwelling regions in the world.⁸ The Philip Burton Wilderness Area is unique in that it is the only wilderness area between Canada and Mexico that includes marine waters.⁹

In testifying in support of the Point Reyes Wilderness Act (discussed below), then Representative John L. Burton explained that Drakes Estero was one of “three particularly fragile areas” in urgent need of protection:

“Drakes and Limantour Esteros are refuges for harbor seals, leopard sharks, egrets, herons, migratory fowl, rare species of clams, cockles, and snails. They are also native Indian sites. Their **permanent protection is urgently needed**, at the very least by

⁴ International Union for Conservation of Nature <http://www.iucn.org/what/tpas/biodiversity/>
Nature Conservancy <http://blog.nature.org/2010/04/new-study-biodiversity-continues-to-decline-worldwide/>
UN Environment Program <http://www.unep.org/Themes/Biodiversity/index.asp>
Convention on Biological Diversity <http://www.cbd.int/gbo3/>

⁵ Conservation International http://www.conservation.org/where/priority_areas/hotspots/Pages/hotspots_main.aspx
http://www.biodiversityhotspots.org/xp/hotspots/california_floristic/Pages/default.aspx

⁶ NPS, 2006.

⁷ Draft Environmental Impact Statement, Drakes Bay Oyster Company Special Use Permit (Draft EIS), p.8.

⁸ Draft EIS, p. 11, (citing Hill et al. 1998).

⁹ Draft EIS, p. 11.

‘potential (or reserve) wilderness.’”¹⁰

Congressman Burton also testified that potential wilderness designation was critical to ensure that these areas would not be “destroyed by incursions of speedboats and motor-type boats.”¹¹

The state of California has designated Drakes Estero as an Area of Special Biological Significance, while the U.S. Shorebird Conservation Plan recognizes Drakes Estero and adjoining Limantour Estero as one of the most significant areas for migratory shorebirds and waterfowl in the Plan’s southern Pacific sub-region. According to the U.S. Fish and Wildlife Service, 18 species that use the area are designated as endangered, threatened or species of special concern. The ecological importance of Drakes Estero was most recently highlighted when the California Fish and Game Commission, through the Marine Life Protection Act, designated the Estero as a Marine Protected Area. It is the only Marine Protected Area on the West Coast between Mexico and Canada congressionally designated for wilderness protection. And, once the commercial oyster operation ceases to exist, Drakes Estero would receive the highest level of state protection as a State Marine Reserve.

In addition, the Gulf of the Farallones National Marine Sanctuary surrounds Point Reyes. Along with Tomales Bay and San Francisco Bay, Drakes and Limantour Esteros are part of a wetlands complex of “hemispheric importance.”¹² Thus, there can be no question that the biological diversity and ecological import of Drakes Estero warrant wilderness protections, as contemplated by Congress when, as discussed below, it designated the Estero as wilderness.

B. Congress Designated Drakes Bay as Wilderness in the Point Reyes Wilderness Act of 1976

The Point Reyes Wilderness Act of 1976 designated 33,373 acres as wilderness and strengthened the Seashore’s enabling legislation in favor of natural values over recreational values. Under the Point Reyes Wilderness Act, 25,370 acres of Point Reyes immediately received full “wilderness” protection, and 8,003 acres received protection as “potential wilderness” due to existing non-conforming uses. However, *all* 33,373 acres were designated by Congress as wilderness. Specifically, the statute states:

[T]he following lands within the Point Reyes National Seashore are hereby *designated as wilderness*, and shall be administered by the Secretary of the Interior in accordance with the applicable provisions of the Wilderness Act: those lands comprising twenty-five thousand three hundred and seventy acres, and potential wilderness additions comprising eight thousand and three acres, depicted on a map entitled “Wilderness

¹⁰ Statement of the Honorable John L. Burton, Democrat, 5th District, California, Before the Subcommittee on National Parks and Recreation of the House Interior Committee in H.R. 8002, September 9, 1976 (emphasis added).

¹¹ Oral Testimony of the Honorable John L. Burton, Democrat, 5th District, California, Before the Subcommittee on National Parks and Recreation of the House Interior Committee in H.R. 8002, September 9, 1976.

¹² Draft EIS, p.11.

Plan, Point Reyes National Seashore,” . . . to be known as the Point Reyes Wilderness.¹³

Within the overarching Congressional wilderness designation for the Point Reyes Wilderness, the majority of northern waters of Drake’s Estero area were designated as “potential wilderness.” This was because the existing oyster operation in the Estero, and the private property rights of the oyster company that the Park Service agreed to honor until they expired in 2012, precluded full wilderness designation in 1976. Thus, ***but for the existence of the oyster operation in 1976, Drakes Estero would already have received full wilderness protection.***

However, potential wilderness areas automatically become wilderness upon the Secretary of the Interior’s publication in the Federal Register of certification that all nonconforming uses have been eliminated.¹⁴ As then Congressman Burton explained in hearings on the Point Reyes Wilderness Act, the “potential wilderness” designation for Drakes Estero would allow the Estero to “be classified as wilderness upon the removal of certain presently existing temporary conditions, without the need to come back to Congress again.”¹⁵ Similarly, in addressing the potential wilderness lands and water, the House Report on the Point Reyes Wilderness Act stated that it was the intent of the legislation that there be “efforts to steadily continue to remove all obstacles to the eventual conversion of these lands and waters to wilderness status.”¹⁶ Accordingly, there can be no doubt that Congress intended that Drakes Estero remain wilderness and achieve a designation of full wilderness upon expiration of the oyster company’s existing reservation of use and occupancy in November 2012.

Additionally, as part of the 1976 Point Reyes Wilderness Act, Congress revised the Seashore’s enabling legislation, directing that the Seashore be administered “without impairment of its natural values, in a manner which provides for such recreational, educational, historic preservation, interpretation, and scientific research, and preservation of the natural environment within the area.”¹⁷ The significant impairment to the Estero’s natural values from continued mariculture operations is discussed below. **The legislative history and plain statutory language support Congressional intent for ensuring that Drakes Estero remain wilderness and obtain full wilderness status after November 30, 2012.**

C. Any Discretion the Secretary Has to Issue a New Permit Must be Exercised in a Manner Consistent with Federal Law and Policy, Which Places a Priority on Protecting Wilderness.

In 2009, as a rider to appropriations legislation (Rider), Congress authorized the Secretary to issue a special use permit to DBOC.¹⁸ The rider was first offered as an amendment by Senator Dianne Feinstein and, as initially drafted, “directed” the Secretary to extend the existing

¹³ 16 U.S.C. § 1132 (emphasis added).

¹⁴ See Pub. L. No. 94-567, § 3 (Oct. 20, 1976); see also H.R. Rep. No. 94-1357, at 7 (1976).

¹⁵ Statement of the Honorable John L. Burton, Democrat, 5th District, California, Before the Subcommittee on National Parks and Recreation of the House Interior Committee in H.R. 8002, September 9, 1976.

¹⁶ See H.R. Rep. No. 94-1680, at 3 (1976).

¹⁷ Draft EIS, p. 16.

¹⁸ Public Law 111-88 (Department of the Interior, Environment, and Related Agencies Appropriations Act, 2010), Section 124.

authorization for an additional 10 years.¹⁹ Senator Feinstein later amended this language simply to provide that the Secretary is “authorized” to issue a new permit.²⁰ The final legislation kept this language, providing that, “notwithstanding any other provision of law, the Secretary of the Interior is authorized to issue a special use permit” for a 10-year period to DBOC.²¹ As the Conference Report explains, this language “provid[es] the Secretary with the *discretion* to issue a special use permit to [DBOC].”²²

The Rider was enacted in response to the Interior Department’s conclusion that the Secretary did *not* have discretion to consider authorizing a new permit. Specifically the Department’s Solicitor’s Office had concluded that the Park Service “lacked discretion to allow the oyster operation to continue beyond 2012” when its current operating permit expires.²³

By granting the Secretary the discretion to decide whether or not to authorize a new permit, the Rider in no way allows the Secretary to disregard all otherwise applicable laws and policies. Although the Rider includes the phrase “notwithstanding any other provision of law,” such language typically serves to supersede only conflicting statutes. That is because there is a presumption against one statute repealing another statute by implication. Rather, “[t]he intention of the legislature to repeal must be clear and manifest,”²⁴ and “[i]n the absence of some affirmative showing of an intention to repeal, the only permissible justification for a repeal by implication is when the earlier and later statutes are irreconcilable.”²⁵ This doctrine of disfavoring repeals by implication “applies with full vigor” when, as here, “the subsequent legislation is an appropriations measure.”²⁶

Thus, the Rider must be read in harmony with existing laws to the maximum extent possible, and any finding of implied repeal must be disfavored. Here, the question for the Secretary is how he should exercise the discretion granted to him by the Rider. Nothing in the Rider expressly repeals the existing wilderness designation of Drakes Estero, and such a repeal cannot be implied. Further, nothing in the Rider expressly contravenes the extensive body of law and management policies establishing the principles pursuant to which the nation’s parks should be managed and protected. As discussed below, this body of law weighs overwhelmingly in favor of maintaining and protecting the wilderness status of Drakes Estero, as set forth in Alternative A.

D. The National Park Service Organic Act, the Wilderness Act, and NPS Management Policies All Require the Secretary to Place a Priority on Protecting Wilderness Areas Such as Drakes Estero.

¹⁹ S. Rep. No. 111-38 at 27 and 48 (2009).

²⁰ Cong. Rec. S9773 (Sept. 24, 2009).

²¹ Public Law 111-88, Section 124.

²² Conf. Rep. No. 111-316 at 107 (Oct. 28, 2009) (emphasis added).

²³ Memorandum Opinion from the Department of the Interior Office of the Solicitor to the Superintendent of Point Reyes National Seashore, February 26, 2004; *see also* Draft EIS p. 38.

²⁴ *Firebaugh Canal Co. v. U.S. Dep’t of Interior*, 203 F.3d 568 (9th Cir. 2000), citing *Posadas v. National City Bank of N.Y.*, 296 U.S. 497, 503 (1936).

²⁵ *Id.*, citing *Morton v. Mancari*, 417 U.S. 535, 550 (1974).

²⁶ *Id.*

In exercising his discretion whether or not to grant another permit to DBOC, the Secretary must be guided by the long-standing principles articulated in the NPS Organic Act and in the Wilderness Act. These statutes instruct that the NPS must act in a manner designed to ensure the protection of areas such as Drakes Estero that have been designated wilderness.

The 1916 NPS Organic Act provides that the purpose of this nation's parks is "to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."²⁷ As amended in 1978, the Act further provides that the NPS must conduct its actions in a manner that will ensure no "derogation of the values and purposes for which these various areas have been established."²⁸ Thus, the NPS may not act to impair the existing protected status of Drakes Estero.

The Wilderness Act speaks in comparable terms about the importance of preserving the integrity of natural resources. However, it provides an additional layer of protection for national park wilderness areas.²⁹ In particular, the Wilderness Act expressly prohibits commercial enterprise and motorized equipment within wilderness areas, except as necessary to meet the "minimum requirements" for the administration of the area.³⁰

NPS Management Policy 4.1, "General Management Concepts," states that preserving park resources and values unimpaired is the core or primary responsibility of NPS managers. The Service cannot conduct or allow activities in parks that would impact park resources and values to a level that would constitute impairment. **In cases of uncertainty** as to the impacts of activities on park natural resources, **the protection of natural resources will predominate.**

Further, the NPS has a mandate to manage potential wilderness areas *as wilderness*. NPS Management Policies expressly require the Service to "take no action to diminish potential wilderness qualities" and to "ensure that potential wilderness is managed as wilderness to the extent that the nonconforming conditions allow."³¹

Similarly, the Seashore's 1980 General Management Plan (GMP) provides that the "primary objectives for the park must . . . relate to the natural integrity of the seashore," and that lands designated as wilderness and potential wilderness are to be "managed in accordance with the mandates of the Wilderness Act."³² And while the GMP clearly allows for agricultural operations to continue in pastoral zones, there is no similar provision that would allow for continued operation of the oyster business in the designated Wilderness.³³

The governing law and management policies thus articulate both a heightened standard of protection for areas designated as wilderness, as well as an extremely strong precautionary

²⁷ 16 U.S.C. § 1.

²⁸ 16 U.S.C. § 1a-1.

²⁹ NPS 1999 Ref. Manual 41, p.8.

³⁰ 16 U.S.C. § 1133.

³¹ See NPS Management Policies (2006).

³² GMP, pp. 1 and 9.

³³ GMP, pp.11-12; see also Draft EIS, pp. 14-15 (noting that definition of "agricultural property" does not include oyster operations).

principle that NPS must act in favor of protection if there is any doubt about impacts or impairment of resources.

All the Action Alternatives considered in the DEIS would delay conversion of potential wilderness to fully protected wilderness. There is no basis for doing so given the current level of adverse impacts to the biodiversity and natural ecology of the Estero. Indeed, NPS policies require conservation and resource protection in the face of uncertainty. Here, there is conclusive proof of not only the risks of permitting ten more years of industrial-level mariculture in the Estero, but of the real impairment of natural resources that has occurred and is likely to continue incurring. Delaying the designation would contravene the clear mandate that NPS manage wilderness areas to guard against impairment and to promote wilderness qualities.

The opportunities for public enjoyment within such a unique landscape as Drakes Estero are why Congress designated the Estero as wilderness and contemplated a full return to wilderness status in 2012, when the oyster company's operating rights expire. **The authorization of private, commercial use within a designated wilderness area impairs the values of the national park system, the ability to recreate in the only marine wilderness area on the West Coast, and the natural resources and native wildlife and plants that are to receive maximum protection, preservation, and restoration.**

E. Only Alternative A is Consistent with the Management Principles that Must Govern the Secretary's Decision Whether to Issue a New Permit Because Only Alternative A is Consistent with the Mandate Not to Permit Impairment of the Park's Natural Resources and of Wilderness Areas.

Any decision to permit DBOC to continue its oyster operations in Drakes Estero would be contrary to NPS's overarching mandate to ensure that national park resources are not impaired. NPS's management policies reflect this mandate and demonstrate how it must be applied in the context of an area that has been designated wilderness like Drakes Estero.

First, NPS Management Policy 6.4.3.3, regarding the use of motorized equipment, prohibits the public use of motorized equipment or any form of mechanical transport in wilderness except as provided for in specific legislation. Here, because the 1962 enabling legislation, the Wilderness Act of 1964, and the 1976 Point Reyes Wilderness Act did not mention continued commercial operations or motorboats for use in the oyster operation as permissible uses, no express authority exists to allow them after the 2012 expiration of the RUO.

Second, NPS Management Policy 6.4.4 provides that only wilderness-oriented commercial services that contribute to achieving public enjoyment of wilderness values or provide opportunities for primitive and unconfined types of recreation may be authorized. However, such wilderness-oriented commercial services may be approved only if they are consistent with the wilderness management objectives contained in the park's Wilderness Management Plan *and* satisfy NPS's "minimum requirement" policy (discussed below). The DBOC's commercial use of wilderness clearly is not a "wilderness-oriented" commercial use, nor has it ever been claimed

as such. Noting in the Seashore's management plan permits management of the Estero to facilitate private, commercial use.

Third, the "minimum requirement" policy is set forth in NPS Management Policy 6.3.5, which governs all management decisions affecting wilderness. The policy provides specific guidelines for analyzing whether administrative actions, projects, or programs undertaken by the Service or its agents and affecting wilderness character, resources, or the visitor experience are necessary, and if so how to minimize impacts. Because Drakes Estero is a Congressionally designated wilderness area, these guidelines must inform the Secretary's decision whether to issue a new permit to DBOC.

The minimum requirement policy is a two-step process. First, NPS must determine whether or not the proposed management action is appropriate or necessary for administration of the area as a wilderness and does not pose a significant impact to wilderness resource and character; and, second, NPS must identify the techniques and type of equipment needed to ensure that impact to wilderness resources and character is minimized.

For example, with respect to motorized equipment or mechanical transport, the minimum requirement policy authorizes the administrative use of such equipment or transport only in emergency situations or if necessary to achieve the purposes of the area as wilderness, including the preservation of wilderness character and values.

Further, in assessing whether an action has an adverse impact on wilderness, NPS must consider both the physical resources within wilderness, and wilderness characteristics and values, including: the wilderness's primeval character and influence; the preservation of natural conditions (including lack of man-made noise); cultural resource values; the assurance of outstanding opportunities for solitude; the assurance that the public will be provided with a primitive and unconfined type of recreational experience; and the assurance that the wilderness will be preserved and used in an unimpaired condition.

Thus, when determining minimum requirement, the potential disruption of wilderness character and resources must be considered before, and given significantly more weight than, economic efficiency and convenience. If a compromise of wilderness resource or character is unavoidable, only those actions that preserve wilderness character and/or have localized, short-term adverse impacts will be acceptable.

Here, the oyster operations conducted by DBOC are in no way necessary to the wilderness quality of the Estero. As such, there can be no argument that issuing a permit to DBOC comports with NPS management principles.

Even if DBOC could show that its oyster operations somehow had a beneficial effect on the Estero (which it can't), the operations would still be incompatible with wilderness management principles. For example, in *Wilderness Society v. U.S. Fish & Wildlife Service*, the court held that a plan to "enhance" fisheries was not necessary to meet minimum requirements for the administration of the wilderness area.³⁴ As the court explained: "The plain language of the

³⁴ *Wilderness Society v. United States Fish & Wildlife Service*, 353 F.3d 1051 (9th Cir. 2003).

Wilderness Act states that there shall be “no commercial enterprise” within designated wilderness. 16 U.S.C. § 1133(c) (emphasis added). This mandatory language does not provide exception to the prohibition on commercial enterprise within wilderness if aimed at achieving a benign goal for commerce with modest impact on wilderness.”³⁵

Nor can there be any argument that a continuation of the oyster operations is compatible with wilderness management principles simply because they have existed for a significant period of time. Thus, in *High Sierra Hikers Association v. U.S. Forest Service*, the court prohibited the U.S. Forest Service from carrying out proposed dam repairs for eleven dams in wilderness areas because the dams were clearly structures prohibited in a wilderness area, and maintenance of those structures would contravene the “general policy [that] maintaining the primitive character of the area must be supreme,” where such maintenance conflicts with another proposed use.”³⁶

In short, DBOC’s application for a new SUP must be denied because it fails the minimum requirement test for any proposed action in this Wilderness area, a test which must guide the Secretary’s decision.

Additionally, the minimum requirement analysis here must consider both the enabling legislation and the Seashore’s 1980 General Management Plan. Nothing in the legislation or plan would countenance issuance of a new permit. The Seashore’s enabling legislation recognizes the wilderness status of the Estero: “Point Reyes is a remnant of California coastal wilderness. Its 67,684 acres provide one of the few pieces of coastal land large enough and undisturbed enough to offer people a seashore experience seemingly untouched by the modern world. About half of Point Reyes has been included in the National Wilderness Preservation System.”³⁷ Similarly, the General Management Plan provides: “The coastal wilderness qualities of Point Reyes are well respected as evidenced by the broad public support responsible for its inclusion in the National Wilderness Preservation System.”³⁸

In 1976, the NPS decided to honor the terminable, private rights – the RUO - that had been negotiated with the Johnson Oyster Company. Because of the RUO commercial mariculture operations have continued, and have caused impairment to the ecology of Drakes Estero. However, with the expiration of the RUO, the NPS policies of preserving park resources in an unimpaired condition – and in favor of protection in case of uncertainty about impairment – must govern.

A decision to grant DBOC a new 10 year commercial use permit would be an arbitrary decision that would jeopardize a settled understanding of the public, non-commercial nature of wilderness within all National Parks and the entire National Wilderness Preservation System. **It is therefore not possible for the Secretary to authorize the continuation of a commercial enterprise that relies on motorized watercraft consistent with the “minimum requirement” test because it can not be shown that the oyster operation supports or enhances the**

³⁵ Id. at 1067.

³⁶ See *High Sierra Hikers Ass’n v. United States Forest Service*, 436 F.Supp.2d 1117, 1131 (E.D. Cal. 2006).

³⁷ 16 USC Sec. 459c.

³⁸ GMP, p. 4.

wilderness character or expressly benefits the coastal wilderness qualities for which Point Reyes was initially protected.

F. The State's Conveyance of the Estero's Tidelands Preclude Commercial Aquaculture.

In 1965, the State of California deeded to the United States the tidelands of the Estero. That conveyance reserved the public right to fish as required by the California Constitution but did not include any specific reservations for the oyster operation.³⁹ The oyster operator has argued that it should be allowed to continue to operate in the Estero through the reservation for public fishing. This feckless argument tries to create a loophole in the 1965 conveyance that is not supported by the Department of Fish and Game's Code of Regulations.

The California Fish and Game Code defines "fish" to include "wild" species and not the private cultivation of non-native bivalves for commercial use. Such cultivation is a private property right. The Draft EIS correctly concludes that because the State's conveyance of the tidelands was made "without limitations as to the aquaculture operations, NPS laws, regulations, and policies apply" to the oyster company's operations within Drakes Estero.⁴⁰

G. Any Decision Other Than Wilderness Would Set a Harmful Precedent for Management of Public Lands, National Parks, and Wilderness Areas.

Granting a SUP to DBOC for commercial operations within Drake's Estero would establish a harmful precedent with respect to public lands and National Parks management policy, and wilderness areas in particular. Given the clear intent of Congress in creating this Point Reyes Wilderness Area in 1976, a decision for a new SUP would set a dangerous precedent, and one that could haunt the National Park Service and other land management agencies for decades. History demonstrates that there is a simple bright line that should be honored: namely, consistent with the Wilderness Act, agencies need to eliminate non-conforming uses in potential wilderness areas when the special use permit at issue expires. If the NPS makes an exception in this case, it could open the door to future political compromises that rollback wilderness protections.

Conclusion: Federal wilderness laws, their legislative history, and NPS management policies from the past 95 years all mandate that the Secretary choose wilderness and decline to issue a new SUP. A decision against wilderness and in favor of a new permit would be a rollback for wilderness and public lands management protections nationwide, and should be avoided by choosing wilderness.

II. All Three Action Alternatives Would Cause Significant Impairment to Park Resources In Derogation of NPS Management Policies.

A. Impacts From DBOC Operations Reach the NPS Standard For Impairment.

³⁹ Draft EIS, p. 6.

⁴⁰ Id.

NPS Management Policy 1.4.4,⁴¹ “The Prohibition on Impairment of Park Resources and Values,” states that “the *impairment of park resources and values may not be allowed by the Service unless directly and specifically provided for by legislation or by the proclamation establishing the park.* The relevant legislation or proclamation must provide explicitly (not by implication or inference) for the activity, in terms that keep the Service from having the authority to manage the activity so as to avoid the impairment.”

There has been no explicit or implied authority granted to the NPS to impair the resources and values of the Seashore. Conversely, there is an explicit mandate that the NPS provide maximum protection, preservation, and restoration to natural resources. Congress included site-specific authority to remove commercial uses and other non-conforming uses at the Drakes Estero designated wilderness area when the RUO expires in 2012 based on the 1976 Point Reyes Wilderness Act.

NPS Management Policy 1.4.5,⁴² “What Constitutes Impairment of Park Resources and Values,” states that “the *impairment that is prohibited by the Organic Act and the General Authorities Act is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values.* Whether an impact meets this definition depends on the particular resources and values that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts. *An impact would be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, or key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or identified in the park’s general management plan or other relevant NPS planning documents as being of significance.*”

The standards of the Organic Act and General Authorities do not account for the heightened protection standards required for designated wilderness areas. In the founding legislation of the Seashore and the Point Reyes Wilderness Act, there is a strong and compelling mandate to protect the purposes and values of Drakes Estero. This mandate includes a priority on, and an active commitment to, maximum protection, preservation, and restoration of natural resources. This mandate also includes wilderness values being of highest importance, and absolutely no commercial uses, no motorized equipment, and no alteration of natural resources and processes. Fulfilling this mandate requires a rejection of commercial authorization after 2012 and instead, requires efforts to complete the wilderness designation and restore the marine wilderness from impairment due to over seventy years of commercial mariculture.

DBOC impacts that cause impairment to Drakes Estero from mariculture operations include:

- 1) invasive species proliferating on the mariculture gear, including miles of oyster racks and thousands of plastic mesh bags, and to eelgrass, smothering it,

⁴¹ National Park Service Management Policies (2006) (Emphasis Added).

⁴² Id. (Emphasis added).

- 2) commercial motor boats operating 6 days a week, 8 hours a day, destroying opportunities for a wilderness experience and solitude,
- 3) millions of non-native species being grown at an industrial scale for private profit,
- 4) destruction of eelgrass from motor boat propellers a) cutting eelgrass blades and b) causing water turbidity that inhibits sunlight penetration necessary for photosynthesis, and
- 5) thousands of pieces of plastic dumped into the Seashore's waters and on the Seashore's beaches.

NPS Management Policy 1.4.6,⁴³ "What Constitutes Park Resources and Values," states that the "park resources and values" that are subject to the no-impairment standard include: natural and historic objects, and wildlife, and the *processes and conditions that sustain them, including, the ecological, biological, and physical processes that created the park and continue to act upon it*; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; appropriate opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing them; and the park's role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system.

Drakes Estero is the only designated marine wilderness on the West Coast. The specific values and purposes for the Seashore's establishment are summed up by the legislative history, which mandates the maximum protection, preservation, and restoration of the Seashore's natural resources.⁴⁴ The legislative history, directing efforts to "steadily remove" the non-conforming commercial uses, mandates the removal of the oyster operation as a non-conforming use within designated potential wilderness. The values and purposes, therefore, include the removal of private, commercial use. Considered the "ecological heart of the park," the Estero has high potential public value and integrity in being the only marine wilderness on the continental West Coast.

B. The National Academy of Sciences 2009 Report Failed To Distinguish Drakes Estero From Other Estuarine Environments.

Despite citing the overwhelming evidence of invasive species impacts around the world, and in Drakes Estero, NAS 2009 makes the troubling claim that the oyster company is not a "major" environmental impact.⁴⁵ The EIS correctly notes the fact that NAS 2009 did not define or explain the term "major," and so the NAS conclusion is vague at best. **The EIS should go further and address the foundation of the fundamental mis-assumptions of NAS 2009.** Specifically, the NAS does not distinguish between the non-native Pacific oyster and the native Olympia oyster in terms of their respective roles in the Drakes Estero marine ecosystem.

⁴³ Id. (Emphasis added).

⁴⁴ 16 USC Sec. 459c.

⁴⁵ Shellfish Mariculture in Drakes Estero, Point Reyes National Seashore, National Academy of Sciences (NAS 2009), Draft EIS p. 47.

Andrew Cohen, M.D., (personal communication, and see references below) a local expert on oyster ecology in San Francisco Bay, validates the point that the two species are entirely distinct, and so the non-native oyster cannot be relied upon to perform the equivalent ecosystem functions as the native. McKindsey (2007) confirms this by stating that, "different bivalve species may differ in how they effect this and the expansion of an introduced bivalve species may have complex cascading effects on water column and nutrient dynamics. This could also be the case for species that have direct or indirect impacts on bivalve species or other foundation species in an ecosystem. Such interactions remain largely unstudied to date."⁴⁶

Regardless, NAS 2009 assumes a large role or presence of *Olympia* oysters in pre-history, but this is not supported by archeological evidence, and so is entirely speculative. Babalis (2011), in a well-researched account of the historical ecology of Drakes Estero, synthesizes the archeological, ethnographical, and post Gold Rush historical evidence, and concludes that the **NAS report fails to differentiate the uniqueness of Drakes Estero from other estuarine environments**: "One of the more surprising problems of the NRC report is its tendency to overlook this natural variability and instead to generalize broadly about physical conditions throughout the entire Pacific region."⁴⁷

Drakes Estero has been a soft bottom estuary for thousands of years. Oysters need a hard substrate, thus the use of racks and bags for cultivation. **The Babalis study validates that oyster cultivation in the Estero is a wholly artificial importation of non-native species.**

Moreover, the NAS 2009 focus on the benefit from Pacific oysters ignores the presence and current function and associated benefits of several species of native bivalves, including nine species of native clams in the Estero. The NAS's premise is not supported by scientists, who point out that, "the contribution of cultured bivalves to clearance is further obscured when they represent an unknown fraction of all suspension-feeders."⁴⁸ Ruesink *et al.* (2005) succinctly encapsulates the problem of non-native oyster cultivation: "The high potential for unintended consequences of oyster introductions suggests that the deliberate introduction of oysters, although often effective in providing the economic benefits of increased aquaculture production, is unlikely to provide an effective tool for the restoration of ecological functions lost from native oyster decline and habitat degradation."⁴⁹

But again, the more fundamental point is that oysters were not part of the pre-historical environment of Drakes Estero and the Draft EIS must more clearly address this disagreement with the NAS Report. "The conclusions drawn from this analysis suggest that the commercial cultivation of oysters represents a significant modification of the estero ecology from conditions that likely prevailed prior to the historic period. This would be true even if the oysters being cultivated were the native *O. lurida*, as proprietor Kevin Lunny has tentatively proposed."⁵⁰

Despite citing the same research, NPS began from the correct premise that Drakes Estero

⁴⁶ McKindsey, 2007.

⁴⁷ Babalis, 2011. (emphasis added)

⁴⁸ Dumbauld *et al.* 2009.

⁴⁹ Ruesink *et al.* 2005.

⁵⁰ Babalis, 2011.

supported few native oysters, and concluded major long-term adverse impacts from the industrial-scale non-native oyster operation. The NAS 2009 premise of pre-historical oyster abundance, and consequent conclusion of oyster cultivation fulfilling an ecological niche, is not supported by the peer-reviewed science cited by both the NPS and NAS. Thus, NAS premise and conclusion are undermined, and the EIS should be much stronger and clearer about these differences.

C. Numerous Impact Topics Were Erroneously Dismissed and Must Be Addressed in the Final EIS Due To Their Significant Adverse Impacts.

1. Vegetation. The Draft EIS dismisses the topic of vegetation from the environmental analysis, stating that “the proposed alternatives would not directly impact the coastal scrub vegetation.” While most of DBOC activities are in the estero and in the wetlands, which are analyzed separately, coastal scrub vegetation is in and around the onshore facility, as stated in the Draft EIS. Coastal scrub is very important bird habitat and harbors considerable botanical diversity including rare plants. Alternative D in particular could conceivably impact coastal scrub vegetation, considering the scale of construction and transformation proposed for the site. Such a massive disturbance has the potential to introduce invasive plants into the terrestrial vegetation, and thus, should not be dismissed as an impact topic. Additional references are provided for you information.⁵¹

2. Climate Change. The Draft EIS wrongly dismissed the impact topic of climate change and sea level rise. The National Park Service Climate Change Response Strategy “**recognizes the risks of a changing climate**” and **commits the Park Service “to implementing a response initiative that will guide management actions and collaboration at national, regional, and park levels.”** Pursuant to that strategy, the Park Service is to “incorporate climate change considerations and responses in all levels of NPS planning” and “implement adaptation strategies that promote ecosystem resilience and enhance restoration, conservation, and preservation of park resources.” The strategy recognizes that “**increasing the resilience of systems and supporting the ability of natural systems and species to adapt to change**” is an important approach to reducing the risk of adverse impacts due to climate change.⁵²

In Chapter 1, the Draft EIS dismisses climate change from the impact analysis, stating, “the effects of climate change on park resources over the 10-year planning horizon for this EIS are likely to be negligible,” and that “the contribution of the actions contemplated in this EIS on climate change is likely to be negligible and is dismissed from further analysis.” *Using this logic, climate change analysis could be dismissed from every EIS, since every individual project in the federal system is relatively negligible compared to the cumulative effects of the totality of federal actions during any 10-year period.* However, this (il)logic ignores the NPS’s policy on

⁵¹ The following links provided information on roadsides as weed vectors:

http://issg.org/is_how_do_they_spread.htm

<http://www.fhwa.dot.gov/publications/publicroads/00marapr/invasiv1.cfm>

<http://www.fhwa.dot.gov/publications/publicroads/10julaug/02.cfm>

www.bioone.org/doi/pdf/10.1659/MRD-JOURNAL-D-10-00036.1

⁵² National Park Service Climate Change Response Strategy, September 2010.

climate change. Given how rapidly the global climate appears to be changing already (correctly cited in the Draft EIS) and the fact that the Earth's climate is a complex dynamical system for which predictions are highly uncertain, *the Park cannot assume that climate change is going to be slow over the next ten years.*

The Draft EIS mentions "two aspects of climate change that must be considered in an environmental impact analysis:" The second bullet point reads "The impact of climate change on humans. i.e., how the resources that are managed are likely to change in response to changing climate conditions, and how that changes or otherwise affects management actions and the impacts of those actions on the resource." Since the local impacts of global climate change include potential sea-level rise, this scenario should be analyzed in the EIS. The EIS does discuss sea-level rise in the Affected Environment Chapter, but then *neglects to analyze impacts in Chapter 4.* The Draft EIS states,

"At this rate, sea-level rise, on average, could reach approximately 5.9 inches within the next 10 years. Under such changes, much of the wetland area described above would be under water for the duration of the tidal cycle, effectively changing the character of the wetland and shifting the prevailing hydrologic regime inland. In terms of land area, the potential effect of such changes is unknown; however, for most of the California coast, thousands of wetland acres are expected to experience dynamic changes in hydrology and ecosystem function over the time trajectory described above."⁵³

Chapter 4 should analyze the impact of sea-level rise and its effects on wetlands, estero bathymetry and eelgrass as such impacts to these resources relate to the continued presence of the oyster operation. **The EIS needs to address the question of whether or not, in the face of sea-level rise resulting from global climate change, the Drakes Estero environment will be less resilient as a result of ten more years of the oyster operation.**

3. Geologic Resources. The Draft EIS wrongly dismissed the topic of geological resources. EAC's scoping comments suggested several issues in relation to the impacts of the oyster company on sediment dynamics and the ecology of the Estero. The significantly large scale of mariculture operations – at least 5 miles of racks, at least 8.5 linear miles of boat scars, over 3700 boat trips per year, estimated 84 acres used by oyster bags -- *necessitates an analysis of the potential impacts to the overall sediment bottom dynamics in the estero, how these impacts may have evolved over time, and how they may continue to evolve in the future either with or without the oyster operation.* The bathymetry of the underwater geological environment presumably would have some relationship to patterns in the ecology of the Estero's birds, harbor seals, fish, and benthic community.

Under the *Issues and Impact Topics Considered but Dismissed from Further Analysis* section, the Draft EIS states that "current sediment transport processes, which may be impacted by actions proposed in this EIS, are analyzed in the water quality section of this EIS." While the Draft EIS talks about the localized disturbances of the bottom from oyster cultivation operation, it does not discuss the large-scale, long-term impacts of the ongoing large-scale commercial production of two shellfish species. A deeper level of analysis is required and appropriate to determine potential impacts to the geometric and structural integrity of Drakes Estero and how it

⁵³ Draft EIS, p.170.

relates to wildlife habitat.

4. Environmental Justice. The Draft EIS wrongly dismissed impacts to environmental justice from the analysis. Multiple NPS policies cited below are relevant to an analysis of environmental justice impacts. For example, the NPS “recognizes the far-reaching impacts that waste products, contaminants, and wasteful practices have, not only on national park resources, but also on biotic and abiotic resources elsewhere in the nation and around the world. The Service will therefore demonstrate environmental leadership and serve as a model for others to follow in managing wastes and contaminants.”⁵⁴

The NPS Management Policy on public health programs sets forth public health responsibilities that are applicable to the SUP decision.⁵⁵ “The Service will work to identify public health issues and disease transmission potential in the parks and to conduct park operations in ways that reduce or eliminate these hazards. Park managers will pursue these goals with technical assistance provided under the auspices of a Service-wide public health program. The public health program will use the consultation services of commissioned officers of the U.S. Public Health Service.”⁵⁶

The Draft EIS should discuss the responsibilities of NPS to protect public health, and so NPS should reconsider including environmental justice as an impact topic for the following reasons:

- The EIS should consider the effects on the health of the DBOC employees of the water well being 100 feet downhill from their leach field.
- The EIS should examine the drinking water quality at the shucking plant and whether it is safe for the DBOC employees.
- Given that DBOC oysters were implicated in the 2011 Oyster Fest widespread food poisoning incident, and County Department of Health records showed that fecal coliform levels were above acceptable levels three days before the oyster fest, these potential impacts of Estero water quality on DBOC employees should be analyzed.

5. Invasive Species. At the beginning of Chapter 3, *Affected Environment*, the EIS should include a section on INVASIVE NON-NATIVE SPECIES. The status of invasive species in Drakes Estero is a critical and integral variable in the Drakes Estero Setting and Processes as indicated by the totality of EAC’s comments on invasive species. **Invasive species are a significant enough problem already in the Estero - this the topic should be afforded a specific treatment.** Since the *Existing Conditions* section of Chapter 2 only discusses the oyster operation itself, Chapter 3 appears to be the best place to discuss the general problem of invasive species, as part of the environmental setting for the analysis of the four alternatives

6. Native Clams. Drakes Estero has abundant native clams growing in and near eelgrass beds, performing the nutrient-cycling functions that the oyster operation supporters say are a justification for the oyster cultivation. The presence and role of the native bivalves in the estuary should be more thoroughly illustrated in the Setting and Processes section Chapter 3 of the EIS. Such an analysis would supply a more comprehensive setting for

⁵⁴ NPS Management Policies 2006, 9.1.6 Waste Management and Contaminant Issues.

⁵⁵ NPS Management Policy 8.2.5.5.

⁵⁶ See Director’s Order No. 83 re: Public Health.

identifying Pacific oyster cultivation impacts on the benthic community, but also to buffer against the claim that Pacific oysters are providing a beneficial impact, supposedly not being provided by native bivalves.

7. Special-Status Species Excluded from Analysis. The Draft EIS dismissed some federally-listed animals that could be impacted by the Action Alternatives. Specifically, the plastic marine debris generated by DBOC could impact the following birds and marine mammals⁵⁷:

<i>Blue Whale</i>	<i>California Brown Pelican</i>	<i>Fin Whale</i>
<i>Green Turtle</i>	<i>Guadalupe Fur Seal</i>	<i>Leatherback Turtle</i>
<i>Loggerhead Turtle</i>	<i>Marbled Murrelet</i>	<i>Olive Ridley Sea Turtle</i>
<i>Right Whale</i>	<i>Sei Whale</i>	<i>Short-tailed Albatross</i>
<i>Sperm Whale</i>	<i>Stellar Sea Lion</i>	

Based on best available science⁵⁸ on the impacts from marine debris to native marine mammal species, the above federally-listed animals should be included in the impact analysis. *The Draft EIS is far from adequate in its explanation for dismissal of this long list of species.* Only the tables in Appendix E are cited as the justification for dismissal, and those are really just status tables. They do not provide a sufficient explanation for the absence of analysis of impacts to these species.

8. Tidewater Goby. The US Fish and Wildlife Service Recovery Plan for the Tidewater Goby (2005) indentifies Limantour Estero as a potential recovery site for the Tidewater Goby, which presumably could include Drakes Estero, since the habitats are the same. While the recovery plan does not specifically mention Drakes Estero, Limantour Estero is adjacent, and so the EIS should include at least a brief discussion of Drakes Estero as potentially viable habitat for reintroduction of the tidewater goby, and thus the impacts from the alternatives.

9. Rare Plants. Appendix E of the Draft EIS includes tables of special-status species including a list of rare plants excluded from analysis due to lack of habitat. However, according to the table, the following species occur in coastal scrub or wetland habitat, communities that are in and around the onshore oyster facility, and thus, impacts to the appropriate subset of these species should be analyzed in the Draft EIS:

<i>Stellaria littoralis</i>	<i>Carex buxbaumii</i>
<i>Lilium maritimum</i>	<i>Arabis blepharophylla</i>
<i>Limosella subulata</i>	<i>Fritillaria liliacea</i>
<i>Cirsium andrewsii</i>	<i>Ceanothus gloriosus var. exaltatus</i>
<i>Lotus formosissimus</i>	<i>Castilleja ambigua ssp. Humboldtiensis</i>

⁵⁷ See policies, impact analysis discussions, and references in the Wildlife sections below.

⁵⁸ See, Arthur, C., J. Baker and H. Bamford (eds). 2009. Proceedings of the International Research Workshop on the Occurrence, Effects and Fate of Microplastic Marine Debris. Sept 9-11, 2008. NOAA Technical Memorandum NOS-OR&R-30, and, Plastic Debris in the California Marine Ecosystem: A Summary of Current Research, Solution Strategies and Data Gaps. 2011. C. Stevenson, University of Southern California Sea Grant. Synthetic Report. California Ocean Science Trust, Oakland, CA.

Leptosiphon grandiflorus
Polygonum marinense
Streptanthus glandulosus ssp. *Pulchellus*
Pleuropogon refractus
Hemizonia congesta ssp. *Leucocephala*
Cordylanthus maritimus ssp. *Palustris*
Sidalcea calycosa ssp. *Rhizomata*
Piperia elegans ssp. *Decurtata*
Grindelia hirsutula var. *maritime*
Erysimum franciscanum
Campanula California
Chorizanthe cuspidata var. *villosa*

Fritillaria lanceolata var. *tristulis*
Arctostaphylos virgata
Ceanothus gloriosus var. *porrectus*
Phacelia insularis var. *continentis*
Lasthenia californica ssp. *Macrantha*
Ceanothus gloriosus var. *gloriosus*
Horkelia marinensis
Leptosiphon rosaceus
Triphysaria floribunda
Hesperervax sparsiflora var. *brevifolia*
Calamagrostis crassiglumis

EAC recognizes that “coastal scrub” is a broad category that includes many assemblages and sub-communities, and that rare plants are often rare because, indeed, they have fairly narrow habitat niches, and thus some of the above species are extremely unlikely to occur in the coastal scrub type in and around the DBOC facility. Nevertheless, this is a very long list of rare plants *not* to be included for any analysis whatsoever. The Draft EIS is not adequate in its explanation for dismissing this long list of rare plant species. Only the tables in Appendix E are cited as the justification for dismissal, and those are really just status tables. They contain no actual specific habitat or local range information. This type of information should be included and cited appropriately, so that the public can understand the justification for dismissing species.

D. The Draft EIS Erroneously Excluded Discussion Of the Significant Adverse Impacts from the Large Amount of Plastic Debris Emitted by DBOC.

The Draft EIS does not adequately assess the impacts from the plastic generated by the DBOC operation. The Coastal Commission reprimanded DBOC for the thousands of pieces of plastic it has dumped into coastal waters in violation of its permits and Cease and Desist Order.⁵⁹ Thousands of DBOC poly vinyl chloride (pvc) spacer tubes have been found all over Point Reyes beaches by West Marin volunteers.⁶⁰ These pieces of black plastic spacer tubes have been thoroughly documented by volunteers using photographs and global positioning system technology, from which has been produced a GIS map attached hereto as Exhibit 1. This oyster operation plastic is specific to DBOC, can leech harmful chemicals, could be lethally swallowed by seals and seabirds, and negatively impacts the visitor experience.

Impacts from plastic on the marine environment are well-documented for birds, fish, reptiles and mammals.⁶¹ Notwithstanding its claimed policy of zero tolerance for pollution, DBOC oyster

⁵⁹ September 29, 2011 Letter to DBOC from the Coastal Commission.

⁶⁰ Thomas Baty letter to California Coastal Commission, September 1, 2011.

⁶¹ Federal Websites:

http://water.epa.gov/type/oceb/marinedebris/md_impacts.cfm

<http://marinedebris.noaa.gov/info/faqs.html#lit>

<http://marinedebris.noaa.gov/projects/projects.html#research>

California-Based Information

<http://www.coastal.ca.gov/publiced/marinedebris.html>

<http://www.plasticdebris.org/bibliography.html#3>

operations shed thousands of pieces of PVC plastic all over Point Reyes beaches and natural environment.

Despite the concrete evidence of the widespread dissemination of harmful plastic material, the Draft EIS only mentions the word “plastic” three times in the entire document, each time in very brief association with water quality. Thus, **impacts from DBOC plastic debris are not mentioned at all in discussing impacts to birds, harbor seals, eelgrass, wetlands, water quality, or even wilderness.** Impacts to marine animals from plastic marine debris are well documented.⁶²

The breadth of impacts to marine animals and habitats as demonstrated by the references cited herein, and under the impact topics, fish, birds, harbor seals, eelgrass, water quality, wilderness and the visitor experience, supplies a clear and convincing argument for both the need to analyze these impacts in the Final EIS and to consider categorizing the plastic debris impacts as a long-term major adverse impact.

Despite numerous laws and regulations relating to marine debris and hazardous waste, the Draft EIS does not cite them. The Environmental Protection Agency (EPA) has a website that lists relevant laws, regulations, and treaties regulating marine debris including:

Land-Based Laws

Beach Act
Clean Water Act
Coastal Zone Act
Pollution Prevention Act
Resource Conservation and Recovery Act; and,

Ocean-Based Laws

Marine Plastic Pollution Research and Control Act
Marine Debris, Research, Prevention and Reduction Act
Shore Protection Act
Marine Protection, Research, and Sanctuaries Act.⁶³

Each of these laws is briefly summarized below.

Marine Debris Research, Prevention and Reduction Act. To fulfill requirements of the Marine Debris Research, Prevention and Reduction Act⁶⁴, a Congressional Report was developed by the

⁶² Numerous government and marine organization reports with many peer-reviewed references, which document impacts to marine animals, include:
http://calost.org/pdf/science-initiatives/marine%20debris/Plastic%20Report_10-4-11.pdf
<http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=34124>
http://www.unep.org/regionalseas/marinelitter/.../plastic_ocean_report.pdf
<http://marinedebris.noaa.gov/projects/pdfs/Microplastics.pdf>
http://calost.org/pdf/science-initiatives/marine%20debris/Highlights_Plastic%20Debris%20Report_FINAL.doc.pdf

⁶³ <http://water.epa.gov/type/oceb/marinedebris/lawsregs.cfm>

⁶⁴ 33 U.S.C. 1954. (Emphasis added).

Interagency Marine Debris Coordinating Committee and produced by the National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce: "Marine debris can cause adverse impacts on aquatic ecosystems, such as coral reefs, wetlands, fish habitats, beaches, and migratory species breeding grounds and pathways. **Marine debris can impact species directly, such as through entanglement or smothering of species, or indirectly, such as through changes to habitat. Ecological impacts can also vary depending on the type of marine debris.**"⁶⁵

California Ocean Protection Act, 2004. The Draft EIS fails to mention the *California Ocean Protection Act* as a relevant state law. The State of California transferred title of Drakes Estero to the National Park Service in 1965. Pursuant to the Marine Life Protection Act, the Estero is part of the State of California network of Marine Protected Areas and would become a *State Marine Reserve* upon expiration of the oyster company permit. Since Drakes Estero is subject to a conservation designation by the State of California, and the Estero is directly connected to the Pacific Ocean, the *California Ocean Protection Act* should be included as relevant law: "**California's coastal and ocean resources are critical to the state's environmental and economic security, and integral to the state's high quality of life and culture. A healthy ocean is part of the state's legacy, and is necessary to support the state's human and wildlife populations. Each generation of Californians has an obligation to be good stewards of the ocean, to pass the legacy on to their children.**"⁶⁶

Pursuant to the *California Ocean Protection Act*, the State of California created the Ocean Protection Council (OPC). "The OPC will ensure that California maintains healthy, resilient, and productive ocean and coastal ecosystems for the benefit of current and future generations."⁶⁷ The OPC passed a resolution, Reducing and Preventing Marine Debris, on February 8, 2007, which describes California's commitment to the ocean environment:

"WHEREAS, since the 1970's, marine debris has been widely recognized as a threat to the marine environment . . . the California Ocean Protection Council (OPC) . . . Further Resolves to identify the following top priority solutions from the June 2006 Plan of Action prepared by the Plastic Debris Project:

1. **Reduce the sources of plastic marine debris...**
2. **Increase enforcement of anti-litter laws generally...**⁶⁸

E. The Draft EIS Did Not Adequately Address the Significant Adverse Impacts From Invasive Marine Fouling Organisms Spreading Due To the Hard Substrate Of the Mariculture Gear.

The Draft EIS does not adequately acknowledge the urgency both to prevent further introduction, and to stop the proliferation of, invasive species in the Estero. Invasive species are spreading in the Estero due to the hard substrate of the mariculture gear. Invasive marine fouling organisms that presently exist in the Estero include the noxious tunicate, viruses, algae, the Manila clam, and the Pacific oyster.

⁶⁵ http://water.epa.gov/type/oceb/marinedebris/upload/2008_imdcc_marine_debris_rpt.pdf

⁶⁶ Cal. Public Resource Code, 35500-35505. (Emphasis added).

⁶⁷ <http://www.opc.ca.gov/about/>

⁶⁸ <http://www.opc.ca.gov/2007/02/resolution-of-the-california-ocean-protection-council-on-reducing-and-preventing-marine-debris/>

The top two causes of the decline of global biodiversity are habitat destruction and impacts from invasive species. “Compared to other threats to biodiversity, invasive introduced species rank second only to habitat destruction, such as forest clearing.”⁶⁹ National Park Service policies direct the Park to err on the side of caution regarding the management of invasive species, including when species surveys turn up unidentified fauna. The Park should take precaution that any unidentified species is a potential invader.

Because the impacts from invasive species are already highly noticeable, the Draft EIS incorrectly categorizes the effects from the existing, spreading invasive marine fouling organisms under the “Benthic Fauna” and “Eelgrass” sections as “moderate adverse” when the **impacts from invasive species should be categorized as “major adverse”**.

*In the ten year period of a new SUP and the time thereafter while *Didemnum*, Manila clams and other potentially invasive species persist, there is a high risk that the Action Alternatives will substantially influence, undermine, and irreversibly impact natural processes contrary to NPS Management Policies. Permitting the oyster company to operate for ten more years could multiply the impacts of the invasive tunicate, viruses, algae, the Manila clam, and the Pacific oyster which utilize the mariculture gear as a hard bottom substrate to thrive and ultimately smother nearshore aquatic life. Additionally, importation of pathogens from the cultch of non-native oysters is well documented in the Draft EIS. The more time allowed for invasive species to proliferate, the more likely that restoration costs, both ecological and monetary, increase exponentially. The risk of long-term major adverse impacts from the Action Alternatives is incomparably greater than the risks with Alternative A.*

Section 4.4.4 of NPS Management Policies dictates the management of non-native species. This section states that, in general, “Exotic species will not be allowed to displace native species if displacement can be prevented.” And under 4.4.4.1, “new exotic species will not be introduced into parks.” The NPS Management Policies apply a high standard of protection to native species and natural processes in NPS units. Threats to these resources, such as invasive aquatic species, are aggressively managed, and the use of nonnative species as a management tool is an acceptable option only when “all feasible and prudent measures to minimize the risk of harm have been taken” and at least one of a number of criteria listed in section 4.4.4.1 have been met. Otherwise, NPS 2006 states in section 4.4.4.2 that “all exotic plant and animal species that are not maintained to meet an identified park purpose will be managed—up to and including eradication—if (1) control is prudent and reasonable, and (2) the exotic species interferes with natural processes and the perpetuation of natural features, native species or natural habitats...” This policy must be addressed in the Final EIS.

Executive Order 13112 was cited in Chapter 1 under Related Laws, Policies and Plans, but should also be included in Chapter 4. Order 13112 requires each federal agency whose actions may affect the status of invasive species to:

- (2) (i) prevent the introduction of invasive species;
- (2) (ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner...

⁶⁹ <http://www.actionbioscience.org/biodiversity/simberloff.html>

(iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded...

(3) not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species.”

The EIS should list the *California Aquatic Invasive Species Management Plan* (January 2008), State of California Resources Agency, Department of Fish and Game, as relevant state policy. The plan’s overall goal is to identify the steps that need to be taken to minimize the harmful ecological, economic and human health impacts of Aquatic Invasive Species in California.” This plan proposes management actions for addressing aquatic invasive species (AIS) threats to the State of California. It focuses on the non-native algae, crabs, clams, fish, plants and other species that continue to invade California’s creeks, wetlands, rivers, bays and coastal waters. State surveys indicate that at least 607 species of aquatic invaders can be found in California’s estuarine waters. These invaders cause major impacts: ...undermining...environmental restoration activities ... and damaging native habitats and the species that depend on them. As the ease of transporting organisms across the Americas and around the globe has increased, so has the rate of AIS introductions.” In addition, the policy concludes that “aquatic invasive species are already a serious problem for California. Invasions around the world suggest that environmental and economic impacts from AIS will soon become much greater. This plan provides the state’s first comprehensive, coordinated effort to prevent new invasions, minimize impacts from established AIS and establish priorities for action statewide. In addition, it proposes a process for annual plan evaluation and improvement so that AIS can continue to be managed in the most efficient manner in the future.”⁷⁰

The point of these policies is to act now, not allow ten years to go by while enabling the spread of invasive species in a designated National Park wilderness area. Additional references supporting both a much more rigorous discussion of invasive species in the Final EIS as well as taking action now to eradicate them include:

The *U.S. Department of Agriculture (USDA) National Invasive Species Information Center* website contains a wealth of links, references and information about environmental and economic impacts of invasive species:

Invasive Exotic Animals Costing U.S. Billions of Dollars (Feb 2, 2010) Mother Nature Network. “... invasive exotic species ... cause environmental losses and damages of nearly \$120 billion a year.”

Cost of Invasive Non-native Species – Early Eradication Lessens Impact (Dec 15, 2010) *Scottish Government*. The financial cost of non-native species has been published in a new report. "The Economic Cost of Invasive Non-Native Species (INNS) to the British Economy" suggests that invasive species cost 1.7 billion pounds every year.

⁷⁰ *California Aquatic Invasive Species Management Plan* (January 2008), State of California Resources Agency, Department of Fish and Game.

Invasive species impact nearly half of the species currently listed as Threatened or Endangered under the U.S. Federal Endangered Species Act.⁷¹

The Draft EIS should take a comprehensive look at the impact of invasive species on the human economy.⁷² The same USDA website lists the Sea Squirt, *Didemnum vexillum*, among its list of invasive aquatic animals, which also includes the zebra mussel and quagga mussel. The sea squirt (tunicate) has the following status:

“Impact: Forms dense colonies which smother native species
Current U.S. Distribution: Coastal New England, Coastal Pacific Northwest”⁷³

The fact that the hard substrate of the oyster gear in Drakes Estero provides a habitat for invasive organisms has a larger context, and includes many more marine invasive species. Artificial substrate such as Pacific oyster shells increases the presence of non-native (and in many cases invasive) fouling invertebrates in an estuarine system. Bay Area marine biologist Julia Stalker addressed this phenomenon in her 2010 scoping comments: “In 2006-07, I managed the field operations of a project conducted by Save the Bay, San Jose State University and the Smithsonian Institute. This project was designed to better understand the preferred locations and substrate for the recruitment of the native oyster, *Ostrea lurida*. At five locations in the San Francisco Bay, ropes with non-native oyster shells at various depths, mesh bags filled with non native oyster shells and PVC plates attached to bricks were all hung from docks and monitored monthly. We did find native oysters to varying degrees at most locations and on all substrate types, but more prevalent in recruitment than the native oyster, were the numerous other fouling organisms, many of which were invasive (various tunicate, hydroid, sponge, bryozoan and snail species, to name a few). (See attached photos). **The non-native oyster shells that were used as substrate for this project were the same shells that are used for cultivating oysters at DBOC.**”⁷⁴

San Francisco Bay has dozens of invasive non-native species, including the types of fouling marine invasives mentioned above,⁷⁵ and there are literally hundreds of invasive non-native marine and estuarine animal species present along the California coast.⁷⁶ Over one dozen of these invasive species are located in Drakes Estero. Elliot-Fisk *et al.* 2005 showed that **adjacent Limantour Estero did not have any of the invasive species; the invasive species within Drakes Estero were all growing on and were associated with the oyster gear and oysters, which are not present in nearby Limantour Estero** where non-native oysters and clams are not cultivated.⁷⁷

⁷¹ <http://www.invasivespeciesinfo.gov/economic/main.shtml>

⁷² The Economic Impacts of Aquatic Invasive Species: A Review of the Literature (Jan 2005) Environmental Protection Agency. Sabrina J. Lovell and Susan F. Stone, National Center for Environmental Economics <http://www.invasivespeciesinfo.gov/aquatics/economic.shtml>

⁷³ <http://www.invasivespeciesinfo.gov/aquatics/main.shtml>

<http://www.invasivespeciesinfo.gov/aquatics/seasquirt.shtml>

⁷⁴ Stalker, 2010.

⁷⁵ Cohen, A.N. and J.T. Carlton. 1995.

⁷⁶ O'Connor, 2008.

⁷⁷ Elliot-Fisk *et al.* 2005.

As the Draft EIS correctly and thoroughly cites, the DBOC oyster operation creates a non-native environment of hard substrates that encourages invasive non-native species. At least one researcher has shown that in general such artificial environments can be dominated and preferred by non-native species. "Additions of artificial substrates to nearshore environments may disproportionately favor exotic species by increasing local sources of exotic propagules to colonize all types of substrates."⁷⁸ Clearly, *scientists have concluded that oyster shells and oyster farms facilitate invasive non-native species*. These results should lead NPS to designate impacts from invasive species on Drakes Estero to be **long-term major adverse**, and sufficient reason to increase more fully address these impacts in the Final EIS.

F. The Draft EIS Erroneously Concludes That Impacts to Eelgrass Are Moderate When In Fact They are Major.

The Draft EIS appropriately elucidates many of the impacts to eelgrass from the Action Alternatives. The Draft EIS is correct to note that the water quality benefits to eelgrass by cultivated shellfish are insignificant on an estero-wide basis. However, the claimed minor adverse localized water quality effects related to removing the cultivated shellfish is unknown and is arguably the opposite of what is currently written in the Draft EIS.

The Draft EIS does not go far enough in assessing the level of adverse impacts from the Action Alternatives to eelgrass. Impacts from DBOC operations should be considered long-term *major* adverse for the following reasons:

1. impacts are highly noticeable due to the extensive scarring by motorboat propellers;
2. impacts from the smothering of eelgrass by the tunicate and epiphytic algae are increasingly highly noticeable;
3. the continued erosion and displacement of the eelgrass beds from water turbidity caused by the over 3700 oyster operation motor boats trips per year, which inhibits sunlight penetration needed for photosynthesis;
4. the cascading impacts on the organisms that depend upon eelgrass, including federally threatened steelhead, their prey species, and the Black brant sea goose;
5. impacts from the plastic mesh bags placed in the inter-tidal area of the Estero that alter habitat for eelgrass production;
6. the claimed beneficial effects of oyster cultivation on sediment nutrient enrichment and water clarity are in question, not only due to the small size of the coastal lagoon and watershed combined with the high tidal flushing, but also the potential effects are not calibrated with the benefits being enjoyed by the many species of native bivalves in the estero, which make the non-native services unnecessary;
7. cultivation of non-oysters is not in compliance with NPS policies on invasive species;
8. DBOC activities cause the taking of eelgrass in violation of the Department of Fish and Game California Code of Regulations,⁷⁹
9. non-native oysters are not, in fact, an indigenous component of the Drakes Estero ecology, and thus one cannot conclude that oyster cultivation is benefitting eelgrass in any way; and

⁷⁸ Tyrell, M. C. and J. E. Byers. 2007.

⁷⁹ Title 14, Section 632 http://www.dfg.ca.gov/mlpa/mpa_regs_title14.asp

10. it appears from the data in Drakes Estero that reduction of oyster production is associated with increasing eelgrass coverage.

These impacts taken together provide a sufficient basis from which to conclude that impacts to eelgrass from current and ongoing mariculture operations are major adverse, not moderate.

The following comments apply to impacts from Alternatives B, C, D on Eelgrass, 265-272. The Draft EIS includes a wealth of citations on pp. 262-267 and on pp. 274-279, regarding the problem of biological invasions facilitated by Pacific oyster and Manila clam cultivation. This specifically includes how the hard substrate created by the vast installation of oyster production gear and the oysters themselves, as well as the cultch importation, facilitates the invasion, colonization and spread of the tunicate, algae, a herpes virus and the MSX pathogen.

The EIS should include additional citations references to the presence of Manila clams and Pacific oysters outside of the oyster cultivation areas. The Draft EIS makes ample reference to the potential for spread of Manila clams and Pacific oysters. However, the couple of references made to naturalization of Manila clams, including on p. 368, are only for a single occurrence in the estuary. **Anywhere the cultivated shellfish have spread means facilitation of *Didemnum* and algae impacts to eelgrass.** An extensive feral population of either Pacific oysters or Manila clams could displace native organisms, alter habitat, and thereby alter natural processes – this is *a long-term major adverse impact*.

The Pacific oyster is listed as one of Europe's top 100 invasive species⁸⁰, and it has been documented as going feral in San Francisco Bay.⁸¹ This non-native oyster, *C. gigas*, has gone feral, establishing self-sustaining populations in 17 countries.⁸² The Pacific oyster is not only an invader in its own right but, as discussed below, its cultivation serves as a vector for the spread of invasive marine fouling organisms. Both of these invasions carry significant impacts to eelgrass.

The NAS discusses the topic: "Exclusive use of triploid stock could reduce but would not eliminate successful reproduction and the production of viable, dispersing larvae (NAS, 2004)."⁸³ NAS (2009) states "The Pacific oyster has been cultured in Drakes Estero since the 1930s... The failure of *C. gigas* to naturalize in Drakes Estero in the past might be considered an unreliable indicator of future naturalization [invasion] potential given that *C. gigas* only recently has become established in the Wadden Sea, potentially in response to a warming climate, even though the species had been used in mariculture there since the 1960s."⁸⁴ An analogous situation was reported⁸⁵ in which *C. gigas* naturalized in 3 estuaries in South Africa in 2001, for the first

⁸⁰ <http://www.europe-aliens.org/speciesTheWorst.do>

⁸¹ Cohen, AN, Weinstein A. 2008. Exotic Oyster Survey, Removal and Research in San Francisco Bay: Annual Progress Report

⁸² Ruesink *et al*, 2005.

⁸³ (2009, p. 52)

⁸⁴ Diederich, *et al.*, 2006.

⁸⁵ Robinson *et al.* 2005.

time since introduction in 1930s. More recently there are reports of *C. gigas* reproducing in Scandinavia, and occurrence of *C. gigas* in Los Angeles Harbor.⁸⁶

Crassostrea gigas is listed as invasive in Europe, Australia, and as a Global risk. The footnoted fact sheets on Pacific oyster describe the extent of its invasion and, by implication, its invasion potential, around the world.⁸⁷ “*Crassostrea gigas*, is **presently one of the most notorious nuisance species that has been introduced in marine waters... The Pacific oyster continues to invade shores around the world**, and is currently an invader in...” at least 35 countries.⁸⁸

Pacific oysters have been documented going feral in San Francisco Bay by Andrew Cohen, formerly of the San Francisco Estuary Institute⁸⁹ who has done extensive work on the invasion biology of oysters in San Francisco Bay. Dr. Cohen has authored a report on the appropriateness of oysters from an oyster pile at Drakes Bay Oyster Company for use as cultch for native oyster restoration at the Marin Rod and Gun Club. **Dr. Cohen’s work demonstrates the strong threat of the Pacific oyster going feral in Drakes Estero as well as the potential for the importation of pathogens via cultivated oysters.**⁹⁰

The tunicate *Didendum vexillum* grows extensively on mariculture gear and shellfish and is spreading to eelgrass blades in Drakes Estero. When *Didendum* attaches to eelgrass, it smothers it. The Draft EIS establishes very clearly that both the invasive non-native tunicate as well as epiphytic algae are attaching onto the leaves of eelgrass, which disrupts photosynthesis. Impacts from the invasive tunicate prevent Black brant sea geese from eating their only food source. Additionally, the smothering of eelgrass from the invasive tunicate potentially disrupts the entire marine food chain, given how critical eelgrass beds are for so many different native species. In ten years, **this invasive tunicate will most likely displace native organisms, alter habitat, and thereby alter natural processes - a major adverse impact.**

There is no question that mariculture in Drakes Estero facilitates the spread of *Didemnum vexillum*.⁹¹ The 2009 NAS report stated that “The high coverage of tunicates increases the potential for spread of this invasive species within Drakes Estero and Estero de Limantour and

⁸⁶ Wrange *et al.*, 2010, Carrasco and Barón, 2010.

⁸⁷ http://www.nobanis.org/files/factsheets/Crassostrea_gigas.pdf
<http://www.nobanis.org/MarineIdkey/Bivalvia/CrassostreaGigas.htm>
<http://www.issg.org/database/species/ecology.asp?fr=l&si=797>

⁸⁸ Australia, Belgium (North Sea), Canada (Pacific Ocean), North Sea Channel Islands, Chile, China, Croatia, Cyprus, Denmark, England (North Sea), France (Atlantic Ocean and Mediterranean Sea), French Polynesia, Germany (Baltic and North Sea), Great Britain (North Sea), Greece (Mediterranean Sea), Ireland (Atlantic Ocean), Italy (Mediterranean Sea), Republic of Korea, Malta (Mediterranean Sea), Morocco, Netherlands (North Sea), Northern Ireland (North Sea), New Zealand, Norway (North Sea), Portugal (Atlantic Ocean), Romania, Scotland (North Sea), Slovenia (Mediterranean Sea), Spain (Atlantic Ocean, Mediterranean Sea), Sweden (Baltic Sea), South Africa, Tunisia (Mediterranean Sea), Turkey (Mediterranean Sea), Ukraine, United States (Pacific Ocean), Vanuatu, and Wales (North Sea) (Global Invasive Species Database: www.issg.org/, and DAISIE: www.europe-aliens.org/) Marine Ecosystem Engineers in a Changing World: Establishing Links Across Systems. Dianna K. Padilla. Context-dependent Impacts of a Non-native Ecosystem Engineer, the Pacific Oyster *Crassostrea gigas* *Integr. Comp. Biol.* (2010) 50(2): 213-225 first published online July 3, 2010 doi:10.1093/icb/iccq080

The bibliography for this article is extensive: <http://icb.oxfordjournals.org/content/50/2/213.full>

⁸⁹ www.sfei.org

⁹⁰ <http://www.sfei.org/documents> (search on “oyster”)

<http://www.sfei.org/bioinvasions/>

<http://www.exoticguide.org/>

⁹¹ NAS (2009, p. 6, 56).

possibly beyond through transport of the short-lived larvae and body fragments capable of regeneration." "*D. vexillum* has recently been reported colonizing eelgrass blades at presently low levels in Tomales Bay. Its rapid growth and competitive overtopping abilities make it an ecological threat to many native and nonnative invertebrate taxa." "*D. vexillum* can reattach if fragmented⁹² thereby expanding dispersal potential of the species. Commercial cleaning of fouled oysters and associated materials used to grow the shellfish, as now practiced by Drakes Bay Oyster Company (DBOC), could promote asexual spread of the species." Since the release of the NAS report, the risk they identified has now happened. The tunicate is found on eelgrass in Drakes Estero.⁹³

The USGS Woods Hole Science Center Marine Invasive Species research focuses on *Didemnum vexillum*, and supplies a comprehensive online resource for information about the invasive sea squirt.⁹⁴

Citations in the Draft EIS show that oyster racks affect eelgrass beds, but **the Draft EIS does not sufficiently address the historical ecology of displacement of eelgrass beds by the oyster racks in Schooner Bay.** In other words, where there are racks now, there was likely eelgrass in the past. Dr. Grosholz stated "It is equally possible that eelgrass would be even more abundant than the current level in Drake's Estero if oyster racks hadn't been present. In other words, we might have seen even greater recovery of eelgrass in the absence of oyster culture."⁹⁵

NAS (2009) states "Aerial coverage of eelgrass in Drakes Estero has expanded from 368 acres in 1991 to about 740 acres in 2007 (Brown and Becker, 2007)."⁹⁶ During 1991-2007 when eelgrass coverage expanded in Drakes Estero, oyster production fluctuated with an overall downward trend. This time frame includes the period when Johnson Oyster Company reduced production significantly.⁹⁷ In fact, if one does a linear regression of oyster production vs. year, the coefficient is a drop of about 33,000 pounds per year with a correlation coefficient of -.65, a relatively strong negative relationship. Thus, while the eelgrass area was roughly doubling, a regression line on oyster production was dropping. **It appears from the data in Drakes Estero that reducing oyster production is correlated with increasing eelgrass coverage.** As DBOC has ramped up operations in recent years, eelgrass has likely declined due to more motor trips equaling increased turbidity and erosion, more displacement by racks and bags, and more direct propeller cuts of the eelgrass beds.

⁹² Bullard *et al.* 2007.

⁹³ The spread rates of a recent sea grass colonization is described in Carman and Grunden (2010).

⁹⁴ *Didemnum vexillum* information

<http://woodshole.er.usgs.gov/project-pages/stellwagen/didemnum/index.htm>

<http://www.knottybits.com/bio648/didemnum.html>

<http://www.mass.gov/czm/invasives/monitor/id.htm>

Documented impacts around the world

<http://woodshole.er.usgs.gov/project-pages/stellwagen/didemnum/htm/news.htm>

Status in California/San Francisco Bay

<http://woodshole.er.usgs.gov/project-pages/stellwagen/didemnum/htm/page10.htm>

http://www.exoticguide.org/species_pages/didemnum.html

⁹⁵ Quoted in NPS, 2007.

⁹⁶ NAS, 2009.

⁹⁷ Draft EIS, p. 66, Table 2-1.

During 1999-2004, while oyster production dropped, the abundant native clam and suspension feeding invertebrates in Drakes Estero continued their filtration and ecosystem services throughout that period. The eelgrass "benefits" reference cited by NAS 2009,⁹⁸ does not refer to mariculture "benefits" nor does the article suggest introducing oyster mariculture into a clean bay like Drakes Estero with healthy native clam populations. Quite to the contrary, Carroll (2008) describe the benefits of *native* clams in providing nutrient regeneration and relieving light limitation to support eelgrass growth.⁹⁹

The NAS 2009 focus on the benefit from Pacific oysters ignores the presence and current function and associated benefits of several species of native bivalves, including eight species of native clams in the Estero. "The contribution of cultured bivalves to clearance is further obscured when they represent an unknown fraction of all suspension-feeders."¹⁰⁰ Ruesink *et al.* (2005) encapsulates the problem perfectly: "The high potential for unintended consequences of oyster introductions suggests that the deliberate introduction of oysters, although often effective in providing the economic benefits of increased aquaculture production, is unlikely to provide an effective tool for the restoration of ecological functions lost from native oyster decline and habitat degradation."¹⁰¹

Native clams and filter feeders in Drakes Estero make a contribution to material processes in Drakes Estero. In parts of Drakes Estero near where oysters are cultivated in bags on the tidal flats, native clams can be found in high densities - up to 250 per square meter.¹⁰² Native clams are also abundant in eelgrass beds. "When abundant, suspension feeding bivalve mollusks can serve as important links between benthic and pelagic processes (benthic pelagic coupling)."¹⁰³ Native clams were also shown to benefit eelgrass in a relatively clean bay on Long Island.¹⁰⁴

Given the analysis in the EIS describing localized benefits to eelgrass from oysters, the ranking of water quality benefits at a local bed scale appears to be: Alternative A < B = C < D. That may not be true. If there is no need for the hypothesized service of the cultivated oysters – given that the function is handled by native bivalves, and the influence of the Pacific Ocean then the localized benefit might be zero across the board. And in eelgrass beds, the hypothesized benefits may be more than extinguished by the direct damage to eelgrass from racks and propeller cuts. Quite possibly, local bed scale benefits should be summarized as Alternative A > B = C > D.

Drakes Estero has been a soft bottom estuary for thousands of years. Oysters need a hard substrate, thus the use of racks and bags for cultivation. ***The Babalis study validates that oyster cultivation in the Estero is a wholly artificial importation of non-native species.***

And finally, Babalis (2011) frames the issue in total, **"The conclusions drawn from this analysis suggest that the commercial cultivation of oysters represents a significant**

⁹⁸ Carroll, *et al.*, (2008).

⁹⁹ Carroll *et al.* (2008), cited in NAS, 2009.

¹⁰⁰ Dumbauld *et al.* 2009.

¹⁰¹ Ruesink *et al.* (2005).

¹⁰² Press, 2005.

¹⁰³ Dumbauld *et al.* 2009.

¹⁰⁴ Carroll *et al.* 2008.

modification of the estero ecology from conditions that likely prevailed prior to the historic period. This would be true even if the oysters being cultivated were the native *O. lurida*, as proprietor Kevin Lunny has tentatively proposed.¹⁰⁵

The Draft EIS describes in detail the impacts from DBOC boats, racks and bags on eelgrass. The Draft EIS refers to 8.5 linear miles of boat scars, 5 linear miles of racks and 84 acres of oyster bags. Since rack and bag locations change, and the boat scars are several feet across, the *actual area of impact may be larger than what is described in the Draft EIS* and this possibility must be considered and analyzed in the Final EIS. The Final EIS should use an inclusive quantity when estimating and then analyzing the total impact of boats, racks and bags on eelgrass.

Conclusion Regarding Adverse Impacts to Eelgrass:

The Action Alternatives violate the federal administrative and National Park invasive species policies which call for prevention and rapid response. The potential for oyster operations to introduce and promote the spread of invasive non-native species is real and significant. Impacts to eelgrass are highly noticeable and impacts would substantially influence natural resources. Some of these major adverse impacts are highly noticeable now, others will be within ten years and others will likely continue to expand after cessation in 2022. **A ten year delay of wilderness is incompatible with managing the impacts and the continued risks from invasive species.** When invasive species impacts are combined with impacts from scarring by motorboat propellers; smothering of eelgrass by the tunicate and epiphytic algae; erosion and displacement from turbidity and by racks and bags; the smothering of the plants by the tunicate and epiphytic algae; and the cascading impacts that would have on the organisms that depend upon eelgrass, including federally threatened steelhead and their prey species; it is clear that the **Action Alternatives could have major long-term impacts on eelgrass.**

G. Impacts to Benthic Fauna Were Not Adequately Addressed and Characterized As Major Adverse Impacts.

The Draft EIS discusses numerous impacts to Benthic Fauna from the oyster operation. Fundamentally, cultivation of Pacific oysters does not replicate a historical function lost due to destruction of native Olympia oysters because evidence shows that native Olympia oysters were never a significant part of Drakes Estero. Thus, mariculture of non-native Pacific oysters, Manila clams, and potentially European flat oyster, and even the native Olympia oyster, introduces a wholly new ecosystem structure and function into Drakes Estero.

In contrast to the claims of ecosystem benefits from mariculture, cultivating non-native oysters and clams would have the following **long-term major adverse impacts** on the ecological integrity of Drakes Estero and benthic fauna:

1. compete directly for food with native bivalves, e.g., eight species of clams;
2. change environmental chemistry, which may severely alter nutrient availability for native benthic macro-invertebrates;

¹⁰⁵ Babalis, 2011. (Emphasis added).

3. facilitate other, existing invasive species, such as the tunicate, to impact adversely native benthic fauna;
4. could facilitate the subsequent invasion of green crab or oyster drill which is happening nearby in Tomales Bay.

The Action Alternatives would be inconsistent with NPS Management Policies regarding native ecosystems, including the eradication of exotic species where these species interfere with natural processes and habitat, and NPS policies prohibiting research activities that will lead to the impairment of the integrity of park resources and values. The Action Alternatives would violate the federal administrative and National Park invasive species policies which call for prevention of and rapid response to invasive species.

The potential for oyster operations to introduce and promote the spread of invasive non-native species is real and significant:

Pacific oyster	potential breeding at any point in time;
European Flat oyster	potential breeding at some point in time;
Manila clam	apparently breeding now; and
<i>Didemnum vexillum</i>	almost certain to continue spreading.

As discussed above in the section on Impacts from Invasive Species, the Final EIS should include a discussion and analysis of NPS Management Policy 4.4.4 regarding the Management of Exotic Species as well as Invasive Species Executive Order 13112 under the Benthic Fauna section of the EIS.

The cultivation of native oysters might be categorized as an experimental research activity, and additional standards apply to research projects. NPS Policy 4.2 states that "Although studies involving physical impacts to park resources or the removal of objects or specimens may be permitted, studies and collecting activities that will lead to the impairment of park resources and values are prohibited." NPS regulations¹⁰⁶ and NPS management policies prohibit collection of native Olympia oyster and purple-hinged rock scallop larvae within Drakes Estero for private commercial purposes.

The Draft EIS includes a wealth of citations regarding the problem of biological invasions being facilitated by Pacific oyster and Manila clam cultivation. Specifically, the Draft EIS discusses how the hard substrate created by the vast installation of oyster production gear and the oysters themselves, as well as the cultch importation, facilitates the invasion, colonization and spread of the tunicate, algae, a herpes virus and the MSX pathogen. These invasive species have the potential to impact the native Olympia oyster, native clams and other benthic macro-invertebrates. **A feral population of either Pacific oysters or Manila clams would likely displace native organisms, alter habitat, and thereby alter natural benthic processes - a major adverse impact.**

The Draft EIS cites the presence of existing invasive species in the Estero, e.g., the cultivated oysters, and the tunicate *Didemnum*. **The Draft EIS does not, but should, discuss species currently not in the Estero that have the potential to be facilitated by mariculture**

¹⁰⁶ 36 CFR 2.1 and 2.3.

operations, such as European green crab and Japanese oyster drill. Evergreen State College has a webpage with extremely comprehensive information on green crabs.¹⁰⁷ Grosholz and Kimbro have conducted extensive research on European green crab and other biological invasions of native oyster and other marine communities discussed below.¹⁰⁸

Grosholz (2005) looked at the interaction of the recent invasion of Green crab and extant non-natives with native bivalves in Tomales Bay, and concluded that the recent invader unleashed the ability of a non-native that had been present for some time to impact the native benthic community: “These results suggest that positive interactions among the hundreds of introduced species that are accumulating in coastal systems could result in the rapid transformation of previously benign introductions into aggressively expanding invasions. Even if future management efforts reduce the number of new introductions, given the large number of species already present, there is a high potential for positive interactions to produce many future management problems. Given that invasional meltdown is now being documented in natural systems, I suggest that coastal systems may be closer to this threshold than currently believed.”¹⁰⁹

Similarly, Kimbro (2009) looked at the relative ecological functional differences between native clams and whelks versus non-native clams and whelks and their effects on native oyster abundance. The study concluded that “[a]lthough invasive species often resemble their native counterparts, differences in their foraging and anti-predator strategies may disrupt native food webs. In a California estuary, we showed that regions dominated by native crabs and native whelks have low mortality of native oysters (the basal prey), while regions dominated by invasive crabs and invasive whelks have high oyster mortality and are consequently losing a biologically diverse habitat.” Their results demonstrate further the complexity of relationships among native and non-native organisms and the need for caution with introducing more non-native species into local ecosystems. “As coastal systems become increasingly invaded, the

¹⁰⁷ <http://academic.evergreen.edu/h/holmesd/>

¹⁰⁸ References by Grosholz and Kimbro (<http://www.des.ucdavis.edu/faculty/grosholz/research.htm#greencrab>; <http://www.marinelab.fsu.edu/faculty/kimbro.html>)

Grosholz, E. D., S. Lovell, E. Besedin and M. Katz. 2011. Modeling the impacts of the European Green Crab on commercial shellfisheries. *Ecological Applications* 21: 915-924.

deRivera, C., E. D. Grosholz, G. M. Ruiz and P. Fofonoff. 2011. Persistent, non-numeric impacts of an introduced invertebrate predator. *Marine Ecology Progress Series* 429: 145-155.

Grosholz, E. D. and G. M. Ruiz. 2009. Multitrophic effects of invasions in marine and estuarine systems. In: G. Rilov and J. Crooks, eds. *Marine Bioinvasions: Ecology, Conservation and Management Perspectives*. Springer-Verlag, New York, pp. 305-324.

Williams, S. L. and E. D. Grosholz. 2008. The invasive species challenge in estuarine and coastal environments: marrying management and science. *Estuaries and Coasts*. The H.T. Odum Synthesis Essay (invited) 31: 3-20.

Grosholz, E. D. 2005. Recent biological invasion may hasten invasional meltdown by accelerating historical introductions. *Proceedings of the National Academy of Sciences U.S.A.* 102: 1088-1091.

Kimbro, D.L., J.L. Largier and E.D. Grosholz. 2009. Coastal oceanographic processes influence the growth and size of a key estuarine species, the Olympia oyster. *Limnology and Oceanography* 54: 1425-1437.

Kimbro, D.L., E.D. Grosholz, A.J. Baukus, N.J. Nesbitt, N.M. Travis, S. Attoe and C. Coleman-Hulbert. 2009. Invasive species cause large-scale loss of native California oysters by disrupting trophic cascades. *Oecologia* 160: 563-575.

Kimbro, D. L. and E. D. Grosholz. 2006. Disturbance influences richness, evenness, but not diversity in a native California oyster community. *Ecology* 87: 2378-2388.

¹⁰⁹ Grosholz, 2005. (Emphasis added).

mismatch of evolutionarily based strategies among predators and prey may lead to further losses of critical habitat that support marine biodiversity and ecosystem function.”¹¹⁰

During 1999-2004, while oyster production dropped in Drakes Estero, the abundant native clam and suspension feeding invertebrates in Drakes Estero continued their filtration and ecosystem services throughout that period. The NAS 2009 focus on the benefit from Pacific oysters ignores the presence and current function and associated benefits of several species of native bivalves, including eight species of native clams in the Estero. Native clams and filter feeders in Drakes Estero make a contribution to material processes in Drakes Estero.¹¹¹

NAS 2009 assumes a large role or presence for *Olympia* oysters in pre-history, but this is not supported by archeological evidence. Babalis (2011) validates that oyster cultivation in the Estero is a wholly artificial importation of non-native species. The commercial cultivation of oysters represents a significant modification of the estero ecology from conditions that likely prevailed prior to the historic period.¹¹²

NAS (2009) states there is little scientific evidence supporting its idea about restoring an "historic baseline" ecosystem in Drakes Estero. Numeric equivalency is unknown regarding historic native populations and current cultivated non-native populations: "Insufficient information is available to know how many oysters and how much biomass existed under historical baseline conditions".¹¹³ Functional equivalency is unlikely: "There is a dearth of research on the extent to which the cultured Pacific oyster restores the ecological contribution of the native *Olympia* oyster in Drakes Estero."¹¹⁴

Archeological investigations suggest that native *Olympia* oysters had limited distribution in Drakes Estero¹¹⁵, consistent with the fact that there is little hard substrate in the Estero. While surveying California bays and lagoons for possible oyster growing areas, Bonnot¹¹⁶ found native oysters in Humboldt Bay, Tomales Bay, San Francisco Bay, Elkhorn Slough, Alamitos Bay, Anaheim Creek, Newport Bay, Mission Bay, and San Diego Bay, but not Drakes Estero. The oysters were often growing in small clusters in sloughs, clinging to whatever firm objects were available. Referring to their occurrence in Tomales Bay, Bonnot notes, "[t]hey occur in a zone having a vertical depth of about three feet, from about two feet above mean low tide to one foot below. They are able to maintain themselves only on the rocky shores where the stones to which they cling offer protection from the sting rays."¹¹⁷

Finally, the non-native oysters have a systemic effect on the ecosystem and may alter the food web and food availability for native fauna. McKindsey (2007) confirms this, stating that "different bivalve species may differ in how they effect this and the expansion of an introduced bivalve species may have complex cascading effects on water column and nutrient dynamics.

¹¹⁰ Kimbro, 2009.

¹¹¹ See discussion of the relative benefits of native and non-native bivalves under the Eelgrass section.

¹¹² See discussion on Babalis, 2011 in eelgrass section above.

¹¹³ NAS 2009, p 3.

¹¹⁴ NAS 2009, p 79.

¹¹⁵ Konzak and Praetzellis, 2011.

¹¹⁶ Bonnot 1935, pp. 68-75.

¹¹⁷ Bonnot, 1935, p. 71.

This could also be the case for species that have direct or indirect impacts on bivalve species or other foundation species in an ecosystem. Such interactions remain largely unstudied to date."¹¹⁸

Impacts to benthic fauna from the non-native Pacific oyster were discussed above. The European flat oyster is considered an invasive species in North America, and thus presents a risk of spreading throughout Drakes Estero. A feral population would displace native organisms, alter habitat, and thereby alter natural processes - *a major adverse impact*.

NAS 2009 did not consider the possibility and risks associated with introducing the European flat oyster. The Draft EIS does not consider the significant risks of this species, which is considered a global problem.¹¹⁹ European flat oyster has established populations in Washington State, Vancouver Island, Maine, Massachusetts, and Rhode Island.¹²⁰ And, the European flat oyster is listed as an invasive species by the National Park Service.¹²¹

While no record exists of European flat oyster establishing a reproducing population on the central California coast, this is no reason to believe that it is not possible in the future. The same precautionary principle, logic and National Park policies apply to this species as with Pacific oyster: lack of invasion currently is no predictor for no invasion in the future, considering its invasion of other estuaries in North America.

The non-native and invasive Manilla clam has already established a population in Drakes Estero, as documented in the Draft EIS. Manila clams have also established populations in both San Francisco Bay and Tomales Bay.¹²² The Draft EIS notes that Manilla clams have displaced native oysters and their beneficial ecosystem impacts in other estuaries. Expansion of the naturalized population of Manilla clams in Drakes Estero may will displace native benthic fauna, and thereby alter natural processes – this is *a major adverse impact*.

The NAS¹²³ report discussed this issue, stating that the "culture of clams in bags reduces some of the risk of naturalization compared to the method of culturing clams in beds because bags of clams can be readily recovered whereas some of the loose clams in beds could persist for years in a reproductively mature status." Even with bags, however, there is risk of release because bags may break, fall open, or be lost, and clams may spawn within the bags. Empty bags do show up along the shores of the Estero, but the fate of the contents remains unknown.

The Seashore was appropriately concerned when DBOC began cultivating Manilla clams without authorization, without environmental review, without an analysis of risk, and without analyzing the potential for the establishment of this nonnative species. **Allowing Manila clams and the proposed expansion of their cultivation in Alternatives B, C, and D is contrary to**

¹¹⁸ McKindsey, 2007.

¹¹⁹ <http://www.issg.org/database/species/ecology.asp?si=798&fr=1&sts>

<http://www.nobanis.org/MarineIdkey/Bivalvia/LitCrassostrea.htm>

¹²⁰ <http://nas2.er.usgs.gov/viewer/omap.aspx?SpeciesID=118>

<http://www.3bays.org/projects/invasive-species.html>

<http://www.seagrant.uconn.edu/whatwedo/ais/listour.php>

¹²¹ http://www.nature.nps.gov/water/marineinvasives/assets/PDFs/Ostrea_edulis.pdf

¹²² http://www.exoticguide.org/species_pages/v_philippinarum.html

¹²³ NAS, 2009, p. 52.

best available science and NPS management policies on invasive species and must be prohibited.

The tunicate *Didemnum vexillum* grows extensively on mariculture gear and shellfish and is spreading to eelgrass. The Draft EIS establishes very clearly that both the invasive non-native tunicate as well as epiphytic algae are attaching onto the leaves of eelgrass, which disrupts photosynthesis and prevents black brant sea geese from eating their only food, and potentially disrupts the entire marine food chain, given how critical eelgrass beds are for so many different native species. It remains very possible that the tunicate could spread and overtop populations of native clams the estuary. In ten years, this population will most likely displace native organisms, alter habitat, and thereby alter natural processes – **this is a major adverse impact.**

Mariculture in Drakes Estero facilitates the spread of *Didemnum vexillum*. The NAS report states that the "high coverage of tunicates increases the potential for spread of this invasive species within Drakes Estero and Estero de Limantour and possibly beyond through transport of the short-lived larvae and body fragments capable of regeneration."¹²⁴ "*D. vexillum* has recently been reported colonizing eelgrass blades at presently low levels in Tomales Bay. Its rapid growth and competitive overtopping abilities make it an ecological threat to many native and nonnative invertebrate taxa." "*D. vexillum* can reattach if fragmented thereby expanding dispersal potential of the species. Commercial cleaning of fouled oysters and associated materials used to grow the shellfish, as now practiced by Drakes Bay Oyster Company (DBOC), could promote asexual spread of the species."¹²⁵

Since the NAS report, the risk they identified has now happened. The tunicate has been found on eelgrass in Drakes Estero. When this invasive tunicate attaches to eelgrass, it smothers it by inhibiting critical photosynthesis. The alarming spread rate of this tunicate on a sea grass colonization is described in a recent study.¹²⁶

The recommended additions or deletions to the Final EIS should be made to the Benthic Fauna section so that it adequately considers the full range of significant risks to this resource from continued mariculture operations.

Impacts - Alternative A The NAS (2010) recognizes threats to native Olympia oysters due to cultivation of Pacific oysters. In the report on shellfish mariculture best practices, NAS stated "The presence of nonnative mollusks may suppress the recovery of native species. For example, Trimble *et al.* (2009) showed conclusively that competent larvae of the native oyster *O. lurida* are lured into settling in unfavorable environments by the presence of shells of the nonnative *C. gigas*. This contributes to the lack of recovery of *O. lurida* populations even though remnant populations in some estuaries and lagoons reproduce annually. There are also risks associated with nonnative mollusks as vectors of invasion for hitchhiking species and disease agents that may affect economically important resident species, as well as having potential impacts on population-, community-, and ecosystem-level structure and function."¹²⁷ Cultivation of non-

¹²⁴ NAS 2009, pp. 6, 56.

¹²⁵ Bullard *et al.* 2007.

¹²⁶ Carman and Grunden (2010).

¹²⁷ NAS 2010, p.69.

native species is a potential impairment to natural population-, community-, and ecosystem-level structure and function. (See further discussion on pages 175-6 of the Draft EIS) Alternative A removes these impairments.

Alternative A benefits the native Olympia oysters that exist in the Estero in small populations. Although the population size is small, the benefit may be significant to this species which will be able to establish whatever population level is suitable through natural process with local genetic stock, unaltered by inadvertent DBOC selection processes. Such a natural population change may take considerable generations and time.

DBOC proposes benefits from donations of Pacific oyster shells to native Oyster restoration projects in San Francisco Bay. Some supporters of DBOC claim that alternative A will shut down those restoration projects. Zabin et al. (2010) report that there are alternatives. *Restoration efforts in San Francisco Bay started before DBOC formed in 2005 and these projects can continue afterwards based on alternative sources of substrate.* Zabin et al. (2010) report:

"Restoration efforts in San Francisco Bay to date have been carried out on a relatively small scale. Annual recruitment to deployed substrate has been variable, with high recruitment in 2008. Restoration projects have relied almost exclusively on the provision of hard substrate (mainly Pacific oyster shell) to areas where substrate is lacking. Settlement on the substrate by both native and non-native fouling organisms, burial by sediments and predation by non-native oyster drills have been the major difficulties encountered by these projects. Restoration of the Olympia oyster elsewhere along the West Coast is still relatively new and methodology is still in the experimental stage. Cleaned and dried Pacific oyster shell has been the main material used in oyster restoration and in oyster recruitment research in San Francisco Bay. Most of the shell used in the Bay has come from Washington State, purchased by the NOAA Restoration Center. More recently, shell from Drakes Estero has been donated by oyster grower Kevin Lunny."¹²⁸

Zabin, et al. (2010) also describe alternate substrates including Reef balls, dome-shaped cement structures, and cement bricks - 5"x5"x2" gray garden pavers - concluding that "bricks were significantly more successful at recruiting oyster spat than shells (Mann-Whitney U Test $p < 0.0005$). The sides of the bricks and surface area of one shell was approximately the same area, 160 cm²."¹²⁹

Impacts - Alternatives B and C Alternative B would continue oyster operations with negative effects on the population of native oysters in Drakes Estero. Trimble et al. (2009) results suggest that oyster operations over the past 75 years in Drakes Estero may have prevented the establishment of the native oyster population to whatever level existed historically. NAS (2010) states that Trimble et al. (2009) shows conclusively that the non-native Pacific oyster is a recruitment sink for native Olympia oyster, and mariculture structures promote invasive species that are a risk to the native oysters.

¹²⁸ Zabin, et al. 2010.

¹²⁹ Zabin, et al. 2010.

Despite the adverse impacts to native Olympia oysters within Drakes Estero, DBOC suggests in its EIS scoping comments that contributing the shells of Pacific oysters grown in Drakes Estero offers a benefit to native Oysters in San Francisco Bay restoration projects. Since Alternative B causes impairment of natural resources and processes in Drakes Estero, NPS Policies would seem to prohibit using Drakes Estero to raise shells for use in worthy projects outside the National Seashore. Furthermore, these projects have alternate sources of substrate.

Impacts - Alternative D The historic presence of Olympia oysters in Drakes Estero has also been the subject of recent archeological work,¹³⁰ which found that Olympia oysters were of limited distribution in Drakes Estero even prior to the advent of large-scale commercial fishing on the California coast. Therefore, although the species is native to the region, it is most likely to occur naturally in Drakes Estero in larval form. There is a small adult population, for example on boulders off Bull Point.

With increased production, Alternative D will have greater adverse effects than discussed for Alternative B on the population of native oysters in Drakes Estero. NAS (2010) indicated that cultivation of non-native shellfish is a potential impairment to "natural population-, community-, and ecosystem-level structure and function", especially suppressing native oyster populations."¹³¹

Alternative D adds the cultivation of native Olympia oysters and Purple Hinged Rock Scallop to the production of Pacific oysters. The Purple Hinged Rock Scallop is not cultured anywhere in California. DBOC has stated that it "has been studying this species and recognizes the challenges in producing scallop seed and rearing scallops. Hatchery techniques are less established for scallops than they are for oysters... This is a long term project that will require significant research, training and investment."

Regarding native Olympia oysters, DBOC has stated that it "plans to use its diverse culturing methods to determine the most successful culture methods for the native [Olympia] oyster." DBOC has also stated that it "is anticipating working with other agencies, including NPS, to develop with, and partner in, new research projects and best practices for culturing these native species." DBOC justifies this research in part due to ocean acidification. While ocean acidification may be an important issue in mariculture research, there is no reason why research on cultivation of native oysters cannot be done in any of the many other locations where oysters are cultivated along the California coast. ***NPS Policies prohibit doing research projects that impair natural resources in the process, and DBOC's industrial-scale cultivation of non-native species must be included in that impairment equation.***

In addition, the cultivation of native Olympia oysters simultaneous to the cultivation of non-native, known invasive oysters and clams adds risks of impacts related to modifying local genetic stock through artificial selection and through potential disease propagation due to the disseminated neoplasia present in native Olympia oysters near the land operation and water

¹³⁰ Konzak and Praetzelis, 2011.

¹³¹ NAS (2010). (Emphasis added).

intake for the settlement tanks. In addition, any structures associated with cultivation of native oysters will also promote the spread of non-native invasive species.

DBOC has stated that its "plan [is] to use brood stock from Drakes Estero." Some insight on this topic can be learned from a technical report on research on native oyster restoration in San Francisco Bay.¹³²

"Seeding has not been tried on a large scale in San Francisco Bay due to concern about maintaining genetic structure within the Bay. The latest research indicates some population structure, which could be preserved by using adults from a region to generate spat to be planted in the same region. Further research is needed to better understand connectivity among locations within the bay. Seeding can be done in a laboratory or aquaculture facility or by deploying substrate in a location with high natural recruitment and then transferring the seeded substrate to the restoration area. One of the concerns with seeding is the potential loss of genetic diversity if the number of individuals being used for brood stock is too low or has low genetic diversity for other reasons. In most locations, including San Francisco Bay, little is known about the population structure of existing populations. Within a bay and certainly between bays it is possible that oysters are adapted to local conditions. Disease incidence can be highly localized; thus the movement of spat within a bay could potentially transport pathogens to disease-free locations."¹³³

James Moore of California Department of Fish & Game's Shellfish Health Laboratory at Bodega Marine Laboratory has sampled native Olympia oysters that live on discarded Pacific oyster shells in the water next to the DBOC land operations. His team has found disseminated neoplasia in 43% of a sample of 60 native oysters from Drakes Estero. Mr. Moore presented his findings at a 2006 Workshop on Native Oyster Restoration:

"Disseminated neoplasia is a disease of numerous species of bivalve mollusks. It consists of the uncontrolled proliferation of large, undifferentiated cells throughout the circulatory system, resulting in emaciation and ultimately death in most instances. Many features of the disease are very similar to those of leukemia in mammals, with one exception: it is readily transmissible between individuals by injection of the cells or even by simple cohabitation; it is an infectious disease. The etiology of the disease remains unclear, although there is some evidence for the role of a retrovirus in one species. Prevalence in bivalve populations has been reported as high as 90% and mortality due to the disease can be significant. As part of a statewide oyster health survey, from 2004-2006, we surveyed eight populations of *O. conchaphila* ranging from Humboldt Bay to Elkhorn Slough (Table 1). Disseminated neoplasia was found in (portions of) Tomales Bay, Drakes Estero, and San Francisco Bay."

¹³² Zabin, *et al.* 2010.

¹³³ Zabin, *et al.* 2010. (Emphasis added).

Additional information from Mr. Moore's accompanying slides states that bivalve disseminated neoplasia:

- Occurs as large, undifferentiated cells with large nuclei proliferate throughout the open circulatory system,
- Is the best example of 'cancer' in a marine invertebrate,
- Is remarkably similar in 20 + species,
- Causes of the disease may include spontaneous transformation, viruses, chemical carcinogenesis, and harmful algae (PSP toxins),
- Results in the emaciation, diminished reproduction, and is usually fatal, and
- Occurs in epidemic and steady states.

Table 1. Prevalence (# positive/# examined) of *Ostrea conchaphila* with disseminated neoplasia.

Site	Shell Height Range, mm	Collection Date	Substrate	Disseminated Neoplasia
Humboldt Bay- Mad River Estuary	46-65	Feb 2004	Oyster Raft	0/60
Tomales Bay- North End	37-55	Aug 2004	Cobble/Rocks	2/60
Tomales Bay- South End	36-64	April 2004	Oyster Racks	0/60
Drake's Estero	10-58	July 2004	<i>C. gigas</i> shell	27/63
Fort Mason Marina, SF Bay	22-35	June 2006	Rip-rap	1/60
Candlestick Park, SF Bay	9-40	Jan 2005	Cobble/Rocks	13/48
Sailing Lake, Mountain View	17-86	Jan-Feb 2005	Rock	0/72
Elkhorn Slough	38-71	May 2004	Cobble/Rocks	0/60

There is a risk that drawing water from the land base area and selecting brood stock from the Estero could spread the disease to other currently uninfected populations. Also, the disease infects European flat oyster which DBOC has also proposed to start cultivating.¹³⁴

Cultivation of Pacific oysters does not replicate a historical function lost due to destruction of native Olympia oysters because the evidence shows that during the Holocene, native Olympia oysters were never a significant part of Drakes Estero, despite the presence of one small population at Bull Point. Thus, Pacific oysters introduce a wholly new ecosystem function into Drakes Estero, which, in contrast with claims of ecosystem benefits, have the following adverse impacts on the ecological integrity of Drakes Estero:

1. competes directly for food with native bivalves;
2. changes environmental chemistry, which may severely alter nutrient availability for native benthic macro-invertebrates;
3. could facilitate existing invasive species to impact native benthic fauna;
4. could ultimately lead to the subsequent invasion of green crab or oyster drill.

¹³⁴ da Silva, 2011.

The Action Alternatives would be inconsistent with the guidance set forth in NPS management policies for the maintenance and restoration of native ecosystems, including the eradication of exotic species where these species interfere with natural processes and habitat. Cultivation of Olympia oysters conflicts with maintenance and protection of the wild population and its natural processes in Drakes Estero, particularly while cultivation of non-native species occurs. The Action Alternatives would be inconsistent with NPS Management Policies 2006 to deny research activities that will lead to the impairment of the integrity of park resources and values.

While certain species to be introduced under alternative D are native to the region (e.g., purple-hinged rock scallops and Olympia oysters), they are not readily present in Drakes Estero in adult form. Because Alternative D continues and may expand the cultivation of Pacific oysters and use of hard substrate structures, with known adverse impacts on Olympia oysters, and introduces risks of genetic stock selection and disease propagation, ***Alternative D is probably the worst alternative in terms of adverse impacts on the small wild populations of Olympia oysters in Drakes Estero. Alternative D offers no demonstrated benefit to wild native oysters in Drakes Estero.***

Conclusions Regarding Adverse Impacts to Benthic Fauna:

In conclusion, the Action Alternatives would result in **long-term major adverse impacts** on native benthic fauna, including native Olympia oysters due to an additional 10 years of DBOC operations and associated human activities within Drakes Estero, and the potential for such activities to introduce and promote the spread of nonnative invasive species. Some of these major adverse impacts are highly noticeable now, others will become increasingly so within ten more years and others will likely continue to expand after cessation of oyster cultivation in 2022. These impacts could appreciably affect individual species, communities, or natural processes. ***The cumulative impact of each of the Action Alternatives on Benthic Fauna would be long-term major adverse.***

H. Impacts To Fish Are Not Adequately Addressed and Constitute Moderate Adverse Impacts .

The Draft EIS took a minimalist approach to analyzing impacts to fish; the Impact Analysis in the Draft EIS for fish is less than one page in length. Impacts to fish should be analyzed in more depth. Impacts to fish should be considered at least long-term *moderate*. We agree with the idea that impacts to fish are related to impacts to eelgrass, but that simple statement cannot possibly describe the totality of impacts to fish from the current scale of oyster cultivation and motor boat use in Drakes Estero.

There is a considerable body of government and marine organization reports with many peer-reviewed references, which document impacts to fish and other marine animals from plastic marine debris.¹³⁵ The following text summarizes impacts to fish, specifically, from plastic marine debris:

¹³⁵ See references above in section regarding Impacts from Plastic Marine Debris.

“Can plastic marine debris harm fish? Plastic has the potential to harm fish and other wildlife in two main ways.

Direct Impacts - Studies have shown that fish and other marine life do eat plastic. Plastics could cause irritation or damage to the digestive system. If plastics are kept in the gut instead of passing through, the fish could feel full (of plastic not food) and this could lead to malnutrition or starvation.

Indirect Impacts - Plastic debris accumulates pollutants such as PCBs (polychlorinated biphenyls) up to 100,000 to 1,000,000 times the levels found in seawater. PCBs, which were mainly used as coolant fluids, were banned in the U.S. in 1979 and internationally in 2001.¹³⁶

In addition, there is no mention of turbidity in the water column and disturbance of the estero bottom from the over 3700 motorboat trips per year. There is no mention of the depletion of nutrients and prey for fish in the water column that are removed by the non-native oysters and clams. The non-native oysters have an eco-systemic effect and may alter the food web and food availability for native fauna. McKindsey (2007) confirms this, “different bivalve species may differ in how they effect this and the expansion of an introduced bivalve species may have complex cascading effects on water column and nutrient dynamics. This could also be the case for species that have direct or indirect impacts on bivalve species or other foundation species in an ecosystem. Such interactions remain largely unstudied to date.”¹³⁷

Conclusions For Impacts to Fish:

If, as stated in the Draft EIS, impacts to fish are primarily a function of impacts to eelgrass – which are considered *moderate* – then by that logic, **impacts to fish, without addressing the above issues, should be considered at least moderate as well.** The Draft EIS must take into account the possible impacts of DBOC plastic on fish, as shown by documented impacts to fish and other animals worldwide from plastic marine debris.

I. The MMC Report Affirms NPS Science That DBOC Operations Impact Seals.

The Marine Mammal Commission (MMC) Report that was released to the public in late November stated that “the information examined during the course of this review is sufficient to conclude that, from time to time, mariculture activities in the estuary do disturb harbor seals. The Commission also believes that the data provide reasonable evidence of a correlation between mariculture activity and seal haulout use, but that evidence is not sufficient to conclude causation.”¹³⁸

The Report is the latest and the strongest validation of the science used by the National Park Service for the Draft EIS. Not only does the report validate the marine mammal science, but also, more generally, it demonstrates that peer-reviewed science necessarily and legitimately supports the environmental impact analysis in the Draft EIS. Furthermore, the peer-reviewed science cited

¹³⁶ <http://marinedebris.noaa.gov/info/plastic.html#harm>

¹³⁷ McKindsey, 2007.

¹³⁸ MMC, 2011.

in the Draft EIS illustrates adverse impacts to harbor seals and other species, and supports the Park Service following the precautionary principle and ceasing mariculture activities once and for all in Drakes Estero. Additionally, the considerable criticism of NPS science on impacts to harbor seals, most notably by Dr. Corey Goodman, was shown to be without merit.

In the MMC Report, Dr. Goodman made the statistically fatal error of using the same variable on both the left-hand side (dependent) and right-hand side (independent) of a linear regression equation. This mistake invalidates all of Goodman's statistical criticisms of the 2011 Becker et al study. The MMC correctly dismissed Goodman's report as not being scientifically sound: "it is difficult to compare Dr Goodman's results with those of the Park Service for two reasons. The purpose of this type of statistical analysis is to determine if a relationship exists between a dependent variable (in the above cases the proportion of Point Reyes pups found in Drakes Estero), and the various combinations of independent or explanatory variables listed above."¹³⁹

First, the dependent and independent variables used by Goodman in critiquing NPS science with various numerous models, including his purported 'strongest' models, were found to have a built-in dependency—that is, the dependent variable also occurs as part of one of the explanatory variables. This means Goodman's regression results were artificially linked and inflated, and much more likely to appear significant using superficial statistical tests that do not account for this built-in dependency. The adjusted R-squared procedure used by Dr. Goodman did not account for this built-in dependency. Figure 20 illustrates that dependence by expanding the explanatory variables in Dr. Goodman's top six regression models. Second, Goodman used explanatory variables that also are linked. For example, his 'top' two models include the explanatory variables Double Point (i.e., DP) pups and total regional seals. However, the number of Double Point pups also is used in calculating the total regional seals."¹⁴⁰

The disturbance buffer zones for harbor seals in Drakes Estero are small compared to some buffer zones in Europe. NAS 2009 reported, "With regard to disturbance, we note that the 100 yard (91 m) buffer between mariculture activities and seal haul-out locations, while consistent with the National Marine Fisheries Service guidelines under the Marine Mammal Protection Act¹⁴¹ and Allen (1984) observations of threshold disturbance distances for hauled-out seals in Bolinas Lagoon, is not as large as the 500–1,500 m buffers employed at two European locations to protect seals from human disturbance. Interpretation of the disturbance data is limited by the lack of critical information on how individual fitness and population consequences may vary with disturbance type. Hence, the disturbance monitoring conducted by NPS is inadequate for rigorous inferences on the impacts of mariculture on harbor seals."¹⁴²

¹³⁹ Marine Mammal Commission Report on Harbor Seals in Drakes Estero, November, 2011, p. 51.

¹⁴⁰ Id.

¹⁴¹ The Marine Mammal Protection Act¹⁴¹ protects marine mammals in the waters of the United States and on the high seas. Congress defines "take" as "harass, hunt, capture, or attempt to harass, hunt, capture or kill any marine mammal." The term harassment means, "any act of pursuit, torment, or annoyance that (i) has the potential to injure a marine mammal or marine mammal stock in the wild; or (ii) has the potential to disturb...by causing disruption of behavioral patterns, including but not limited to migration, breathing, nursing, breeding, feeding, or shelter..."¹⁴¹

¹⁴² NAS, 2009.

In fact, the MMC Report validated the need for the larger buffer, and the fact that, even if DBOC had been using the 100 yard buffer as its standard, then oyster activities have been continuously impacting harbor seals. Page 27 of the MMC Report states that, "The combination of video and still photography provides convincing evidence of seal disturbance that likely was caused by the sound of the boat as it left OB and moved up the west channel (a distance of hundreds of meters)." ¹⁴³ The photo sequence to which this assessment refers shows that the distance between the boat and the seals was approximately 800 yards.

As discussed above, importation of oyster cultch brings pathogens into environments where oysters are cultivated. The Final EIS must address the possible effects on harbor seals from oysters facilitating the herpes virus to harbor seals. ***Given the studies cited by the Draft EIS about the herpes virus being brought into Tomales Bay with oyster importation, and the fact that the Marine Mammal Center treats harbor seals for herpes virus, it seems possible that the herpes virus imported with the Pacific oyster could end up infecting harbor seals.*** ¹⁴⁴

Drakes Estero has one of the largest colonies of harbor seals in California, so in context with other estuaries such as Humboldt Bay, San Francisco Bay, and Morro Bay, Drakes is absolutely critical habitat for harbor seals. Impacts to harbor seals from the various alternatives should be evaluated in this regional ecological context.

Conclusions for Adverse Impacts to Harbor Seals:

The final conclusion of the Marine Mammal Commission, combined with the data, research, and studies cited in the Draft EIS, the potential impacts of plastic marine debris, and the potential transfer of disease from oysters to harbor seals, provide ample justification for **the Draft EIS determination that the Action Alternatives would cause long-term moderate adverse impact to harbor seals.** Indeed, NPS should consider the regional significance of the Drakes Estero harbor seal population (harboring 20% of California mainland breeding populations) when evaluating the level of adverse impact for the Final EIS.

J. Mariculture Operations Cause Major Adverse Impacts To Birds Which Are Not Adequately Addressed in the Draft EIS.

The Draft EIS discusses numerous and significant impacts to birds from ten more years of DBOC, including: decrease in diversity from sensitivity to noise; sound confusion leading to vulnerability to predators and altering of normal behavior; flushing by motorboats; destruction of the eelgrass beds; placement of oyster bags displacing inter-tidal feeding habitat; and the consequent avoidance and deprivation of rest and foraging habitat as well as reduced fitness and increased fatigue. ***The volume of these impacts and the citations that support the analysis is sufficient to designate impacts to birds from the commercial, industrial oyster operation as being long-term major adverse.***

¹⁴³ MMC, 2001.

¹⁴⁴ <http://www2.guidestar.org/PartnerReport.aspx?partner=justgivews&cin=51-0144434>

The Draft EIS omits policy considerations and specific species information that indicate major adverse impacts for certain species (Brant and Pelicans), all species in certain areas (waters, inter-tidal area, and shores of Schooner Bay), and many species at certain times (Spring migration, staging, feeding and resting). Only Alternative A protects the Estero during the Spring migration with a closed access gate and no oyster operations. In comparison, Alternatives B, C and D result in major adverse impacts during Spring migration. These impacts, certainly in the case of Brant, are noticeable and affect natural processes.

Furthermore, the Draft EIS does not fully acknowledge the importance to NPS of regional planning to protect species at risk. Failure to protect Drakes Estero as wilderness in 2012 adds to long term cumulative major adverse impacts on water and shorebird species in the Pacific Coast region. In a formal comment letter to the NRC study committee, Kelly (2009) stated "Strong consideration for the effects of mariculture on species' habitat values is appropriate to conservation planning and management—even if population effects are unknown. The U.S. Shorebird Conservation Plan emphasizes three major goals at different spatial scales for developing effective management practices. Goals for maintaining shorebird populations are considered at national and hemispheric scales. At the regional scale, the primary conservation goal is to identify and maintain adequate quantity and quality of habitat to support shorebirds that breed, winter in, and migrate through each region. Accordingly, evidence of significant effects on shorebird use of habitat areas should be acknowledged as an important basis for addressing regional shorebird conservation goals in Drakes Estero."¹⁴⁵

The Draft EIS omits discussion of the impact from plastic marine debris on birds. Discussion and references in the plastic marine debris section above as well as the discussion below show that impacts from plastic should be analyzed in the EIS.

Numerous applicable laws and policies were omitted from discussion of bird impacts in the Draft EIS. The policies summarized below should be added to the section on bird impacts. NPS has a commitment to regional conservation planning.

The Memorandum of Understanding between the NPS and the U.S. Fish and Wildlife Service (MOU)¹⁴⁶ states that the responsibility of the National Park Service to protect migratory birds and their habitat extends beyond the minimum definition of "take" in the Migratory Bird Treaty. This MOU establishes a process for the agencies to jointly promote the conservation of migratory birds by incorporating bird conservation measures into agency actions and planning processes – including support for regional conservation plans such as:

1. Pacific Flyway Management Plan for Brant¹⁴⁷ calls for the continued protection of critical habitats and encourages the pursuit of mitigation for impacts, including loss or degradation of eelgrass beds, grit and loafing sites, disturbance of wintering flocks, and exclusion of brant from traditional use sites.

¹⁴⁵ Kelly, 2009.

¹⁴⁶ Memorandum of Understanding, National Park Service and the U.S. Fish and Wildlife Service (April 2010).

¹⁴⁷ Pacific Flyway Council, 2002.

2. Southern Pacific Shorebird Conservation Plan¹⁴⁸ is one of 11 regional plans associated with the US Shorebird Conservation Plan. It concludes that:

- ▲ Tidal flat is the primary foraging habitat of many of the region's most abundant shorebirds
- ▲ Various oyster culture practices affect shorebird access to potential food resources in species-specific ways.
- ▲ Increase migratory and wintering populations of all key shorebird species in the region using protection, restoration, enhancement, and management strategies.
- ▲ Restrict further development of tidal flats for oyster culture.

3. Northern American Waterbird Conservation Plan Waterbird Initiative includes the Seashore as an Important Bird Area, as stated in the Draft EIS.

The above plans are mentioned in Chapter 3, Affected Environment, but the explanations of these plans and their relevance should also be included in the Laws and Policies section of the Birds Impact Topic in Chapter Four.

The Draft EIS makes no use of 47 years of Christmas Bird Count data from Drakes Estero. The Point Reyes Christmas bird count is one of the biggest in North America, and Christmas Bird Counts are used around the country for management and policy.¹⁴⁹ The Final EIS should consider this data in assessing probable impacts to birds from continued mariculture operations.

Oyster operation boat trips are a known risk factor for water and shore birds in the Estero. "Drakes Estero represents an important site for overwintering and seasonally migrating shorebirds and waterfowl, with special significance as a feeding and staging site for migrating Black Brant geese. Boat travel by the mariculturists is likely to disturb and flush seaducks, shorebirds, and other waterbirds."¹⁵⁰

For all three Action Alternatives the Draft EIS uses the phrase "Continued boat traffic." However, there is no limit placed on the number of DBOC boats or daily trips. For Alternatives B and C the EIS should use the current maximum daily disturbance levels: 12 round trips which is 24 disturbance passages to and from per day (amounting to up to 3700 trips per year). Lacking vessel tracking systems, there is no way to verify how often the boats pass the sand bars and transit the eelgrass beds. If business conditions warrant, there is no reason that DBOC could not make more trips and add boats if they need them. Also, according to the Draft EIS, DBOC desires to run experiments on native species cultivation which may require additional vessel traffic.

Alternative A would restore tide-dependent foraging opportunities for shorebirds. Shorebirds must move routinely across and among available feeding areas as intertidal substrates are

¹⁴⁸ Hickey et al., 2003.

¹⁴⁹ <http://www.stateofthebirds.org/opportunities>; <http://www.actionbioscience.org/biodiversity/schmidt.html>
<http://www.marinaudubon.org/christmas-bird-count.php>
<http://www.forestdata.com/cbc/>

¹⁵⁰ NAS 2009, p. 69.

sequentially exposed and inundated by advancing and receding tides.¹⁵¹ Therefore, mariculture-related loss of foraging opportunities may be substantial at particular tide levels--even if the overall extent of mariculture excludes shorebirds from only a portion of the Estero.

The significant impacts of mariculture on shorebird habitat (Kelly 1996) provide an important basis for shorebird conservation goals in Drakes Estero. Within the Southern Pacific Region, the recommended habitat goal is to *increase* the extent and quality of tidal flats for shorebirds.¹⁵² Therefore, the management objectives for Drakes Estero should clearly reflect efforts to protect and restore intertidal habitat for shorebirds.

Alternative A would benefit waterbirds by ensuring the protection of eelgrass beds as key habitat areas. Eelgrass provides crucial winter food for Black Brant, surface-feeding ducks, and numerous other waterfowl,¹⁵³ and supports a rich estuarine fauna used by loons, grebes, cormorants, and other waterbird species to balance their daily energy needs.¹⁵⁴ Alternatives B, C, and D, would require careful management to minimize continuing impacts to this important waterbird habitat.

Alternative A would benefit waterbirds by reducing disturbances by boat traffic related to daily mariculture operations. The presences of boats in eelgrass areas can prevent most waterbirds from congregating in the area.¹⁵⁵ In addition, foraging waterfowl can be seriously affected by even occasional disturbance during key parts of the tide cycle. For example, if American Wigeon or Black Brant foraging in eelgrass are disturbed during low tide, they may abandon the area until the next tidal cycle.¹⁵⁶ Alternatives B, C, and D, would allow continuing disturbance to foraging waterbirds by boat traffic associated with daily mariculture operations.

Drakes-Limantour Esteros are part of a group of interrelated coastal wetlands identified as wetlands of hemispheric importance.¹⁵⁷ This network of habitats holds more total shorebirds in all seasons than any other wetland in the conterminous U.S. Pacific coast.¹⁵⁸ The proximity adds to the value of each site within this network of wetlands.

The EIS should add more analysis of impacts to the brant sea goose. Brant is a California species of special concern which may be displaced by disturbance of mariculture operations.¹⁵⁹ "Because Brant do not dive, they can usually access eelgrass only at low tides. Still, they tend to feed in the deepest possible areas permitted by tides and close to large tidal channels and other areas where Eelgrass biomass and protein content are higher."¹⁶⁰ Furthermore, the presence of lines of oyster bags on the intertidal flats, and the tending of those bags, is likely to diminish the feeding and

¹⁵¹ Burger 1984, Kelly 2001.

¹⁵² Hickey et al. 2003.

¹⁵³ Yocum and Keller 1961, Baldassarre and Bolen 1994.

¹⁵⁴ Day et al. 1989, Kelly and Tappen 1998, Weathers and Kelly 2007.

¹⁵⁵ Kelly and Tappen 1998.

¹⁵⁶ Fox et al. 1993, Stock 1993.

¹⁵⁷ Harrington and Perry 1995.

¹⁵⁸ Stenzel et al. 2002.

¹⁵⁹ Classified as a California Bird Species of Special Concern (wintering, staging), priority 2 in Davis and Deuel, 2008, p. 82.

¹⁶⁰ Davis and Deuel, 2008, p. 82.

grit gathering opportunities for Brant in Drakes Estero. "Brant often feed in areas close to gritting sites which are intertidal mudflats, sandbars, or spits, where the birds ingest grit necessary for food digestion."¹⁶¹

According to the Pacific Flyway Management Plan for Brant,¹⁶² protection in Drakes Estero will help reduce a high cumulative threat to the species:

- ▲ Drakes Estero Migration counts are 1000-3000 currently but historically were around 25,000
- ▲ Coastal habitats of highest importance to Brant include California estuaries: Spring Staging/Winter ~50-60% of Pacific flyway, Winter ~2% of Pacific flyway, **Cumulative threats - High**
- ▲ Human activities which have the greatest potential for physically degrading migration and wintering habitats include aquaculture.

"Historically, Tomales Bay, Drake's Estero, and Bodega Harbor supported large wintering populations [of Brant], but since the 1950s numbers there have declined substantially."¹⁶³ Brant are now "a rare summer visitant, an uncommon fall transient and winter resident, and a very common spring transient."¹⁶⁴

Most likely, Brant will expand their use of the eelgrass beds and adjacent flats in the absence of oyster operations, especially in the critical spring migration when the access gate is closed in alternative A.

The EIS needs more analysis of impacts to brown and white pelicans. Gerry McChesney, a scientist with the US Fish and Wildlife Service, was on the Scientific Advisory Team (SAT) for state MLPA planning in the North Central Coast Region, which includes Drakes Estero. In his report for the SAT he states: "Many other species, such as most pelicans, cormorants, and gulls, come to shore on a daily basis to rest, preen, or bathe.

For pelicans and cormorants, trips ashore are essential for survival because their wettable plumage must be dried to avoid hypothermia. "Pelicans also serve as a good indicator species for roosts because of their high sensitivity to disturbance."¹⁶⁵ In the recovery plan for the endangered California Brown Pelican, protection of roost sites was identified as a primary objective."¹⁶⁶

The isolated upper bars and tidal flats of Drakes Estero are desirable rest sites for American White Pelicans. With workers tending bags on these flats and frequent boats trips, mariculturists are likely to disturb and flush pelicans – an average of 24 times per day during work hours. Most likely, the pelicans will expand their use of these isolated flats in the absence of oyster operations. And, the Final EIS should consider that since the oyster production bags are moved

¹⁶¹ Davis and Deuel, 2008, p. 82.

¹⁶² Pacific Flyway Council, 2002.

¹⁶³ Shuford *et al.*, 1989.

¹⁶⁴ Shuford *et al.*, 1989.

¹⁶⁵ Anderson and Keith 1980; Jaques *et al.* 1996; Jaques and Strong 2002; Rodgers and Schwikert 2002.

¹⁶⁶ USFWS 1983.

around, 84 acres of tide flats may be an underestimate of the area impacted for shorebird habitat, foraging and resting.

Impacts of oyster operations on birds are especially high in Schooner Bay in the proximity of the land operations. In addition to vessel traffic, noise is also a factor. DBOC operates motor boats in the Estero and uses percussive, pneumatic equipment to shuck oysters. Also, there often is loud radio music at the facility. "At Drake's Estero, if it weren't for the motor boats (run by the mariculture interest) and blaring 'music', the waters would be teeming with grebes, loons and waterfowl particularly Brant Geese."¹⁶⁷ The Final EIS must consider the potential impacts of the oyster operations, discards, picnic and grilling areas which attract nuisance native species (corvids, gulls) that have a detrimental effect on declining native species in Point Reyes National Seashore (e.g. Snowy Plover, shorebirds, etc.).

Finally, impacts to bird from plastic are well documented.¹⁶⁸ "The intrinsic properties and widespread presence of plastic particles in the marine environment have profound effects on birds inhabiting the world's oceans."¹⁶⁹ Impacts to birds include ingesting plastic marine debris in sufficient quantity to obstruct the passage of food or cause stomach ulcers; having plastic in their gullets gives animals a false feeling of being full, and they can die of starvation; ingestion of plastic limits a bird's ability to lay down fat deposits, clogs their gizzards, and increases risk of disease and alteration of hormone levels; and death of their young through ingestion. Albatrosses and Petrels are some of the most vulnerable birds to plastic ingestion since they cannot regurgitate the debris due to the size of their gullets. Many species of these types of seabirds spent part of their life cycles at Point Reyes National Seashore.

Conclusions Regarding Major Adverse Impacts to Birds From Mariculture:

The Action Alternatives would violate NPS policies to preserve and restore natural abundances, dynamics, distributions, habitats, and behaviors of native bird populations,¹⁷⁰ and to participate in regional protection. Specifically, NPS would not be meeting its responsibilities to the Pacific Flyway Management Plan for Brant and Southern Pacific Shorebird Conservation Plan. Furthermore, approval of an SUP would violate NPS's commitment in its MOU with USFWS to incorporate bird conservation measures into agency actions and planning processes. **Any of the Action Alternatives would result in long-term major adverse impacts to birds and bird habitat, including brant, pelicans, shorebirds, and other waterbirds due to the continuation and expansion of commercial shellfish operations and the associated human activities within Drakes Estero for an additional 10 years.**

The many adverse impacts identified in the Draft EIS and summarized above, including from noise, disturbance, displacement, and to wetlands, benthic fauna, fish, and eelgrass, which have consequent impacts on birds, support a conclusion of a significant impact on birds from oyster cultivation. When combined with the additional impacts from plastic marine debris, Drakes Estero's importance to regional shore bird and Brant conservation, and significant disturbance

¹⁶⁷ Stallcup, pers.comm.

¹⁶⁸ <http://www.bird-rescue.org/our-work/research-and-education/how-plastics-affect-birds.aspx>

Also, see references above under the section on Impacts from Plastic Marine Debris.

¹⁶⁹ Azzarello *et al*, 1987.

¹⁷⁰ NPS 2006, Policy 4.4.1.

from the onshore operations, **the totality of these impacts point to long term cumulative major adverse impacts on birds in Drakes Estero from the oyster company.**

K. Assessment of Adverse Impacts To Special Status Species Is Inadequate.

The Draft EIS does not adequately describe the current and historical environmental setting and the future environmental potential at the onshore area of the oyster company facility. The Draft EIS does indicate that the area has both estuarine and freshwater wetland habitat. But given that the whole oyster operation is located on fill,¹⁷¹ past conditions there were likely almost entirely wetland. Thus, if fully restored, under Alternative A, there could be more of both freshwater and estuarine wetland habitat. Therefore, not only do Alternatives B,C and D have the potential to impact non-breeding habitat for the red-legged frog, they also have the potential to impact breeding habitat for the red-legged frog, i.e., wetland habitat. Hence, potential impacts to red-legged frog should be considered *moderate*.

Steelhead Trout

If impacts to eelgrass are considered strongly linked to impacts to fish, as argued in the Draft EIS and discussed above, then the long-term *major* adverse impact on eelgrass from oyster operations should extend to long-term *major* adverse impacts on steelhead trout.

Snowy Plover and Least Tern Restoration

Some advocates for the DBOC SUP (Alternatives B, C, or D), have stated that the Least Tern and Western Snowy Plover restoration projects in San Francisco Bay will shut down if Alternative A is approved. This is unlikely to happen since these restoration projects started well before the DBOC acquisition of the RUO rights, and there are other sources of shell if they need them (see comments on impacts to native Olympia Oysters.) Also, DBOC has a substantial inventory of shells which they can donate to these projects if they desire to continue helping these projects.

L. Impacts To the Visitor Experience Were Not Adequately Addressed.

The Draft EIS describes significant impacts to the National Park visitor experience from the commercial oyster operation. However, the Draft EIS omits important analysis, such as the quantity of plastic from DBOC operations on Point Reyes' beaches. The California Coastal Commission reprimanded DBOC and advised it to "aggressively and comprehensively" address significant amounts of plastic and other marine debris from DBOC operations that pose "a hazard to the marine environment and natural resources of Drakes Estero."¹⁷² Local residents have collected and mapped DBOC's plastic debris. Photos and maps are attached as Exhibit 1.

The Draft EIS is correct in assessing that the impacts to Visitor Experience from Alternative A will not be diminished if the oyster company goes away, due to enhanced opportunity for solitude. Visitors can go to Tomales Bay for oysters which would remove the stream of black plastic from DBOC's operations.

¹⁷¹ Draft EIS, p. 81.

¹⁷² September 29th Letter from California Coastal Commission to DBOC.

Due to the impacts discussed below combined with those described in the Draft EIS, the long-term adverse impacts to the visitor experience has a sufficient basis to be considered moderate, and further analysis should consider whether impacts rise to the *major adverse* level. The EIS should include analysis of the Marine Debris Research, Prevention and Reduction Act,¹⁷³ and the California Ocean Protection Act of 2004. The Ocean Protection Council passed a resolution, Reducing and Preventing Marine Debris, on February 8, 2007, which describes California's commitment to the ocean environment: "Whereas, plastic and other debris litters our beaches, and represents a threat to California's \$46 billion ocean-dependent, tourism-oriented economy and in certain circumstances may pose a public health threat; and Whereas, California state and local agencies spend millions of dollars per year in litter collection..."¹⁷⁴

The EIS should analyze the impacts to wilderness and the national park visitor experience from DBOC plastic litter spreading all over Point Reyes beaches where beachgoers like to enjoy a remote beach experience.¹⁷⁵ Bay Area residents and visitors alike come to Point Reyes to experience nature more deeply than they can closer to cities and towns. They do not come to see plastic from the oyster operation littering the beaches of the Bay Area's crown jewel National Park. The DBOC onshore facility is not a visitor-serving concession per the Draft EIS.

The impacts from the Action Alternatives to the Visitor Experience could be *long-term major adverse* considering the littering of all of Point Reyes beaches with plastic from the DBOC operation. This determination could meet the criteria that "The impacts would be severe in primary resource areas or would affect most visitors. The impacts would inhibit visitor enjoyment of resources for which the Seashore was established."

Conclusion For Impacts To Visitor Experience:

The Draft EIS must assess the impacts from finding thousands of pieces of DBOC polyvinyl chloride (pvc) pipe on beaches throughout the Seashore. This is definitively a moderate long-term adverse impact, and upon analysis the Park may find that it constitutes a major adverse impact.

L. The Socioeconomic Analysis Is Inadequate and Should Use A More Appropriate Model and Methodology.

The analysis of the socioeconomic impact of Alternative A has an inadequate basis for reaching a conclusion of an adverse impact. The Draft EIS acknowledges the confounding assumptions of both the number of oyster operations in the state as well as the inconsistency of conversion of numbers to weight. A more appropriate Socioeconomic model is suggested and discussed below.

The EIS does not weigh the economic impact of foregoing the benefits of achieving full wilderness status for Drakes Estero and incurring the extremely high costs of acquiring a replacement wilderness estero. The nation was promised wilderness at Drakes Estero in 1976, and public funds have already purchased that wilderness at Drakes Estero. This investment was

¹⁷³ 33 U.S.C. 1954.

¹⁷⁴ See above section on Impacts from Plastic Marine Debris.

¹⁷⁵ See above discussion and references under Impacts from Plastic Marine Debris.

made over thirty years ago, and Drakes Estero is the nation's *only* West Coast marine wilderness. If that marine wilderness investment is thrown away to perpetuate the mariculture business through one of the Action Alternatives, acquiring a replacement estero and watershed would be not only prohibitively expensive but impossible.

The discussion of the socioeconomic impacts in the Draft EIS is too linear and must analyze impacts, if any, to the larger California and West Coast shellfish markets. The ***California shellfish market does not exist in a isolation.*** Tomales Bay Oyster Company sells oysters from Puget Sound.¹⁷⁶ Taylor Shellfish Farms in Washington State, ships oysters and Manila clams after selling them via their website.¹⁷⁷ DBOC orders spat from Oregon, Washington, and Hawaii. Oysters can actually be ordered from all over the country.¹⁷⁸

The California shellfish market is not supplied solely by oysters produced in California. Restaurants in the San Francisco Bay Area that offer fresh oysters, generally offer a range of oyster choices that includes local, US west coast, and imported oysters.¹⁷⁹ There is no current indication in this market that imports are affected at all by DBOC production levels as these outlets offer imports as one of many choices. The California market clearly demands choices. There are also canned oyster imports, including smoked oysters, which are really a different product from fresh oysters. Volumes of these imports may not be materially altered by DBOC production levels.

The Draft EIS erroneously assumed a simple relationship between the expiration of the DBOC permit and the consequent impact on the California shellfish market and regional economy. The basis for this purported relationship is lacking in the Draft EIS. The following issues and questions are relevant for the necessary re-evaluation of the impacts from Alternative A on the shellfish market:

1. Johnson Oyster Company virtually shut down prior to selling its operation to DBOC in 2005, so the argument that Alternative A would create an economic impact due to the loss of oysters to the market seems specious at best. The NPS should *consider what happened to shellfish markets when JOC production decreased by an order of magnitude between 2000 and 2004.* Was there a measurable impact on the demand for and availability of Drakes Estero oysters?
2. The analysis should assess how the NPS can consider it a "major benefit" to support and subsidize an industrial-scale private commercial operator in a national park wilderness and contrary to all wilderness laws and NPS management policies?
3. Oysters are a luxury item, not a "food source," as oysters have 1/3 the protein of seaweed. Arguments stating that DBOC is needed as a food source fall short.
4. Increased oyster production elsewhere is likely, both in Tomales Bay and in Humboldt Bay, which is studying a substantial expansion of its mariculture production, and is already undergoing environmental review.¹⁸⁰
5. Wilderness recreation and visitation would almost certainly increase with the

¹⁷⁶ <http://www.tomalesbayoysters.com/app/story?keyword=pricelist>

¹⁷⁷ <http://www.taylorshellfishstore.com/>

¹⁷⁸ <http://www.oysterguide.com/order-oysters/>

¹⁷⁹ See Zuni Café on Market Street in San Francisco, for example.¹⁷⁹

¹⁸⁰ See <http://www.theheadwatersfund.org/>

designation of the West Coast's only marine wilderness.

Beginning in 1999 and continuing through 2005, JOC oyster production was substantially reduced by as much as an order of magnitude. Although this natural experiment might have been expected to reduce aquaculture revenues from all Marin County operations, the JOC poundage of oyster production accounts for less than 25% of the variation in total aquaculture revenues.

Recently, three Nobel Laureate economists asserted that the preservation of public lands, particularly in the West, creates jobs. Over 100 economists and academics in related fields from across the country recently sent a letter to President Obama urging him to “create jobs and support businesses by investing in our public lands infrastructure and establishing new protected areas such as parks, wilderness, and monuments.” The authors, which included three Nobel laureates, stated that *federal protected public lands are essential to the West's economic future*, attracting innovative companies and workers, and contributing a vital component of the region's competitive advantage.¹⁸¹ Although every county has its own set of unique circumstances, numerous studies—carefully scrutinized to pass scientific muster and credibility—have concluded that protecting federal public lands can play a positive role for the communities and economies nearby.¹⁸²

The Seashore is a major economic driver for the local West Marin economy. In 2009, visitors spent almost \$86 million during visits to the Seashore and non-local visitor spending supported local 966 jobs and accounted for \$39.3 million in labor income.

Park Service employees also contribute a significant amount to the local economy. In 2009, the Seashore supported 129 National Park Service jobs and the Park's payroll contributed an additional \$13 million to the local community.¹⁸³

**Spending and Economic Impacts of National Park Visitors on Local Economies, CY 2009
Point Reyes National Seashore**

2009 Recreation Visits	2,170,646
2009 Overnight Stays	41,230
2009 All Visitor Spending	\$85,751,000
2009 Non-Local Visitor Spending	\$78,206,000
Impacts of Non-Local Visitor spending on Jobs	966
Impacts of Non-Local Visitor spending on labor income	\$39,334,000
Impacts of Non-Local Visitor spending on value added	\$66,016,000

¹⁸¹ <http://headwaterseconomics.org/land/reports/economists-president-public-lands/>

¹⁸² Id.

¹⁸³ Stynes, D.J., January 2011, “Economic Benefits to Local Communities from National Park Visitation and Payroll,” Natural Resource Report NPS/NRPC/SSD/NRR—2011/281, Department of Community, Agriculture, Recreation and Resource Studies Michigan State University East Lansing, Michigan 48824-1222. <http://www.nature.nps.gov/socialscience/docs/NPSSystemEstimates2009.pdf>

“Increasingly, entrepreneurs are basing their business location decisions on the quality of life in an area. Businesses are recruiting talented employees by promoting access to beautiful, nearby public lands. This is happening in western cities and rural areas alike. *America's public lands can be used responsibly while expanding protections for the nation's world-class natural amenities.*” The economists concluded their letter to President Obama by urging him to invest “in our public lands infrastructure and establishing new protected areas such as parks, wilderness and monuments.”¹⁸⁴

The peer-reviewed research cited by Headwaters Economics demonstrates, for example, that “while Wilderness recreation benefits to local communities are modest, *the presence of Wilderness appears to draw residents and new economic activity, and has a substantial positive impact on local economies.*”¹⁸⁵ This very recent analysis further supports the rejection of the assumed adverse impact of removing the oyster company, and that the impact could very likely be long-term beneficial.

The leaders who supported the creation of Point Reyes National Seashore showed great foresight in establishing the park to save and preserve a valuable part of the coast to be protected forever. It would be virtually impossible to purchase this property today, and developments since 1962 would have ruined the Drakes Estero environment without federal protections.

\$530 million dollars is an estimate¹⁸⁶ of the present cost to purchase a landscape like Drakes Estero and its watershed in today's dollars. Such an astronomical cost reflects the value of California coastline property and reflects the human desire to live and develop near coastal bays. The Final EIS should assess the significant adverse impacts caused by allowing the private commercial mariculture operation to continue versus the cost it has already paid to protect this marine wilderness area versus the replacement cost.

The value of the Estero should include not just the acreage, but also the open space nearby, the protected streams and watershed, potential and existing habitat for a wealth of native, threatened, endangered, and special status species. A replacement site would have comparable features to Drakes Estero such as:

- An estero with limited amounts human structures on adjacent land. Drakes Estero is in a 19,840 acre watershed within a 172 square mile National Seashore, protected by the National Park Service's highest protection standards.
- Ocean inlet open year round, near a major headland in the California current, connected to a State Marine Conservation Area.
- A salmonid stream with federally protected Steelhead and a potential for Coho.

It would be a formidable task to acquire, gain approvals, and restore a replacement site because estuaries have attracted human developments for water front property, docks, mariculture, motor boats, fishing and hunting, and establishing near-by communities among other uses.

¹⁸⁴ http://headwaterseconomics.org/wphw/wp-content/uploads/Pres_Letter_Economics_Protected_Lands.pdf

¹⁸⁵ Rudzitis and Johnson 2000. <http://headwaterseconomics.org/land/reports/protected-lands-value/> (emphasis added).

¹⁸⁶ Straatmann and Johnson, 2010.

Conclusions Regarding Socioeconomic Impacts:

*The socioeconomic impact of Alternative A should not be considered adverse or at the very least neutral. Securing full wilderness protections for Drakes Estero and the removal of DBOC should be neutral, if not beneficial, due to all of the unknowns and speculative nature of the assumptions inherent in this part of the analysis. In addition, the socioeconomic impact of the Action Alternatives should be re-evaluated based on addressing some of the questions and issues raised above. **Given the fluidity of the shellfish market, the enormous replacement costs for this ecosystem, and the cost to the government of attempting to a massive adaptive management program, there is a sufficient basis to consider the socioeconomic impacts from the Action Alternatives as adverse.***

O. The Draft EIS Appropriately Categorizes Impacts To Wilderness From All Three Action Alternatives As Major Adverse Impacts.

Wilderness area is defined, in part, as “an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain. . . . An area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation”¹⁸⁷ Wilderness is to be preserved for the sake of nature, not the sake of man, though certainly man derives innumerable benefits and pleasures from the thousands of acres of wilderness.

Wilderness is about preserving some of the remnants of our collective heritage, about honoring space as sacred for its uniquely inspiring qualities. Wilderness is about acknowledging that solitude is important and places for personal reflection are rare in our modern world and must be protected. And it is a church for many, in that we go into wilderness not to escape our lives, but to return to them.¹⁸⁸ This is why so many people are standing up strongly in support of the 1976 designation of the West Coast’s only marine wilderness.

Howard Zahniser, author of the 1964 Wilderness Act, said that “We deeply need the humility to know ourselves as the dependent members of a great community of life.” “Out of wilderness has come the substance of our culture, and with a living wilderness . . . we shall have also a vibrant, vital culture, an enduring civilization of healthful, happy people who . . . perpetually renew themselves in contact with the earth.” These are words to live by if you choose.

Unfortunately, there is a distinct lack of humility in the actions of DBOC. It and its proponents have attacked the National Park Service, its dedicated staff and scientists, and their science. DBOC has disrespected repeated requests and demands for compliance with permit violations and coastal protection laws from the NPS and California Coastal Commission. This lack of humility lies in stark contrast to the eloquent grace of Drakes Estero on the rare day when you can wander upon it without the incursion of DBOC’s motorboats, pneumatic hammers, and other solitude disruptors of its otherwise peaceful state.

¹⁸⁷ PL 88-577.

¹⁸⁸ Attributed in part to Dale Jamieson.

This comment letter is replete with mandates – legal, scientific, and policy – for the Secretary to deny a new permit to DBOC. Beyond the plethora of concrete reasons to select full wilderness protections to Drakes Estero, EAC offers this heartfelt plea: let wilderness return home to Drakes Estero. It has been over seventy years since this magical estuary was not occupied by commercial operations. Now, not 2022, is the time to return the Estero to its roots, to be wild and free once again. As Thoreau so famously said, in wildness is the preservation of the world. Let us do our part for the world at Drakes Estero.

P. The Draft EIS Substantially Underestimates the Impacts to NPS Operations From the Action Alternatives.

The impacts to the NPS Operations if an Action Alternative is selected are likely to be significantly greater than 1 FTE. When evaluating the impacts on NPS Operations, the EIS should consider and integrate DBOC's long history of violations. For example, due to their long history of environmental violations, DBOC motor boats should have monitors and observers. This could be a greater impact on NPS Operations. If the NPS has to use their own boat, then the Draft EIS would have to consider further impact of that boat on the resources, e.g., the soundscape. Would the NPS require DBOC's "fair market value" permit to cover these expenses?

If the oyster company is permitted to remain for ten more years, then the NPS will have to engage in all manner of ecological monitoring, including that recommended by NAS 2009 and MMC 2011. Invasive species will have to be monitored and managed aggressively, since the source of their proliferation will remain. Invasive species monitoring and management will include use of boats, personnel, consultation with other jurisdictions, purchase of expensive equipment and deployment of substantial material and personnel resources.

The MMC Report lists twenty (20) different elements of their recommended adaptive management program. The potentially massive adaptive management effort for and on behalf of a single private, commercial entity in a National Park wilderness will require a very large investment of time and resources on the part of the National Park Service. This investment would be a subsidy for a private commercial operation in a national park wilderness area, contrary to applicable federal laws and policies.

Conclusions Regarding Impacts To NPS Operations:

Impacts to NPS Operations would be significantly more than a single FTE, considering DBOC's history of permit violations (see Section III below). When accounting for the above-mentioned factors, it becomes clear that the impacts to NPS Operations could be categorized as a long-term *major* adverse effect, particularly if the American taxpayers are expected to pay for this significant cost.

Q. The NPS Must Perform A Cumulative Impacts Analysis On These Multiple Significant Adverse Impacts.

A meaningful cumulative impact analysis must assess the full range of past impacts to the resource both locally and regionally. This is essential to ensure that the evaluation of impacts

does not take place in a vacuum. *Without understanding the damage that has already been done to resources of concern, it is not possible to meaningfully evaluate the additive and magnifying effects of the action alternatives to those impacts.* In the absence of an analysis of past actions, the DEIS almost certainly is *understating* the impacts of the action alternatives.

Cumulative impacts are defined as:

“the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.

Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”¹⁸⁹

An analysis of these cumulative impacts ensures that the agency will not “treat the identified environmental concern in a vacuum.”¹⁹⁰ Under no circumstances, however, can the cumulative effects analysis ignore the impacts of past actions. To the contrary, understanding the historical context of impacts is an essential component of the cumulative impacts analysis: “The analyst’s primary goal is to determine the magnitude and significance of the environmental consequences of the proposed action in the context of the cumulative effects of other past, present, and future actions.”¹⁹¹

Here, the NPS must perform a cumulative impacts analysis of the numerous significant adverse impacts to Drakes Estero caused by continued mariculture operations. A component of this analysis must necessarily be impacts, to the extent they can be known or reasonably ascertained, from commercial mariculture operations over the past seventy-three years. It must also account for climate change and the rapid rise of sea level, ocean acidification, and the considerable loss (estimated at 92%) of California’s coastal wetlands. Finally, as part of this analysis, the NPS must consider whether it underestimated the adverse cumulative impacts of the three Action Alternatives based on the information provided in this letter.

The foregoing seventeen sections highlight that the best available science evidences numerous significant adverse impacts to Drakes Estero from DBOC’s operations. It is clear that current and future mariculture operations would cause significant impacts that rise to the level of impairment as defined by NPS management policies. *A private mariculture operation that causes impairment cannot legitimately be categorized as a “sustainable” or “green” operation.* The causes of impairment must be readily addressed in the Final EIS, which requires securing full wilderness status for Drakes Estero as intended by the 1976 Point Reyes Wilderness Act.

¹⁸⁹ 40 C.F.R. § 1508.7.

¹⁹⁰ *Grand Canyon Trust v. FAA*, 290 F.3d 339, 346 (D.C. Cir. 2002).

¹⁹¹ Council on Environmental Quality, *Considering Cumulative Effects Under the National Environmental Policy Act* (January 1997) at 41.

III. DBOC's Continuous Violations of Federal and State Laws Should Preclude a New Permit.

A. The Draft EIS Does Not Adequately Assess the Risks and Impacts of DBOC's Non-Compliance with State and Federal Permit Requirements and Conditions.

In December 2004, DBOC purchased the remaining seven years of the existing mariculture lease, knowing that it would expire on November 30, 2012. With this purchase, DBOC assumed responsibility for complying with the cease and desist order issued to the prior owner, the Johnson Cease and Desist Order No CCC-03-CD-12.¹⁹² Since its purchase of Johnson's Oyster Company, DBOC has operated in violation of California Coastal Commission, National Park Service, and U.S. Army Corps of Engineers permit conditions and requirements.

The current RUO requires its holder to "abide by all rules and regulations pertaining to National Park System areas"¹⁹³ The proposed action, issuance of a new SUP, is specific to DBOC so it is appropriate and necessary to look at its history of compliance with the existing RUO and SUP that expire on November 12, 2012.

The Draft EIS correctly states that the Rider does not relieve DBOC of its legal obligations under the California Coastal Act. However, **the Draft EIS improperly ignores DBOC's inexcusable record of non-compliance with permit conditions and requirements when analyzing impacts of continued operations.** DBOC assumed compliance obligations arising from Johnson Cease and Desist Order issued by the CCC in 2003.¹⁹⁴ "However not all of the unpermitted development had been removed when DBOC constructed additional development and established unauthorized practices on the property."¹⁹⁵ For instance, with permission, DBOC paved a large area, developed a new leach field, and began harvesting Manila clams, a non-native species, prior to NPS approval and 10 months prior to DFG review and approval.¹⁹⁶

Individually, each of DBOC's violations of permit conditions and permitting requirements is cause for concern. **Cumulatively, these ongoing violations significantly undermine the ability of the National Park Service, the California Coastal Commission, and the U.S. Army Corps of Engineers to administer the activities of DBOC in accordance with federal and state law and policy and in a manner that will adequately protect and enhance the Seashore's natural resources.**

A summary of DBOC's non-compliance with state and federal permits includes:

1. May 2005: The California Coastal Commission advised DBOC that it still was not in compliance with the Johnson Cease and Desist Order and that it must obtain a coastal development permit.¹⁹⁷

¹⁹² Consent Cease and Desist Order CCC-03-CD-12; November 29, 2007 Staff Report and Findings for Cease and Desist Order; Draft EIS, p. 19.

¹⁹³ Draft EIS, p.5.

¹⁹⁴ Draft EIS, p.19.

¹⁹⁵ Id.

¹⁹⁶ Id.

¹⁹⁷ May 11, 2005 Letter from the California Coastal Commission to DBOC.

2. March 2006: The California Coastal Commission again advised DBOC that it was not in compliance with the Johnson Cease and Desist Order, that it is in violation of the Coastal Act, and that it must obtain a coastal development permit for additional new and unpermitted development.¹⁹⁸
3. June 2007: The California Coastal Commissions again advised DBOC that it was not in compliance with the Johnson Cease and Desist Order and that it is also may require a coastal development permit and permits from the U.S. Army Corps of Engineers and the Park Service.¹⁹⁹
4. October 2007: The California Coastal Commission advised DBOC that it intended to commence Cease and Desist Order Proceedings due to DBOC's continued unpermitted offshore and onshore operations and facilities.²⁰⁰
5. December 2007: The California Coastal Commission issued a Consent Cease and Desist Order to DBOC regarding unpermitted activities carried out in connection with DBOC oyster operations in Drakes Estero. The related November 2007 staff report stated that DBOC was not in compliance with the Johnson Cease and Desist Order and that DBOC had constructed additional development and engaged in unauthorized uses without the required permits (e.g., refrigerated storage units installed, second leach field constructed, parking area paved, boat transit outside established channels).²⁰¹
6. February 2009: DBOC began harvesting Manila clams without a Park Service permit and 10 months prior to review and approval by the California Fish and Game Commission. DBOC declined to provide information on cultivation to assist the Park Service in evaluating this expansion of species cultivation. Manila clam cultivation has never been approved by the Park Service.²⁰²
7. September 2009: The California Coastal Commission advised DBOC of numerous ongoing violations of the 2007 Cease and Desist and Consent Order, including provisions developed to protect the Estero from invasive species, to impose appropriate restrictions on new construction, and to protect water quality.²⁰³
8. December 2009: The California Coastal Commission fined DBOC \$61,500 for numerous ongoing violations of five separate provisions of the Cease and Desist and Consent Order issued to DBOC in 2007 and advised DBOC that the fines would continue to accrue until DBOC came into compliance. Violations included operating in areas of Drakes Estero that are off limits during the crucial harbor seal pupping and rearing

¹⁹⁸ March 21, 2006 Letter from the California Coastal Commission to DBOC.

¹⁹⁹ June 5, 2007 Letter from the California Coastal Commission to DBOC.

²⁰⁰ October 3, 2007 Letter from the California Coastal Commission to DBOC.

²⁰¹ Consent Cease and Desist Order CCC-07-CD-11, December 12, 2007; November 29, 2007 Staff Report and Findings for Cease and Desist Order; Draft EIS, p. 19.

²⁰² Draft EIS, p. 20.

²⁰³ September 16, 2009 Letter to DBOC from the Coastal Commission.

season.²⁰⁴

9. November 2010: The U.S. Army Corps of Engineers advised the Park Service that the DBOC aquaculture activities required a Corps permit but that the Corps did not have either a current permit application or permit on file.²⁰⁵
10. September 2011: The California Coastal Commission advised DBOC to “aggressively and comprehensively” address significant amounts of plastic and other marine debris from DBOC operations that pose “a hazard to the marine environment and natural resources of Drakes Estero” and address “adverse impacts from the boats and DBOC personnel on the sensitive harbor seals and their habitat during the breeding and pupping season.”²⁰⁶

It seems that there has been *no period* during DBOC’s ownership when it has been in compliance with its permit conditions or permitting requirements. DBOC’s predecessor, the Johnson Oyster Company, had a similarly long history of violations. The carried-over violations and DBOC’s more recent violations evidence the oyster operation’s unwillingness to cooperate with state and federal agencies, disrespect for permit conditions, and sense of being above the law. **There is no basis upon which the NPS can conclude, and there is nothing in the record to suggest, that this long history of DBOC’s continuous permit violations will be rectified if DBOC is granted a new special use permit.**

Issuance of a new Special Use Permit to DBOC includes a *significant risk* that DBOC will continue to violate conditions attached to the new permit and other applicable regulations designed to protect marine wilderness at Drakes Estero. The EIS must consider the impacts of the likely failure of DBOC to comply with permit conditions and requirements on the ecological health of Drakes Estero and the many sensitive species that utilize the Estero. These impacts extend to all the impacts evaluated in the Draft EIS, including the impacts to Park Service operations.

The Draft EIS suggests that one full-time employee would be needed to ensure compliance for any of the Action Alternatives, but as shown above, this would not be sufficient. DBOC has made clear during the comment period that it wants nothing less than a *perpetually renewable* lease. Given DBOC’s egregious record of ignoring repeated demands for legal and permit compliance, it is unclear how many full-time NPS employees it may not be possible to secure permit compliance.

Conclusion Regarding DBOC’s Continuous Non-Compliance:

Given the long history of non-compliance with permit conditions and terms, the assumption that the conditions attached to a new Special Use Permit and other permitting conditions would be strictly complied with presents a false picture of the impacts of issuing a new Special Use Permit. The Final EIS must realistically assess both the *significant risks* from the likelihood of

²⁰⁴ December 7, 2009 Letter to DBOC from the Coastal Commission

²⁰⁵ Draft EIS, p. 130, Table 2-6; November 16, 2010 Letter to the Park Service from the Corps of Engineers.

²⁰⁶ September 29, 2011 Letter to DBOC from the Coastal Commission.

continued noncompliance as well as the significant costs to NPS for permit administration in terms of full-time employees, monitors, and other staff time.

B. DBOC's Proposal For "Collaborative Management" Obscures Its Track Record of Non-Compliance and Disrespect for the National Park Service.

The MMC Report recommended strongly an adaptive management program if Secretary Salazar were to choose one of the Action Alternatives. The MMC Report states, "Implementing an adaptive management approach is not a simple or trivial matter. To be successful, an adaptive management approach would have to be well conceived, adequately supported, and responsibly implemented by all parties involved. Most importantly, it would have to be based on getting at the truth, rather than having those with conflicting viewpoints seeking simply to win the debate."²⁰⁷

We agree with the Commission that an adaptive management is not a simple trivial matter, and that to be successful it relies on trust, cooperation, and support among the parties. DBOC's proposed role as a partner with the NPS under the MMC's recommendation is unrealistic. The recommendation is predicated on cooperation, good faith, and environmental stewardship responsibility. Unfortunately, the oyster company has not demonstrated a record of these qualities, evidenced by its numerous unanswered violations, its advocacy for permanent exploitation of this most highly protected natural resource, and by its public relations campaign to overturn this federally designated wilderness area.

The Draft EIS established unequivocally that the invasive non-native oyster and clam cultivation impairs the natural resources of Drakes Estero. The Final EIS must assess whether the hundreds of thousands of dollars necessary to create the type of adaptive management of the environmental impacts that the oyster operation yields makes sense in terms of scientific results and conclusions. This is particularly important given the numerous laws and NPS management policies cited that clearly point to Alternative A as the appropriate future for Drakes Estero.

How would ten years of data on non-native oysters be meaningful? Would this data be used simply to argue in support of further oyster operations beyond 2022? What happens if in the process the wilderness qualities of the Estero are so impaired that it is not recoverable?

Drakes Estero is part of the California's North Central Coast Marine Protected Areas network. The Estero is currently designated as a State Conservation Area which limits public use to recreational clamming. Upon wilderness designation, the Estero would become a State Marine Reserve.

There is huge gap in fully protected bays along the West Coast. Drakes Estero has already bought and paid for by the people of this nation. There is no other location on the West Coast where current and future generations can be provided with a fully protected marine reserve and

²⁰⁷ MMC, 2011.

marine wilderness experience. There are many mixed use bays where the Collaborative Management Alternative can be done, but unfortunately Drakes Estero is not one of them.

Conclusion Regarding Potential Collaborative Management Option:

There is no basis or evidence in the record to support a potential collaborative management relationship between DBOC and the NPS. Any future mariculture operations in this national park wilderness would violate federal laws and policies protection such areas. DBOC's interpretative programs are not part of the NPS and it would be virtually impossible for the NPS to monitor, regulate and enforce such programs, not only because of NPS standards on education and interpretation, but also given DBOC's lack of cooperation with the Seashore and Coastal Commission.

IV. The Secretary Must Defer to Federal Law and Policy, As Well As Best Available Science and Establish the West Coast's Only Marine Wilderness Area at Drakes Estero.

In conclusion, the Draft EIS is conservative in its assessment of the many adverse impacts and impairment to Drakes Estero from continued mariculture operations. EAC has provided a significant amount of additional best available scientific information for the NPS to consider in the Final EIS analysis. This information shows that multiple impacts from mariculture operations rise to the level of *major adverse impacts causing impairment* to Drakes Estero and its wildlife inhabitants. This impairment, in combination with the very clear mandate of federal laws and policies, requires Secretary Salazar to grant Drakes Estero its intended wilderness status in 2012.

Thank you for the opportunity to comment. EAC appreciates the considerable time, energy and effort that the National Park Service has put into this process.

Respectfully submitted,



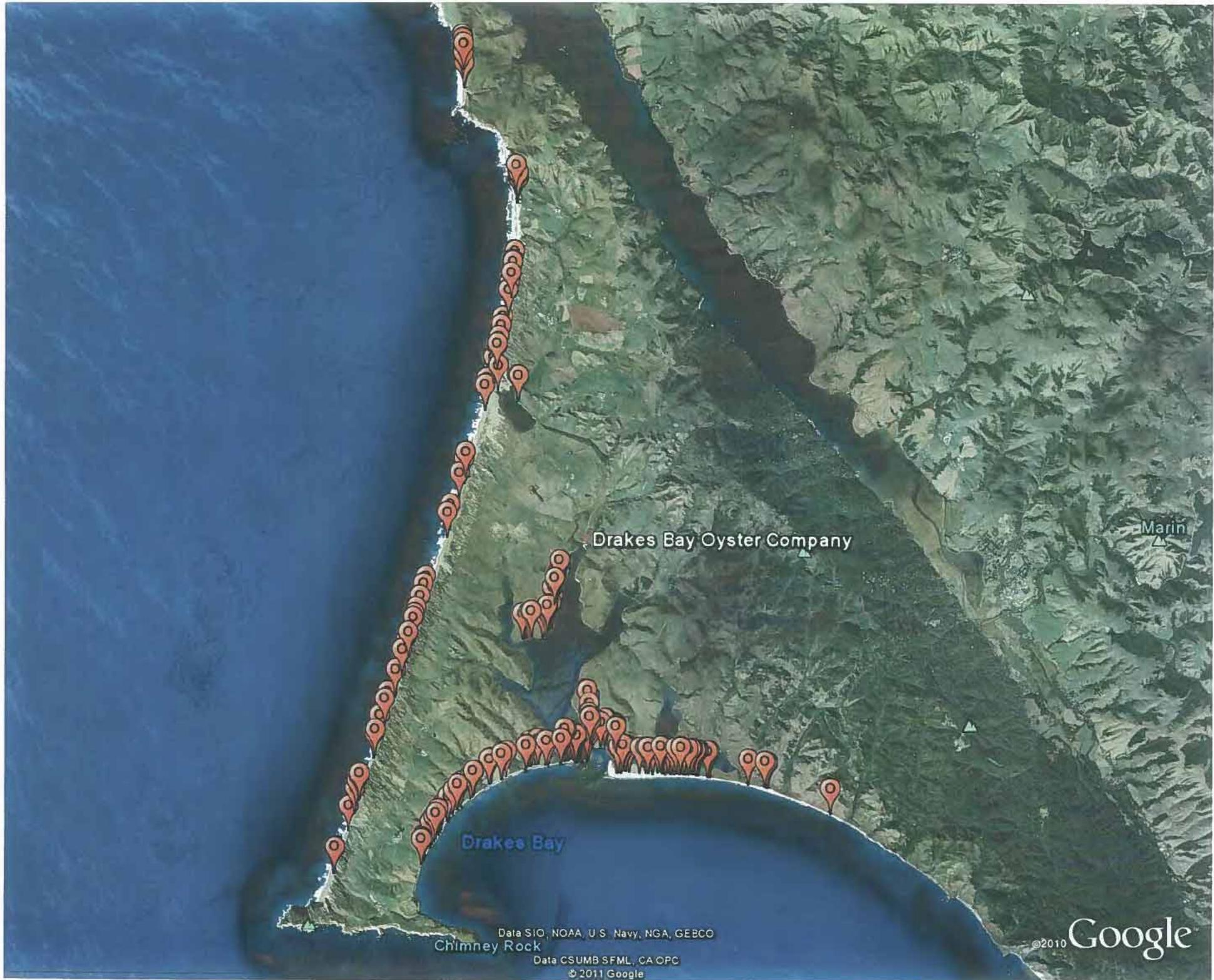
Amy Trainer, Executive Director

EXHIBIT 1

Maps and photos of DBOC marine debris.

Photo Credit:
Amy Trainer
Approx 5000 pieces
of DBOC
Plastic.





Drakes Bay Oyster Company

Marin

Drakes Bay

Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Chimney Rock
Data CSUMB, SFML, CA OPC
© 2011 Google

© 2010 Google



Drakes Estero

Data CSUMB SFML, CA OPC

© 2011 Google
Image © 2011 TerraMetrics

©2010 Google

DEC 09 2011

RECEIVED

2011 DEC 12 PM 1:20

POINT REYES NS

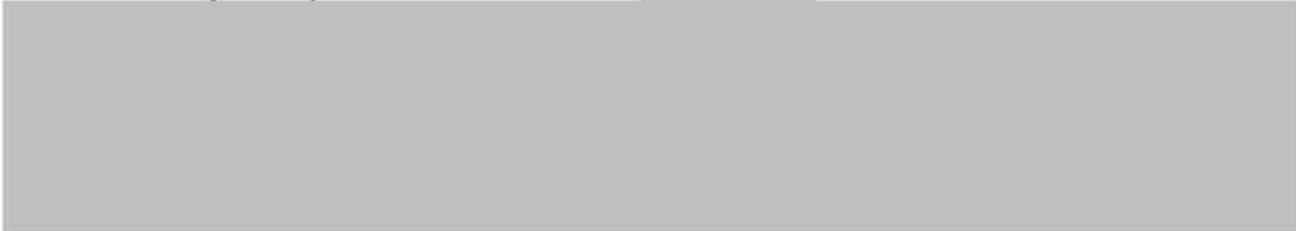
Dear Secretary Salazar,

Pt Reyes is a national
treasure. Make more of it a
wilderness please.

Yours,
Stephen Becus

PS I support AH "A"
for Douglas Estero

Stephen Becus



DEC 09 2011

RECEIVED

2011 DEC 12 PM 1:20

POINT REYES NS

Secretary Salazar,

I am a citizen of California and the United States, and I implore you to do whatever it takes to protect our only marine wilderness on the West Coast as long as you can. Dukes Estero deserves the continued promise of protection that has lasted for 30 years. Dukes is but one example of wilderness that has been threatened, but it's also an example you can uphold. I support Alternative "A" and you can too. Please do the right thing!

Elijah L. Bates



Dear Secretary Salazar,

I'm a ocean user and visitor on a daily basis. I surf, I dive, and fish year round off the beautiful coast of CA. Point Reyes is a coastal gem on the CA coast and a refuge for many fish, birds and people to enjoy and use. I urge you to convey the ~~importantance~~ importance of these last estuary + wetlands. to the individuals that help pass laws + acts. I support (Alternative A) for Drakes Estero.

Thank for Your
Time

Eric M. Beason CA resident
for 28 yrs.

DEC 09 2011
RECEIVED
2011 DEC 12 PM 1:20
POINT REYES NS

11/15/11

DEC 09 2011

RECEIVED

2011 DEC 12 PM 1:20

POINT REYES NS

Dear Secretary Salazar,

Please save the most
beautiful spot on earth -
Drake's Estero at Point
Reyes! I support Alternative
A. Please be our voice to
save this special
wilderness, and restore its
integrity!

Best

Robin Bisio



DEC 09 2011

RECEIVED

2011 DEC 12 PM 1:21

Nov. 13, 2011

Superintendent

Pt. Reyes Natl Seashore POINT REYES NS

1 Bear Valley Rd.

Pt. Reyes Station, CA. 94956

Secretary Salazar,

I urge you to work to protect our marine wilderness at Drakes Estero that was promised to us more than 30 yrs ago. The industrial oyster operations is a grave threat ^{to} ~~the~~ this special area.

Thank you for your work and concern in this important environmental issue. I support alternative A & urge you to do also!

Marilyn L. Bodo



11/15/11

Dear Secretary Salazar

It is absolutely critical that Drakes Estero
become a wilderness area in 2012
as promised for over 20 years.

I urge you to protect to the maximum,
the only marine wilderness on the west
coast of the United States.

~~For~~ There are many places oyster companies
can locate outside of public lands.
Please keep to the law and the agreement
made.

Loy Berggren


DEC 09 2011

RECEIVED

2011 DEC 12 PM 1:20

POINT REYES NS

REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
1455 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94103-1398

DEC 09 2011

RECEIVED

2011 DEC 12 PM 12:30

POINT REYES NS

DEC - 8 2011

Regulatory Division

SUBJECT: File Number 2010-00116N

Draft EIS DBOC SUP
c/o Ms. Cicely Muldoon
National Park Service
Point Reyes National Seashore
1 Bear Valley Road
Point Reyes Station, California 94956

Dear Ms. Muldoon:

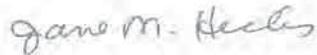
This is in response to the request for comments on the Draft Environmental Impact Statement (DEIS), dated September 2011, regarding the Special Use Permit for the Drakes Bay Oyster Company located at 17171 Sir Francis Drake Boulevard in the Town of Inverness, Marin County, California.

The U.S. Army Corps of Engineers (USACE) would like to emphasize that impacts to waters of the U.S., including wetlands, vegetated shallows, and open waters of the U.S., may be subject to regulation pursuant to Section 10 of the Rivers and Harbors Act of 1899 (RHA) (33 U.S.C. Section 403) and/or Section 404 of the Clean Water Act (CWA) (33 U.S.C. Section 1344). If a permit for activities is required and they do not fall under the Nationwide Permit program, an Individual Permit, processed pursuant to Section 10 RHA and/or Section 404 CWA, would be required. Projects resulting in the discharge of fill material into waters of the U.S. must comply with the Guidelines promulgated by the Administrator of the Environmental Protection Agency under Section 404(b) of the CWA (33 U.S.C. Section 1344(b)).

USACE recommends that the above information be included in the Laws and Policies section for all Issues/Impact Topics analyzed in "Chapter 4: Environmental Consequences" which may have an impact on jurisdictional waters of the U.S., including wetlands, eelgrass, and portions of wildlife and wildlife habitat.

We look forward to continued cooperation in the preparation of the EIS. Should you have any questions regarding this matter, please call Bryan Matsumoto of our Regulatory Division at 415-503-6786. Please address all correspondence to the Regulatory Division and refer to the File Number at the head of this letter.

Sincerely,



 Torrey A. DiCiro, P.E., PMP
Lietenant Colonel, U.S. Army
Commanding

U.S. Department of
Homeland Security

United States
Coast Guard



Commanding Officer
United States Coast Guard
Civil Engineering Unit Oakland

1301 Clay Street, Suite 700N
Oakland, CA 94612-5203
Staff Symbol: CEUO-PLRP
Phone: (510) 637-5540
Email: Christine.L.Schneider@uscg.mil

16475
7 December 2011

2011 DEC 12 PM 1:08
POINT REYES NS
RECEIVED

DEC 09 2011

Cicely A. Muldoon
Superintendent
Point Reyes National Seashore
1 Bear Valley Road
Point Reyes Station, Ca 94956

Dear Ms. Muldoon:

The U.S. Coast Guard (USCG) appreciates the opportunity to provide comments on the Draft Environmental Impact Statement (EIS) for the Drake's Bay Oyster Company Special Use Permit (SUP). From the EIS, we understand that the Proposed Action Alternatives are as follows:

- **Alternative A: No New Special Use Permit—Conversion to Wilderness (No-action)**
Alternative A considers the expiration of the existing reservation of use and occupancy (RUO) and SUP and subsequent conversion to wilderness. The existing SUP and RUO expire on November 30, 2012. Under Alternative A, the Secretary would not exercise the discretion granted to him under section 124 to issue a new 10-year SUP. Upon removal of the nonconforming structures from Drakes Estero, the NPS would convert the area to wilderness.
- **Alternative B: Issue New Special Use Permit—Existing Onshore Facilities and Infrastructure and Offshore Operations Would Be Allowed for a Period of 10 Years**
Alternative B considers a level of use consistent with conditions that were present in fall 2010 when the NPS initiated evaluation under the EIS.
- **Alternative C: Issue New Special Use Permit—Onshore Facilities and Infrastructure and Offshore Operations Present in 2008 Would Be Allowed for a Period of 10 Years**
Alternative C considers a level of use that is consistent with the conditions and operations that existed at the time the current SUP was signed in April 2008.
- **Alternative D: Issue New Special Use Permit—Expanded Onshore Development and Offshore Operations Would Be Allowed for a Period of 10 Years**
Alternative D considers expansion of operations and development of new infrastructure by Drake's Bay Oyster Company (DBOC) as part of this EIS process. NPS would evaluate future requests from DBOC for consistency with the intent of this alternative, which is to allow for expanded operations within the scope of the conceptual proposal; approval/compliance for future development would be through a tiered planning process.

The EIS states that the existing SUP and RUO expire on November 30, 2012. Under all of the three action alternatives (Alternatives B, C and D), the Secretary of the Interior would exercise the discretion granted under section 124 to issue a new 10-year SUP to DBOC, expiring November 30, 2022.

We note that the description of Alternative D contains development proposals submitted by DBOC that are evaluated at the conceptual level in this EIS. As stated in the EIS, "Additional planning, design, environmental compliance (including NEPA), and approval [of any development proposal] would be required prior to proceeding with construction of proposed new facilities."

While we understand that Alternative D, if chosen, would be subject to subsequent environmental review, we would like to point out that the USCG Communications Area Master

Station Pacific (CAMSPAC) facility is nearby and should be listed in this EIS. This facility handles essential ship-to-shore communications with USCG vessels operating in the Pacific Ocean. USCG personnel and equipment require unfettered, uninterrupted (24/7/365) access to the facility. The roadway entrance (near Abbott's Lagoon) is at 17000 Sir Francis Drake Blvd, roughly 1000 feet from the roadway entrance to the DBOC facility at 17171 Sir Francis Drake Blvd. Any increase in traffic volumes, construction equipment, and changes of traffic patterns resulting from new construction or change to the existing conditions at DBOC which impact access to facility should be analyzed in this EIS to the maximum extent possible.

The EIS documents the amount of visitor use to both the Seashore and to the DBOC, and thus should contain information on how expanded visitor-serving facilities at DBOC would affect the CAMSPAC facility. For example, the second paragraph, first sentence of p. 214 states: "DBOC estimates that 50,000 people visit their commercial operation each year." (DBOC 2010nxxv) The last paragraph on p. 219 states "An example of a tourism-related business that operates within the project area is commercial kayak tours. Approximately 10 operators currently have commercial use authorization from the Seashore to offer kayak equipment rental and/or guided kayak tours within the Seashore. Three of the authorized operators offered kayak tours of Drakes Estero in 2010." Further, the last paragraph, first sentence of p. 225 states: that "The Seashore maintains the necessary infrastructure to support annual park visitation of 2.25 million people..."

This EIS should determine if there are any negative or significant environmental effects to normal USCG activities in the area as a result of implementing any of the Project Alternatives. There is no mention of the baseline traffic conditions in the EIS, nor is there any analysis of the proposed action alternatives on existing traffic conditions, both in terms of additional construction-related traffic or traffic resulting from an expanded or upgraded DBOC facility.

We are concerned that any new development which increases visitor use or the size of the facilities may negatively affect access to the CAMSPAC facility. Analysis should include the intersection locations along Sir Francis Drake of these two facilities as well as roadway segments from these intersections east through the towns of Inverness, Inverness Park, Point Reyes Station or Olema, and the intersections of Sir Francis Drake and Highway 1 in Point Reyes Station or Bear Valley Road/Highway 1 in Olema.

We understand the proposed new development in Alternative D is addressed at a conceptual level in this EIS. However, we feel that it is important to list the nearby CAMSPAC facility and document and analyze the issues in the Drake's Bay Oyster Company SUP Draft EIS.

Should you have any questions, please contact Ms. Christine Schneider of my staff at (510) 637-5540 or email Christine.L.Schneider@uscg.mil.

Sincerely,



J.W. McPherson
Lieutenant Commander
U. S. Coast Guard



DEPARTMENT OF AGRICULTURE • WEIGHTS AND MEASURES

December 7, 2011

STACY K. CARLSEN
COMMISSIONER/DIRECTOR

STEFAN PARNAY
DEPUTY COMMISSIONER/DIRECTOR

DBOC SUP EIS c/o Superintendent Cicely Muldoon
Point Reyes National Seashore
1 Bear Valley Road
Point Reyes Station, CA 94956

Subject: DOBC SUP EIS

Dear Superintendent Muldoon:

I am writing these comments in support of, and recommend that, you grant a Special Use Permit to allow Drakes Bay Oyster Company to continue its operation in Drakes Estero. I do not fully support any of the Alternatives you propose in the EIS. I do support the Alliance for Local Sustainable Agriculture (ALSA) recommendation for a **Collaborative Management Alternative**.

This alternative includes:

A Ten-Year Special Use Permit with Option for Extension; Rehabilitation of Existing Facilities; and Construction of New Processing Facilities

This alternative permits Drakes Bay Oyster Company (DBOC) to continue to utilize onshore facilities within the Seashore (PRNS) pastoral zone to support shellfish cultivation in Drakes Estero, pursuant to its leases from the California Department of Fish and Game [CDFG]. DBOC would pay "fair market value" for use of the on-shore facilities, which would take into account the value of interpretive services provided and the investment needed to rehabilitate existing facilities and construct new processing facilities. The rehabilitation and construction work would be as described in the discussion of Alternative D.

Under this alternative, DBOC will collaborate with relevant organizations, including but not limited to the NPS, the CDFG, the UC SeaGrant program and other educational and research agencies; and in developing interpretive programs and scientifically valid research projects as recommended by the NRC and MMC. This alternative provides educational opportunities for people of all ages, including Seashore visitors, students and researchers, relating to estuarine ecology and mariculture.

This alternative is consistent with the "national interest" expressed in President Clinton's May 26, 2000 Executive Order 13158 directing the Departments of Commerce (DOC) and Interior to expand and strengthen the "Nation's system of marine protected areas." It respects the California Fish and Game Commission designation, effective May 2010, of Drakes Estero as a State Marine Conservation Area (SMCA), a protected area in which recreational clam digging and shellfish cultivation pursuant to CDFG leases are permitted. DBOC's operation within a

DEC 09 2011
RECEIVED
2011 DEC 12 PM 12:29
POINT REYES NS

SMCA and PRNS presents a unique opportunity for collaborative research that supports the policies of the National Shellfish Initiative [Initiative] announced by NOAA and DOC in June 2011, and responds directly and positively to NRC and MMC recommendations regarding collaborative efforts to inform adaptive management of Drakes Estero.

This alternative supports the goals of the Initiative, which are to increase domestic seafood production, create sustainable jobs and restore marine habitats. It provides opportunities for research as called for by the Initiative, "...on the interactions between shellfish and the environment in terms of climate change, ocean acidification, naturally occurring pathogens and parasites, and other factors . . ." This alternative supports DBOC's efforts to restore native oysters in Drakes Estero and to study the potential for native oysters to withstand the effects of global ocean acidification now beginning to affect all Pacific coast shellfish.

This alternative sustainably supports the local economy by continuing to attract thousands of ethnically diverse visitors to West Marin every year and continuing to provide over half of the San Francisco Bay Area's sustainably farmed shellfish. It protects desperately needed affordable housing for farmworkers on remote Point Reyes ranches.

Under this alternative, DBOC will continue to provide essential oyster shell for environmental programs, such as the San Francisco Bay Native Oyster Restoration Project, the SF Bay Bird Observatory Snowy Plover Habitat Enhancement Project and the California Department of Fish and Game Least Tern Habitat Enhancement Project.

This alternative supports a landscape that is ecologically and economically sustainable. It is consistent with the natural resource management provisions in the PRNS General Management Plan, and enables the Seashore to collaboratively integrate ecosystem science and natural and cultural resource management to better understand and manage relationships among the physical, biological, and cultural elements of a working land and seascape, while maintaining its distinctive "sense of place and character."

Economic and Social Impacts Analysis Requested

It is essential we retain oyster production in Drakes Bay for Economic Sustainability and Social Justice. The Drakes Bay Oyster Company (DBOC) plays an important role in the local, regional, and statewide economy. DBOC represents 85% of the shellfish growing area in Marin County and the SF Bay Area. It produces nearly 40% of the oysters grown in the entire State of California and greater than 50% of Marin County produced oysters. Greater than 500,000 pounds of oyster meat per year are produced at DBOC and is the only oyster cannery in California to provide shucked product to the Bay Area. All the shellfish grown by DBOF are marketed in Marin County and the SF Bay Area. The gross economic value (farm gate) of production exceeds \$1.5 million. The economic effect due to jobs, transportation and local

business services associated with this operation boost this economic value to at least \$5.0 million. The loss of this operation would create a product demand and trigger importing greater than 38,000 pounds of oysters each week from other areas (Seattle, Tokyo, and uncertain locations of origin) that would increase overall carbon footprint, inferior product substitution, and defeat the principle of local sustainable farm production activities.

Current supply of shell fish is only a few minutes or hours from market and consumption. This food is highly regarded by consumers and understood to be the highest quality oyster in the Pacific Region. Shellfish imported to fill the gap if DBOC was out of business would travel great distances increasing the chances for food safety problems, poor quality, and product contamination. Any health related event associated with imported shellfish could drastically impact the overall support of any of our local oyster production due to lack of confidence in food safety.

Currently, Drakes Bay Oyster Company provides hundreds of water samples and shellfish meat samples to the California Department of Health Services. The testing confirms the safety of the product and the information is used by environmental health agencies and the California Department of Fish and Game so to regulate and inform the public of product safety and presence of dangerous biotoxins. These growing waters contain California's only "Approved" status growing area. Approved status means that there are no harvest closures due to potential pathogens in storm water runoff following rainfall. This identifies the fact that Drakes Bay Oyster Farm is the only shellfish farm in California with the potential of harvesting every day, year round. Imported products could increase food safety cost, regulatory inspections, increase cost of product, and increase environmental impacts.

Drakes Bay Oyster Company is the second largest employer within the Pt. Reyes National Seashore. DBOC employs approximately 35 Hispanic men and women, many of whom live at the farm or in nearby local communities, working at year round jobs to support their families. These families spend money locally, have children that attend the local schools and pay local taxes. These working families are striving for economic and social status working to improve their lives and their children's lives within the community. They are a fabric of our society and the loss of any of these jobs would have a tremendous impact on their lives and the social fabric of the community where they live. The children of these working families attend local schools affecting the school income from attendance fees from State agencies. There are also many indirectly-related local jobs that are created as a result of oysters grown at the DBOC, including jobs at restaurants, markets as well as for jobs involved in marketing and distribution of the shellfish.

DBOF is a major attraction, bringing approximately 50,000 people each year to West Marin. These oyster farm visitors spend money locally--at restaurants, for lodging and for other local services. Also the high demand for locally produced food is consistent with the public call for fresh local grown food. This EIS must consider the following economic and social impacts: The loss of the majority of the Bay Area's and Marin County's shellfish production; impacts on the

Lunny Family, local markets and restaurants. The impacts to these direct and indirect local jobs, including state funding for schools. The impact to the West Marin community if this public attraction no longer exists. The social injustice associated with impacts to families and children.

The EIS must fully consider and clarify all of the following impacts:

Economic benefit to the local community derived from DBOC business.

Economic impacts on working families due to job loss and the disproportionate impact to the Hispanic community in the immediate region.

Environmental Impacts Analysis Requested

The current activities performed by DBOC have shown to have little or no environmental impact on the Drakes Bay aquatic or terrestrial flora or fauna. The operation has complied with the strictest guidelines imposed by the Pt. Reyes National Seashore. This EIS process must demonstrate under the peer review standard of scientific principles that there are impacts to flora and fauna caused by DBOC. This EIS also needs to evaluate the environmental benefits from loss of a locally grown seafood source, life cycle carbon analysis for importing oyster to fill the product supply lost if the DBOC was closed, and the ecological services provided by cultured oysters and the adverse effect of removing cultured oysters from the Bay.

This EIS must consider the following environmental impacts:

Ecological services/impacts of oyster production. Sea Lion populations/ecology associated with DBOC activities. Eelgrass abundance associated with DBOC activities.

Cultural and Historical Impact Analysis Requested

The State of California has leased the bottomlands in Drakes Estero for shellfish cultivation since the 1930's, long before the National Park was established. In a historical reflection, the Senate Committee on Interior and Insular Affairs held a hearing on April 14, 1960 in Pt. Reyes Station on Senate Bill S.2428 "Bill to establish the Pt. Reyes National Seashore in the State of California" which included testimony from then Chief of Recreation and Resources Planning(Nat. Park Ser. Reg. 4 SF Dist. Before there was a Superintendent position created) He was quoted to say "Existing commercial oyster beds-which we saw yesterday as we flew around there- a very important activity- and a cannery at Drake's Estero, plus three existing commercial fisheries, would continue under National Seashore status because of their public value" (page 14). This value statement is true today as when spoken with certainty on that historic important in time. It was spoken because the community was concerned that family business activities would be impacted detrimentally by the park establishment. The Chief reinforced the commercial activity as essential to the local economy. Further support was injected during the hearing from the US Department of Interior Reg. 4 Land Use Survey by saying "The oyster beds and cannery on Drakes Estero would add recreation and economic value to the seashore and should continue" (page 1). Those statements have given generations

of operators in Drakes Estero a clear image of the value of the operation in the community and the economic benefits derived from the successful oyster culture in the bay.

There are family commitments and investments made to maintain the operations. It is well understood that many jobs are created and associated activities generate economic stimulus to the local community. There are many that place a high value on purchasing wholesome local food from family farmers which is identified by their reputation for quality products. The family that runs the oyster farm is real people, employs real people, and plays a role in civic affairs. DBOC gives back to the community and play a major role in educating the public on the importance of buying locally and sharing their knowledge of the environment and history of agriculture and mericulture in the Seashore, through their educational farm tours and outreach. The farm serves on many civic Boards and Commissions.

Moving ahead to the year 2009- HR 3423 (123 Stat. 2532) Public Law 111-88 October 30, 2009, Pt. Reyes National Seashore, and Extension of Permit: Specifies the Secretary of Interior shall take into consideration recommendation of the National Academy of Science (NAS) Report pertaining to shellfish mericulture in Pt. Reyes National Seashore before modifying any terms and conditions of the extended authorization. The legislation does not specify any other sources of evaluation to allow for an extension of the DBOC operating permit. Have you evaluated the (NAS) findings as it relates to the specific mandate in HR 3423?

This EIS must consider the following Cultural and Historical Impacts:

Please clarify the impacts on family and generational transfer of business, and impact on job loss within the local community, and community impact of losing enjoyment of sustainable food systems.

Clarify what the NAS required report recommended to the Secretary of Interior which identifies and demonstrates any specific impact presented by DBOC to Drakes Estero wildlife.

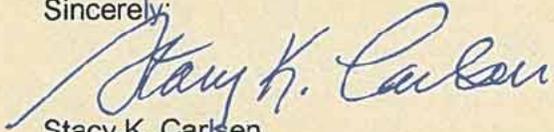
In conclusion: now is the time to deal with this issue in a fair manner considering all the possible impacts and benefits derived from the best and most reliable scientific sources to resolve the question "Should a Special Use Permit for a period of ten years for commercial harvesting and processing for shellfish be issued by the Park Service to DBOC". My assessment is YES the extension should be granted and the ALSA Collaborative Management Alternative adopted. The HR 3423 bill that authorized allowance for a ten year extension placed sole responsibility for scientific review in the hands of NAS. I recommend their findings be heavily weighted in the review process.

My view is the DBOC is a sustainable farming system, steeped in culture and historical value, and plays a major role in job creation and economic stimulus to our community. I do not believe the routine activities of DBOC are impacting flora or fauna in the Drakes Estero.

-Page 6-

Please consider the NAS science and make the decision to issue the recommended permit extension.

Sincerely,

A handwritten signature in blue ink that reads "Stacy K. Carlsen". The signature is written in a cursive style with a large, sweeping initial "S".

Stacy K. Carlsen
County of Marin
Agricultural Commissioner

SKC/jvc



December 9, 2011

By U.S. Postal Service Priority Delivery

Point Reyes National Seashore
Attn: Superintendent
DBOC SUP DEIS
1 Bear Valley Road
Point Reyes Station, CA 94956

Re: Comments on Draft Environmental Impact Statement for Drakes Bay Oyster Company Special Use Permit

Dear Superintendent Muldoon:

The National Wildlife Federation appreciates the opportunity to submit these comments on the Draft Environmental Impact Statement Drakes Bay Oyster Company Special Use Permit, September 2011 (the "Draft EIS"). NWF strongly supports Alternative A, No New Special Use Permit—Conversion to Wilderness, and urges the Park Service to adopt Alternative A as the recommended alternative in the final EIS.

The National Wildlife Federation (NWF) is the nation's largest conservation education and advocacy organization. NWF has more than 4 million members and supporters, including 120,000 members in California, and conservation affiliate organizations in forty-eight states and territories. NWF has a long history of working to protect the nation's coastal and inland waters and the fish and wildlife that depend on those vital resources.

Introduction

On behalf of its more than 4 million members and supports, NWF strongly supports Alternative A, No New Special Use Permit—Conversion to Wilderness (No-action). Alternative A is clearly the best alternative for the environment and is the only alternative that complies with federal law and policy. All three Action Alternatives, on the other hand, would have significant long-term adverse impacts to Drakes Estero and the many species that rely on it.

NWF urges the Park Service to adopt Alternative A and ensure that Drakes Estero converts to full wilderness as long promised to the American people. Alternative A also ensures that the

Park Service can manage Drakes Estero as Congress intended – for the maximum protection, restoration, and preservation of the natural environment.

Full wilderness protection will provide the highest possible level of protection to the ecological treasure that is Drakes Estero. Drakes Estero has long been recognized as the ecological heart of Point Reyes National Seashore and is designated as an Area of Special Biological Significance by the State of California, a site of regional importance by the Western Hemisphere Shorebird Reserve Network, and Essential Fish Habitat and a Habitat Area of Particular Concern under the Magnuson-Stevens Fishery Conservation and Management Act.

Drakes Estero is home to 20 percent of the mainland breeding population of harbor seals in California, is a primary seal puping site, and is used by at least 18 at-risk wildlife species. Thousands of shorebirds and waterfowl are regularly present in the Estero with those numbers skyrocketing in the winter to 20,000 individuals. More than 100 species of birds have been identified at Drakes Estero during winter surveys, including several listed species or species of special concern such as Osprey, White Pelican, Brown Pelican, Snowy Plover, Peregrine Falcon, Black Brant, and Marbled Murrelet. The estuary is extremely important to wintering Black Brant, which only migrate to a few places along the Pacific Flyway.

Drakes Estero also supports at least seven percent of the State of California’s eelgrass habitat, which provides important habitat for fish and other species. Thirty-five species of fish have been observed within eelgrass beds in either Drakes Estero or in nearby Estero de Limantour. Eelgrass provides important nursery habitat and foraging habitat for many species of birds, including Black Brant. Eelgrass also plays an important role in stabilizing the substrate and in nutrient cycling.

The National Wildlife Federation strongly supports the reversion of Drakes Estero to full wilderness in 2012 when the current DBOC Special Use Permit and Reservation of Use end. NWF urges the Park Service to make final wilderness designation, and the vital protections that such designation provides for the multitude of species that rely on the Estero, the top priority in its final decision-making process. Protection of this ecological treasure must trump the desire of one company to use – and at times abuse – the resources of Point Reyes National Seashore for private gain.

Detailed Comments

I. Alternative “A” is the Only Alternative that Complies with Federal Law and Policy and Protects the Ecological Heart of Point Reyes National Seashore

The National Wildlife Federation strongly supports Alternative A – the “no action” alternative, which allows the DBOC lease to expire in 2012 and establishes full wilderness protection to Drakes Estero and urges the Park Service to adopt Alternative A as its recommended alternative. Alternative A is clearly the best alternative for the environment and for managing the park in conformance with law and policy.

A. Alternative “A” is the Only Alternative that Complies with Law and Policy

As demonstrated by the Draft EIS and the laws and policies discussed below, Alternative A is the only alternative that complies with federal law and policy, and the only alternative that will fulfill the promise made to the public 35 years ago – that Drakes Estero would receive full wilderness protection in 2012 when the current reservation of use for oyster operations expires.

Federal law and policy require full wilderness protection for Drakes Estero in 2012 and prohibit the Park Service from issuing a new special use permit to DBOC. The FY 2010 Interior appropriations bill rider that prompted the current review allows, but does not require, a new special use permit for the oyster operation.¹

Point Reyes National Seashore was created “to save and preserve, for the purposes of public recreation, benefit, and inspiration” a portion of the nation’s diminishing seashore.² The Seashore’s 1962 authorizing legislation requires the Park Service to administer the Seashore “without impairment of its natural values” and in a manner that is “supportive of the **maximum** protection, restoration, and preservation of the natural environment.”³

The Wilderness Act of 1964 recognizes and defines wilderness as “an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain.”⁴ Wilderness is further defined as an area of “Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions.”⁵

The 1976 Point Reyes Wilderness Act reaffirms the 1962 and 1964 laws and added language to the Seashore’s authorizing legislation which “underscores the intention that the Seashore is to be managed for the protection of its natural environment and values.”⁶ The Point Reyes Wilderness Act designates the waters of Drakes Estero and the adjoining intertidal land as “potential wilderness” and requires that lands designated as wilderness under the Act be managed in accordance with the 1964 Wilderness Act.

The term “potential wilderness” is defined in the legislative history of the 1976 Point Reyes Wilderness Act as “a category of lands which are essentially of wilderness character, but retain sufficient non-conforming structures, activities, uses or private rights so as to preclude immediate wilderness classification.”⁷ The legislative history provides an explicit statement of Congressional intent regarding the importance of removing all non-conforming uses – including the oyster operation in Drakes Estero – from areas designated as “potential wilderness”:

¹ Public Law 111-88, Section 124.

² 16 U.S.C. § 459c.

³ 16 U.S.C. § 459c-6 (emphasis added).

⁴ 16 U.S.C. § 1131(c).

⁵ 16 U.S.C. § 1131(c).

⁶ House Report No. 94-1680 (1976).

⁷ Senate Report No. 94-1357 (1976) at 3.

“As is well established, it is the intention that those lands and waters designated as potential wilderness additions will be essentially managed as wilderness, to the extent possible, with efforts to steadily continue to remove all obstacles to the eventual conversion of these lands and waters to wilderness status.”⁸

Congress chose to designate Drakes Estero as potential wilderness with full knowledge of the presence of the oyster company and its non-conforming use in the Estero.⁹ This knowing designation and the contemporaneous legislative history make it clear that Congress intended that the non-conforming use must end when the current reservation of use expires.¹⁰

While a recent letter to the Secretary of the Interior from former Congressman John L. Burton and others proposes a contrary statement of Congressional intent, that letter is both directly contrary to the contemporaneous legislative history – including contemporaneous testimony from Congressman Burton – and carries no legal weight.¹¹

During a 1976 Congressional hearing on the Point Reyes Wilderness Act, then Representative John L. Burton wrote that the “potential wilderness” designation would allow Drakes Estero to “be classified as wilderness upon the removal of certain presently existing temporary conditions, without the need to come back to Congress again.”¹² Congressman Burton recognized that Drakes Estero was one of “three particularly fragile areas” in urgent need of protection:

“Drakes and Limantour Esteros are refuges for harbor seals, leopard sharks, egrets, herons, migratory fowl, rare species of clams, cockles, and snails. They are also native Indian sites. Their **permanent protection is urgently needed**, at the very least by ‘potential (or reserve) wilderness.’”¹³

⁸ House Report No. 94-1680 (1976); *see also* Senate Rep. No. 94-1357 at 7 (1976) (potential wilderness “will automatically gain wilderness status” when nonconforming uses are eliminated).

⁹ *See, generally*, Hearing Before The Subcommittee on Parks and Recreation of the Committee on Interior and Insular Affairs, February 5 and 9, Mar. 2 (1976).

¹⁰ It is also important to recognize that because the designation of Drakes Estero as potential wilderness occurred **after** the reservation of use was issued to Johnson’s Oyster Company in 1972, that designation extinguished any potential for extending the reservation of use. This is because the possibility of an extension of the reservation of use was predicated on any extension being in compliance with the laws and policies in place at the time the reservation of use expired. It should also be noted that the reservation of use clearly grants a right to use that is in fact “terminable.”

¹¹ Letter to Secretary Kenneth Salazar from John Burton, William Bagley, and Paul McCloskey (August 11, 2011). Neither Mr. Bagley nor Mr. McCloskey participated in the legislative debate on the Point Reyes Wilderness Act. This letter proposes a completely new and different interpretation of the legislative intent behind creation of the Seashore and designation of Drakes Estero as “potential wilderness” by claiming that Congress intended that oyster operations could continue regardless of the potential wilderness designation.

¹² Statement of the Honorable John L. Burton, Democrat, 5th District, California, Before the Subcommittee on National Parks and Recreation of the House Interior Committee in H.R. 8002, September 9, 1976 (emphasis added).

¹³ *Id.*

Congressman Burton also testified that potential wilderness designation was critical to ensure that these areas would not be “destroyed by incursions of speedboats and motor-type boats.”¹⁴

In 2002, Congressman Burton also told the media that there was no intent for the oyster lease to continue. According to the Marin Independent Journal, Congressman Burton:

“recalled that he focused his attention on making sure that the dairy ranches were protected ‘in perpetuity.’ Burton said he doesn’t remember exactly why the oyster farm had a shorter lease.

The shorter lease, he said, meant the oyster farm could continue, but not forever. But, Burton said, ‘You can always revisit something.’”¹⁵

As a matter of law, a legislator’s post-hoc interpretations of legislation carry no special weight; only statements made contemporaneous with passage of legislation are to be considered. *Sullivan v. Finkelstein*, 496 U.S. 617, 632 (1990) (“views of a legislator concerning a statute already enacted are entitled to no more weight than the views of a judge concerning a statute not yet passed”).

There is no statutory language or legislative history that supports continuing private, commercial mariculture operations in Drakes Estero wilderness after expiration of the current reservation of use in 2012. To the contrary the law clearly requires the Park Service to adopt Alternative A and ensure that Drakes Estero receives full wilderness protection in 2012.

The National Park Service Management Policies also require the Park Service to adopt Alternative A and provide full wilderness protection to Drakes Estero in 2012. These management policies prioritize management of natural resources for maximum protection and restoration and require conservation and resource protection in the face of scientific uncertainty or conflicts between conservation and use.¹⁶ The Park Service is also **required to** manage wilderness, including potential wilderness, “for the preservation of the physical wilderness resources” and “planning for these areas must ensure that the wilderness character is likewise preserved.” This policy further states that potential wilderness shall “be managed as wilderness to the extent that existing nonconforming conditions allow” and the Park Service shall determine “the most appropriate means of removing the temporary, nonconforming conditions that preclude wilderness designation from potential wilderness.”¹⁷ The zoning for Drakes Estero under the

¹⁴ Oral Testimony of the Honorable John L. Burton, Democrat, 5th District, California, Before the Subcommittee on National Parks and Recreation of the House Interior Committee in H.R. 8002, September 9, 1976.

¹⁵ Marin Independent Journal, *All About Marin: Oyster lease fight splits local environmental Leaders* (July 14, 2009), available at http://www.marinij.com/ci_12837892?IADID=Search-www.marinij.com-www.marinij.com.

¹⁶ National Park Service Management Policies 2006 §§ 1.5. 4.1, 6.2.2.1, 6.3.1, 6.3.4.3, 6.3.5; Point Reyes General Management Plan (1980).

¹⁷ National Park Service Management Policies 2006 § 6.3.1. In evaluating the environmental impacts of proposals that may impact wilderness resources, the Park Service “will take into account (1) wilderness

Point Reyes General Management Plan also calls for the Estero's conversion to wilderness where no mechanized equipment or development is to occur.¹⁸

In 2004, the Department of the Interior Solicitor's Office advised the Park Service that it is "mandated by the Wilderness Act, the Point Reyes Wilderness Act and its Management Policies to convert potential wilderness, *i.e.*, the Johnson Oyster Company tract [now the Drakes Bay Oyster Company tract] and the adjoining Estero, to wilderness status as soon as the non-conforming use can be eliminated."¹⁹ Indeed, the Park Service is "required to actively seek to remove from potential wilderness the temporary, non-conforming conditions that preclude wilderness designation."²⁰ The DBOC operation is the only remaining obstacle to full wilderness protection.

As noted above, the FY 2010 Interior appropriations bill rider that prompted the current review allows, but does not require, a new special use permit for the oyster operation.²¹ By granting the Secretary the discretion to decide whether or not to authorize a new permit, the rider in no way allows the Secretary to disregard all otherwise applicable laws and policies. Although the rider includes the phrase "notwithstanding any other provision of law," such language typically serves to supersede only conflicting statutes. That is because there is a presumption against one statute repealing another statute by implication.

As recently reiterated by the Ninth Circuit Court of Appeals, it is a cardinal rule that repeals of law by implication are not favored:

"In *Tennessee Valley Authority v. Hill* the Supreme Court held that without express action of Congress appropriations for a multi-million dollar dam did not repeal the protection of an animal's "critical habitat" under the Endangered Species Act. In reaching this decision, the Court reiterated the " 'cardinal rule ... that repeals by implication are not favored.' " Rather, " '[t]he intention of the legislature to repeal must be clear and manifest,' " and "[i]n the absence of some affirmative showing of an intention to repeal, the *only* permissible justification for a repeal by implication is when the earlier and later statutes are irreconcilable". **This doctrine of disfavoring repeals by implication "applies with full vigor when ... the subsequent legislation is an appropriations measure."**²²

characteristics and values, including the primeval character and influence of the wilderness; (2) the preservation of natural conditions (including the lack of man-made noise); and (3) assurances that there will be outstanding opportunities for solitude, that the public will be provided with a primitive and unconfined type of recreational experience, and that wilderness will be preserved and used in an unimpaired condition." *Id.* § 6.3.4.3 (Wilderness Resource Management, Environmental Compliance).

¹⁸ Point Reyes General Management Plan (1980).

¹⁹ Memorandum Opinion from the Department of the Interior Office of the Solicitor to the Superintendent of Point Reyes National Seashore, February 26, 2004.

²⁰ *Id.* (citing 6.3.1 Wilderness Management, General Policy).

²¹ Public Law 111-88, Section 124.

²² *Firebaugh Canal Co. v. U.S. Dep't of Interior*, 203 F.3d 568, 575 (9th Cir. 2000) (emphasis added, internal citations omitted) (holding that the appropriations proviso in question did not provide an affirmative showing of an intention to repeal the drainage requirements at issue and did not conflict with those requirements because the proviso did not compel the Secretary to stop construction of the drainage

The Supreme Court has also made it clear that:

“when legislators vote on appropriations measures, they ‘are entitled to operate under the assumption that the funds will be devoted to purposes which are lawful and not for any purpose forbidden. Without such an assurance, every appropriations measure would be pregnant with prospects of altering substantive legislation, repealing by implication any prior statute which might prohibit the expenditure.’”²³

The language of the rider clearly does not expressly repeal the laws applicable to Drakes Estero or the Secretary’s exercise of discretion – these include the Wilderness Act, the Point Reyes Wilderness Act, the National Park Service Organic Act, the Point Reyes National Seashore authorizing legislation, the National Environmental Policy Act, and the Endangered Species Act – but instead merely grants the Secretary the authority to issue a new special use permit in the exercise of his discretion.

The language of the rider also does not irreconcilably conflict with the laws and policies applicable to the Park Service, the Seashore, or wilderness. To the contrary these are precisely the laws that the Secretary should be following to determine whether or not he can properly exercise the discretion granted to him in the rider. Indeed, failure to evaluate these laws would make any decision of the Secretary arbitrary and capricious and not in accordance with law, in violation of the Administrative Procedure Act.

As a result, the rider also does not repeal “by implication” any of the laws and policies that prohibit the issuance of a new special use permit to DBOC. Accordingly, the rider must be read in harmony with existing law to the maximum extent possible. As discussed above, this body of law overwhelmingly requires full wilderness protection for Drakes Estero in 2012 as provided for in Alternative A.

It is also important to recognize that despite language in the rider that seeks to prevent its use as a precedent for future changes to wilderness designations, as a practical matter issuance of a new special use permit for DBOC will do just that. Such a decision would clearly establish a highly destructive precedent that a single, commercial interest or an individual lawmaker can easily override and/or undermine longstanding wilderness designations and protections. Once this precedent is set, it cannot be undone and the Department of the Interior and the public will be forced to fight over and over again to retain wilderness protection our nation’s most precious lands.

Alternative A is the only alternative that complies with the Wilderness Act, the Point Reyes Wilderness Act and its legislative history, the Point Reyes National Park authorizing legislation,

project; instead the proviso merely placed a condition on the determination regarding the final point of drainage). A copy of this case is attached to these comments.

²³ *Firebaugh Canal*, 203 F.3d at 575 n.3 (quoting *Tennessee Valley Authority*, 437 U.S. 153, 190 (1978)).

and the management policies of the Park Service. None of the action alternatives comply with these longstanding laws and policies.²⁴

B. Alternative “A” is Clearly the Most Environmentally Sound Alternative and the Only Alternative That Will Likely Increase Resiliency to Climate Change

As clearly demonstrated in the Draft EIS, Alternative A is unquestionably the best alternative for the environment. Indeed, there can be no question that providing Drakes Estero with full wilderness protection in 2012 will ensure that the Estero receives the highest possible protection as quickly as possible.

As the Park Service has recognized, the practical effect of the Wilderness Act has been to **unambiguously place an additional layer of protection on wilderness areas** within the National Park System.²⁵ As a result, national park wilderness areas carry the highest resource protection status that Congress can grant to federal lands or waters.

By removing all stressors created by the commercial oyster operations from Drakes Estero, Alternative A will also likely increase the resiliency of Drakes Estero and the species that rely on it to climate change impacts. By allowing these stressors to continue and increase, none of the action alternatives will achieve this critical goal. As discussed in detail below, the impacts of climate change are happening now and are likely to be significant over the 10 year planning horizon of the Draft EIS. We cannot wait another decade to begin to implement climate change adaptation strategies.

The Park Service has explicitly recognized the importance of increasing resiliency to climate change in its Climate Change Response Strategy. Implementing “adaptation strategies that promote ecosystem resilience and enhance restoration, conservation, and preservation of park resources” is a key goal of the Park Services’ Climate Change Response Strategy.²⁶

That strategy also recognizes that:

Many best-management practices for conventional ecosystem stressors also reduce the tendency of these stressors to intensify climate change effects. Therefore, one approach

²⁴ Each of the action alternatives also fail to comply with the federal policy on aquaculture. This policy only supports aquaculture that is environmentally sound, fully consistent with applicable laws and Administration policy, and properly sited to minimize adverse impacts. U.S. Department of Commerce, Aquaculture Policy, available at http://aquaculture.noaa.gov/pdf/18_docaqpolicy.pdf. As the only designated marine wilderness area on the West Coast, Drakes Estero is not an appropriate site for mariculture activities. As demonstrated in the Draft EIS, each of the action alternatives would have long-term adverse environmental impacts on Drakes Estero that “would be clearly detectable and could appreciably affect individuals or groups of species, communities, or natural processes”. Moreover, as discussed below, DBOC has a long and consistent history of violating permitting requirements and permit conditions. Indeed, there has been *no time* during DBOCs ownership when it has been in full compliance with its permit conditions or permitting requirements. For all these reasons, it is clear that continuation of mariculture operations in Drakes Estero would not comply with the federal aquaculture policy.

²⁵ NPS 1999 Ref. Manual 41, p.8.

²⁶ *National Park Service Climate Change Response Strategy* (September 2010) at 14- 15.

to adaptation is to reduce the risk of adverse outcomes by increasing the resilience of systems and supporting the ability of natural systems and species to adapt to change.”²⁷

Accordingly, the strategy requires the Park Service to “incorporate climate change considerations and responses in all levels of NPS planning” and “**implement adaptation strategies that promote ecosystem resilience and enhance restoration, conservation, and preservation of park resources.**”²⁸

The U.S. Fish and Wildlife Service also recognizes the importance of enhancing ecosystem resiliency as a tool for adapting to climate change, and highlights the vital role that wilderness areas will play in achieving that goal:

“Wilderness will be a key part of our understanding of climate-mitigated changes. Large, unfragmented wilderness areas will support ecosystem resiliency and species adaptation, and be a source of valuable baseline data as the climate changes. . . . Strategies that will enhance ecological resilience and provide opportunities for fish, wildlife and plants to adapt to climate change include maintaining or restoring the ecological integrity of existing refuges and other protected areas, enhancing linkages and connectivity among protected areas, buffering core protected areas, such as wilderness, with conservation efforts on private working landscapes, identifying and protecting climate refugia, and ensuring adequate representation, size and redundancy of ecological communities in the collective conservation estate.”²⁹

By providing full wilderness protection immediately upon expiration of the current lease – as required by law and policy – Alternative A provides Drakes Estero with the highest possible environmental protection as quickly as possible, and likely increases the resiliency of Drakes Estero and the species that rely on it to climate change.

II. Each of the Three Action Alternatives Would Cause Long Term Adverse Environmental Impacts and Significant Impairment to Park Resources

As the Draft EIS makes clear, each of the action alternatives would cause long-term adverse environmental impacts on Drakes Estero that “would be clearly detectable and could appreciably affect individuals or groups of species, communities, or natural processes,³⁰ including to:

- **Wilderness** due to the readily apparent, widespread, impact on wilderness character from non-native shellfish cultivation; maintenance of human-made infrastructure (including 5 miles of racks); motorboat travel 8 hours per day for 6 days a week; and human-caused noise;

²⁷ *Id.* at 15.

²⁸ *Id.* at 14–15 (emphasis added).

²⁹ U.S. Fish and Wildlife Service, *Conserving the Future: Wildlife Refuges and the Next Generation*, October 2011 at 36-37.

³⁰ National Park Service, Draft Environmental Impact Statement Drakes Bay Oyster Company Special Use Permit (September 2011) (Draft EIS) at 120, 250, 252, Chapter 4.

- **Harbor seals** due to the potential for human disturbance and resulting displacement from multiple motor boat trips and bottom bag cultivation on sandbars and mudflats adjacent to harbor seal protection areas;
- **Shorebirds** due to flushing from motor boats which causes avoidance of normal foraging and resting; inability to access food in the five miles of inter-tidal area occupied by oyster bags; and impacts to the Black Brant sea goose which eats only eelgrass as it migrates from Alaska to Mexico;
- **Eelgrass** habitat due to boat propeller scaring; boat wake erosion; the invasive tunicate (*Didemnum vexillum*) that is attaching to and smothering eelgrass; and continued introductions of non-native species;
- **Wetlands** and wetland functions due to placement of bottom bags in wetland habitat;
- **Soundscapes** due to the use of heavy machinery and repeated use of motor boats;
- **Native fish** due to displacement of habitat and continued attraction of fish communities that would not naturally be found due to perpetuation of non-native habitats; and
- **Benthic fauna** due to non-native oysters competitively excluding native species; introduction of diseases; and introduction of other harmful non-native species.

The Marine Mammal Commission recently validated the science used by the National Park Service in the Draft EIS to evaluate impacts to harbor seals. That report, which was released to the public in late November, concludes that “the information examined during the course of this review is sufficient to conclude that, from time to time, mariculture activities in the estuary do disturb harbor seals. The Commission also believes that the data provide reasonable evidence of a correlation between mariculture activity and seal haulout use, but that evidence is not sufficient to conclude causation.”³¹

Hypothesis-driven natural science is about establishing correlation, on a scale of weak to strong. Causation is an extremely difficult phenomenon to capture for any scientific study. The Park Service does not have to meet such a strong burden of proof. The likelihood of impacts to harbor seals from DBOC is enough evidence to support discontinuation of oyster cultivation, based on Park Service policies and federal law. This is particularly true in light of Park Service laws and policies which require the Park Service to prioritize the “maximum protection” of wildlife.

Notably, the Marine Mammal Commission stressed that the Wilderness decision is “a matter of policy,” adding, “[s]cience, however, has a role in informing the Secretary about the potential consequences of his decision for resources within the estuary.”³²

³¹ Marine Mammal Commission, *Mariculture and Harbor Seals in Drakes Estero, California* (Nov. 22 2011) at 56.

³² *Id.* at i.

The Marine Mammal Commission Report is the latest and the strongest validation of the science used by the Park Service to evaluate impacts to harbor seals. After sorting through the scientific data and a host of conflicting claims made by DBOC, the Commission came to the simple conclusion that DBOC operations impact harbor seals in Drakes Estero.

Furthermore, the peer-reviewed science cited in the Draft EIS illustrates adverse impacts to harbor seals and other species, and supports the Park Service following the precautionary principle and putting an end to mariculture activities once and for all in Drakes Estero. If, as it should, the Draft EIS evaluates the impacts to harbor seals in light of the regional significance of Drakes Estero to the harbor seal population – the Estero is home to 20% of California’s mainland breeding populations – the adverse impacts to harbor seals from continuing oyster operations would likely be even more significant than indicated in the Draft EIS.

The Marine Mammal Commission goes to conclude that if the Secretary does decide to allow oyster operations to continue that the Park Service should be required to “to implement an adaptive management approach that, if done well, should address the various weaknesses and gaps in the available data.”³³ To be successful, an adaptive management approach would have to be well conceived, adequately supported, and responsibly implemented by all parties involved. It would certainly utilize additional Park Service resources and require full cooperation by DBOC.

In addition, as discussed in more detail below, information not considered in the Draft EIS makes clear that the impacts from any of the action alternatives would be even more harmful to the environment than outlined in the Draft EIS. The Final EIS must include this additional information.

III. The Draft EIS Understates the Adverse Impacts of the Action Alternatives

The Draft EIS clearly demonstrates that significant adverse impacts that will accrue from any of the action alternatives. However, it is also clear that the Draft EIS has understated these adverse impacts for at least the reasons discussed below. The Final EIS must address the issues identified below which will give further weight to the importance of selecting the no action alternative, Alternative A.

A. The Draft EIS Understates the Adverse Impacts of the Action Alternatives by Failing to Properly Evaluate Climate Change Impacts

The Draft EIS understates the adverse impacts of the action alternatives because it fails to consider the impacts of climate change on Drakes Estero and the species that utilize the Estero. The Draft EIS also understates the adverse impacts of the action alternatives by failing to evaluate the extent to which they would render Drakes Estero and the species that rely on the Estero less resilient to climate change.

The impacts of climate change must be evaluated in the EIS along with the extent to which the alternatives will increase or decrease the resiliency of the Estero and the rich array of wildlife

³³ *Id.* at iii.

that rely on the Estero.

1. The Impacts of Climate Change Are Likely to Be Significant Over the 10 Year Planning Horizon and Must be Evaluated in the EIS

The Draft EIS fails to address the impacts, including the cumulative impacts, of climate change because it summarily concludes³⁴ that “the effects of climate change on park resources over the 10-year planning horizon for this EIS are likely to be negligible.” Draft EIS at 30. This conclusion, however, is directly contradicted by findings in the Draft EIS, by peer-reviewed science demonstrating the ongoing and rapid effects of climate change on ocean and coastal resources; and by conclusions reached by federal agencies and the U.S. Supreme Court.

- (a) Recent peer reviewed science shows that climate change impacts are likely to be significant over the ten year planning horizon

Recent peer reviewed studies make clear that climate change induced impacts are already effecting marine species, will continue to effect marine species, and can produce significant changes to the marine environment over a 10 year timeline. Climate change induced impacts to ocean species include changes to both geographical range and seasonal phenology (timing of migration, flowering, spawning, and larval recruitment) at levels that far exceed the rate of such changes for land species. Climate change also facilitates the spread of highly invasive marine species.

For example, a 2011 study published in *Science*, concludes that average geographical range shifts for marine communities due to climate change over the past 50 years are from 1.4 to 28 km per decade—or 0.9 to 17.4 miles per decade.³⁵ Shifts in seasonal timing for marine species are advancing an average of 4.3 days per decade in the oceans.³⁶ Moreover, while terrestrial species typically have the option of moving to a higher altitude to track thermal conditions, depth changes have been reported for only a few marine organisms. “For species that cannot adjust their depth, range shifts may be limited by the availability of suitable habitat.”³⁷ This study also concludes that range shifts in the ocean are from 1.5 to 5 times faster than range shifts on land, likely due to the more homogeneous nature of surface water temperature changes in the ocean than on land, and shifts in the timing of spring temperatures were 30 to 40% faster in the ocean than on land (from 1960–2009).³⁸

This study goes on to conclude that:

³⁴ While the Draft EIS states that climate change impacts are discussed in Chapter 3 (Affected Environment) and Chapter 4 (Environmental Consequences), there is no discussion of climate change in the impacts analyses contained in Chapter 4. There are only two references to climate change in Chapter 3. See Draft EIS at 30.

³⁵ Michael T. Burrows, Schoeman D.S., Buckley L.B., et al, The Pace of Shifting Climate in Marine and Terrestrial Ecosystems. *Science*, Vol 334: 652-55 (Nov. 4, 2011). A copy of this study is attached to these comments.

³⁶ *Id.*

³⁷ *Id.*

³⁸ *Id.*

“The global distribution of the velocity and seasonal shift of climate change over the past 50 years can be used to generate predictions for comparison with observed biological changes. Despite slower ocean warming, the velocity of climate change and seasonal shift in the ocean are as high as on land and often deviate from simple expectations of poleward migration and earlier springs/late falls. Direct effects of climate warming are therefore likely to be as great in the oceans as on land at comparable latitudes and greater around the equator. Maps of the velocity of climate change and seasonal shift show the areas where the threat to biodiversity from organisms’ need to rapidly track thermal conditions by shifting distributions and retiming seasonal thermal events may be greatest; these areas may coincide with high biodiversity, especially in the oceans.”³⁹

A 2010 study published in *Global Ecology and Biogeography* concludes that:

“Although marine range shifts are likely to proceed more slowly than marine introductions [introduction of non-native species], the community-level effects could be as great, and in the same direction, as those of introduced species. Because it is well established that introduced species are a primary threat to global biodiversity, it follows that, just like introductions, range shifts have the potential to seriously affect biological systems. In addition, given that ranges shift faster in marine than terrestrial environments, marine communities might be affected faster than terrestrial ones as species shift with climate change.”⁴⁰

This is particularly troubling as “[i]ntroduced species are recognized as one of the main anthropogenic threats to biological systems (Sala *et al.*, 2000).”⁴¹

This study:

“identified 129 marine species that have shifted their ranges, as documented in 55 separate studies.” (Table 1, Appendix S5). These include 31 primary producers (phytoplankton, macroalgae and higher plants), 24 molluscs, 36 fishes, 15 crustaceans, 10 birds, 5 cnidarians, 4 sponges and 1 species each of protist, echinoderm, annelid and insect. Most species documented as shifting were coastal; open ocean species were underrepresented in range shift studies (although further analysis of large data sets, such as the Continuous Plankton Records, would be likely to yield additional oceanic species; Barnard *et al.*, 2004; Hays *et al.*, 2005). Of studies found in the database search, climate change was considered in the primary reference to be the cause of over 70% of the range

³⁹ *Id.*

⁴⁰ Cascade J. B. Sorte, S.L. Williams and J.T Carlton, *Marine range shifts and species introductions: comparative spread rates and community impacts*, *Global Ecology and Biogeography* (2010) 19, 303–316. The study defines range shifts “as any changes in the distributions of native species that are not directly human mediated.” The study also concludes that “[r]ange shifts of native species and introductions of non-native species are analogous in that both are fundamentally biological invasions, involving the movement of individuals from a donor community into a recipient community.” A copy of this study is attached to these comments.

⁴¹ *Id.*

shifts, and 75% of the shifts were in the poleward direction (Table 1). Marine range shifts occurred at an average rate of 19.0 km year . . . This rate is over an order of magnitude faster than terrestrial range shifts . . .

Range shifts occurred much faster in marine systems than terrestrial systems (see also Mieszkowska *et al.*, 2005). This result is congruous with the common assumption that marine populations are more open than terrestrial populations (Caley *et al.*, 1996). However, the majority of the species considered in our analysis disperse quite locally (e.g. many of the seaweeds; see Gaylord *et al.*, 2002, and Kinlan & Gaines, 2003), but they still spread more rapidly than the primarily mobile species shifting in terrestrial systems (Parmesan & Yohe, 2003).⁴²

A 2009 study published in *Fish and Fisheries*, projected a climate-change induced range shift for marine fish and invertebrates of “45–59 km per decade”—or 28 to 37 miles per decade. (Cheung *et al.* 2009).⁴³ This study looked at 1066 exploited marine fish (836 species) and invertebrate species (230 species) considered to be relatively abundant.

A 2004 study published in *Ecology* demonstrates that significant community-wide changes can occur over a ten year period from increased seawater temperatures:

”Our study used an 18-year sampling program in intertidal and subtidal habitats and before–after, control–impact analyses. We show that a 3.58C rise in seawater temperature, induced by the thermal outfall of a power-generating station, over 10 years along 2 km of rocky coastline in California resulted in significant community-wide changes in 150 species of algae and invertebrates relative to adjacent control areas experiencing natural temperatures. Contrary to predictions based on current biogeographic models, there was no trend toward warmer-water species with southern geographic affinities replacing colderwater species with northern affinities. Instead, the communities were greatly altered in apparently cascading responses to changes in abundance of several key taxa, particularly habitat-forming subtidal kelps and intertidal foliose red algae. Many temperature-sensitive algae decreased greatly in abundance, whereas many invertebrate grazers increased. The responses of these benthic communities to ocean warming were mostly unpredicted and strongly coupled to direct effects of temperature on key taxa and indirect effects operating through ecological interactions.”⁴⁴

⁴² *Id.*

⁴³ William W.L. Cheung, V.W.Y. Lam, J.L. Sarmiento, K. Kearney, R. Watson and D. Pauly, *Projecting global marine biodiversity impacts under climate change scenarios*, *Fish and Fisheries*, 10, 235–251. A copy of this study is attached to these comments.

⁴⁴ David R. Schiel, Steinbeck J.R., Foster M.S., Ten Years of Induced Ocean Warming Causes Comprehensive Changes in Marine Benthic Communities, *Ecology*, 85(7), 2004, pp. 1833–1839. A copy of this study is attached to these comments.

Each of these studies demonstrates the potential for very significant climate change induced impacts over the 10 year planning horizon for the EIS. As a result, the final EIS must examine the impact of climate change.

- (b) Findings in the Draft EIS show that climate change impacts are likely to be significant over the ten year planning horizon

The Draft EIS states that:

The wetlands within the project area, which are located within the coastal zone, are exposed to the effects of sea-level rise due to climatic changes. Based on the recent California Climate Change Center report (Heberger et al. 2009), and as described in the “Impact Topic: Floodplains” section of this chapter, the California coastal zone may experience an increase in mean sea level of approximately 3 to 4.5 feet by 2100. **At this rate, sea-level rise, on average, could reach approximately 5.9 inches within the next 10 years. Under such changes, much of the wetland area described above would be under water for the duration of the tidal cycle, effectively changing the character of the wetland and shifting the prevailing hydrologic regime inland.** In terms of land area, the potential effect of such changes is unknown; however, for most of the California coast, thousands of wetland acres are expected to experience dynamic changes in hydrology and ecosystem function over the time trajectory described above (Heberger et al. 2009).”

Draft EIS at 170 (emphasis added). If this prediction holds true, the climate change induced impacts to the Estero’s wetlands and the cumulative losses of other California coastal wetlands would also have a cascading effect on the species that utilize the Estero. We note, however, that sea level rise typically does not follow a straight linear pattern. However, the current rate of sea level rise in this region has been about 2mm/yr, which is a slightly higher than the average rate for the 20th century. The additive and magnifying effects of these impacts on the direct and indirect impacts of the action alternatives must be evaluated in the EIS.

The Draft EIS also recognizes that, in addition to contributing to climate change, the higher atmospheric concentration of CO₂ in the earth’s atmosphere is also likely playing a role in increasing acidification of the ocean:

“Recent data suggest that the California coast **is undergoing** sea-level rise from climate change (Heberger et al. 2009). In addition to changes in sea level, climatic warming has also been linked to changes in ocean circulation patterns and water chemistry. **Scientists have recently documented changes in ocean pH levels, indicating that ocean acidification is a process that is currently occurring and can be measured in coastal marine and estuarine habitats** (Kerr 2010; Feely et al. 2008). Ocean acidification (a condition in which seawater becomes more acidic) can have adverse effects on organisms that build shells or skeletons from calcium carbonate, such as marine bivalves (Kerr 2010). The more acidic conditions can cause reduced rates of calcification (effectively lowering shell-building potential), and eventually can begin to dissolve shell material (Feely et al. 2008; Kerr 2010).”

Draft EIS Ch. 3 at 176. Ocean acidification is a significant problem that likely will become more problematic during the 10 year planning horizon of the Draft EIS.

The Draft EIS also recognizes that the Seashore is currently experiencing significant erosion of low-lying coastal resources, including erosion near the mouth of Drakes Estero which has directly affected snowy plover nesting. “In recent years, erosion along the southern portion of Great Beach has diminished the upper beach area such that the entire beach can be washed by waves.” Draft EIS at 192. As a result, snowy plover nesting, which occurred along the entire Great Beach including near the mouth of Drakes Estero and Limantour Spit during the 1980’s, is now limited to only the northern part of the Great Beach. *Id.*

While erosion clearly occurs in the absence of climate change, increased erosion of low-lying coastal resources has been identified as a particularly significant climate change threat to the Seashore due to increased sea levels and associated increases in wave strength and exposure to high water for longer periods of time.⁴⁵ While sea level rise may not be a direct concern during the 10 year planning horizon, erosion clearly will remain a significant issue for the Seashore during that time period.

Climate change is expected to produce significantly increased erosion along low lying coastal areas due to increased sea level rise and storms:

“Climate change is likely to raise mean sea levels, which would lead to inundation of some low-lying areas and adversely affect coastal aquifers. However, some of the most serious impacts would result from the extreme sea levels associated with tides, winter storms, and other episodic events that would be superimposed upon the higher baseline sea level. Extreme high water levels (measured by any fixed threshold) will occur with increasing frequency (i.e., with shorter return period) as a result of higher mean sea level. Many California coastal areas are at risk from sea level extremes, especially in combination with winter storms (Flick 1998). During the 1997–1998 El Niño, very high seas and storm surge caused hundreds of millions of dollars in storm and flood damage in the San Francisco Bay area. Highways were flooded as six-foot waves splashed over waterfront bulkheads, and valuable coastal real estate was destroyed (Ryan et al. 2000). The frequency of high sea level extremes also may be increased if storms become more frequent or severe as a result of climate change. Increases in the duration of high storm-forced sea levels increases the likelihood that they will occur during high tides. The combination of severe winter storms with SLR and high tides would result in extreme sea levels that could expose the coast to severe flooding and erosion, damage to coastal structures and real estate, and salinity intrusion into delta areas and coastal aquifers.”⁴⁶

⁴⁵ Sarah O. Hameed, Baty J.H., Holzer K.A., Doer A.N., Climate Change Vulnerability Assessment: Point Reyes National Seashore (2011) at 36, available at http://www.sfnpa.org/climate/PORE_vulnerability_assessment (citing Cayan et al 2008).

⁴⁶ Cayan D.R, P.D. Bromirski, K. Hayhoe, M. Tyree, M.D. Dettinger, and R.E. Flick. 2008. Climate change projections of sea level extremes along the California coast. *Climatic Change* 87(Suppl 1): S57-S73, available at http://tenaya.ucsd.edu/~dettinge/cccc08_slr.pdf.

If the almost 6 inch increase in sea level rise predicted in the Draft EIS does occur in the next 10 years it could have a significant impact on increasing erosion of the Seashore's fragile low-lying coastal resources. Since erosion is already a significant issue in the Seashore, it is important to evaluate the additive and magnifying effects of climate change induced increased erosion to the stress placed on the Estero and the species that utilize the Estero under any of the action alternatives. Moreover, because erosion, whether climate change induced or not, is already occurring at a significant rate in the Seashore and is affecting habitat for at risk species, the cumulative impacts of erosion on habitat and species at risk should also be evaluated in the Draft EIS.

The limited discussions of climate change in the Draft EIS demonstrate the potential for very significant climate change induced impacts over the 10 year planning horizon for the EIS. As a result, the final EIS must examine the direct, indirect, and cumulative impact of climate change.

- (c) The federal government and the U.S. Supreme Court have concluded that climate impacts are happening now and that such impacts are significant

Numerous federal agencies, including the Park Service, have concluded that climate change impacts are happening now and that those impacts are significant. For example, the Park Service has concluded that: "The current science confirms the planet is warming and the effects are here and now."⁴⁷ The Park Service also acknowledges that climate change is already affecting the Nation's ocean and coastal parks:

"Climate change and variability **are affecting** the National Park Service's 84 ocean and coastal parks and over 12,000 miles of shoreline. More parks in the coastal zone will be vulnerable as sea levels rise. Additional coastal change effects include lowering water levels in the Great Lakes, changing storm patterns, increasing ocean acidity and melting permafrost. These processes and other coastal hazards are threatening parks' resources, infrastructure, and public recreational opportunities."⁴⁸

The U.S. Fish and Wildlife Service has similarly concluded that climate change is happening now and causing significant impacts:

"The Earth's climate is changing at an accelerating rate that has the potential to cause abrupt changes in ecosystems and increase the risk of species extinction. Climate change transcends the Service and the National Wildlife Refuge System and poses one of the largest conservation threats of the 21st century.

Climate change has very likely increased the size and number of wildfires, insect outbreaks, pathogens, disease outbreaks and tree mortality in the interior West, the Southwest and Alaska. In the aquatic environment, evidence is growing that higher water temperatures resulting from climate change are negatively impacting cold- and

⁴⁷ National Park Service, Climate Change Response Strategy (September 2010) at 1.

⁴⁸ National Park Service, Climate Change Response Program, Coastal Adaptation Brief (emphasis added), available at <http://www.nps.gov/climatechange/docs/CoastalAdaptationBrief.pdf>.

coolwater-adapted populations across the country. Rising sea levels have begun to affect fish and wildlife habitats, including those used by shorebirds and sea turtles that nest on coastal national wildlife refuges. Ocean acidification and coral bleaching represent major threats to marine life in more than 50 million acres of refuge waters and beyond. We acknowledge climate change is a crosscutting theme as we continue to work with the conservation community to develop and implement conservation strategies. We also recognize that a changing climate interacts with other ongoing environmental threats and stressors such as destructive fires, water shortages, invasive species and disease transmission.”⁴⁹

The U.S. Environmental Protection Agency has issued a formal finding that climate change poses serious adverse impacts to “both the public health and the public welfare of current and future generations.”⁵⁰ This endangerment finding defines “current generations” as “**a near-term time frame of approximately the next 10 to 20 years**” and “future generations” as “a longer-term time frame extending beyond that.”⁵¹ The endangerment finding further states:

“The Administrator reached her determination by considering both **observed** and projected effects of greenhouse gases in the atmosphere, their effect on climate, and the public health and welfare risks and impacts associated with such climate change.

* * *

Overall, the evidence on risk of adverse impacts for coastal areas provides clear support for a finding that greenhouse gas air pollution endangers the welfare of **current** and future generations. The most serious potential adverse effects are the increased risk of storm surge and flooding in coastal areas from sea level rise and more intense storms. Observed sea level rise is already increasing the risk of storm surge and flooding in some coastal areas. The conclusion in the assessment literature that there is the potential for hurricanes to become more intense (and even some evidence that Atlantic hurricanes have already become more intense) reinforces the judgment that coastal communities are now endangered by human-induced climate change, and may face substantially greater risk in the future.”⁵²

This endangerment finding also found both near-term and long term impacts of greenhouse gas emissions and in this context notes that the phrase “near term” generally “refers to the current time period from and the next few decades.”⁵³

In 2007, the U.S. Supreme Court recognized that climate change impacts are occurring now and have already caused significant harm. In *Massachusetts v. Environmental Protection Agency*,⁵⁴

⁴⁹ U.S. Fish and Wildlife Service, *Conserving the Future: Wildlife Refuges and the Next Generation*, October 2011 at 36-37.

⁵⁰ 74 Fed. Reg. 66495-66546 (Dec. 15, 2009) (finding that “six greenhouse gases taken in combination endanger both the public health and the public welfare of current and future generations.”)

⁵¹ *Id.* (emphasis added).

⁵² *Id.* (emphasis added).

⁵³ *Id.*

the Court acknowledged the reality of global climate change, the “enormity of the potential consequences associated with manmade climate change,” and the fact that climate change impacts have already occurred:

“The harms associated with climate change are serious and well recognized. Indeed, [the National Research Council report relied on as objective and independent by the Environmental Protection Agency] identifies a number of environmental changes that **have already inflicted significant harms**, including ‘the global retreat of mountain glaciers, reduction in snow-cover extent, the earlier spring melting of ice on rivers and lakes, [and] the accelerated rate of rise of sea levels during the 20th century relative to the past few thousand years’”⁵⁵

These findings demonstrate the potential for very significant climate change induced impacts over the 10 year planning horizon for the EIS. As a result, the final EIS must examine the impact of climate change.

2. Each of the Action Alternatives Is Likely to Make Drakes Estero and the Species that Rely on the Estero Less Resilient to Climate Change

As discussed above, the Park Service has explicitly recognized the importance of increasing resiliency to climate change in its Climate Change Response Strategy. Implementing “adaptation strategies that promote ecosystem resilience and enhance restoration, conservation, and preservation of park resources” is a key goal of the Park Services’ Climate Change Response Strategy.⁵⁶

That strategy also recognizes that:

Many best-management practices for conventional ecosystem stressors also reduce the tendency of these stressors to intensify climate change effects. Therefore, one approach to adaptation is to reduce the risk of adverse outcomes by increasing the resilience of systems and supporting the ability of natural systems and species to adapt to change.”⁵⁷

Accordingly, the strategy requires the Park Service to “**incorporate climate change considerations and responses in all levels of NPS planning**” and “**implement adaptation strategies that promote ecosystem resilience and enhance restoration, conservation, and preservation of park resources.**”⁵⁸

⁵⁴ The Supreme Court held that EPA has the authority to regulate greenhouse gas emissions from new motor vehicles if EPA forms a “judgment” that such emissions contribute to climate change.

⁵⁵ *Massachusetts v. Environmental Protection Agency*, 549 U.S. 497, 525, 591 (2007) (emphasis added) (quoting National Research Council Report, *Climate Change Science: An Analysis of Some Key Questions* (2001) at 16).

⁵⁶ *National Park Service Climate Change Response Strategy* (September 2010) at 14- 15.

⁵⁷ *Id.* at 15.

⁵⁸ *Id.* at 14–15 (emphasis added).

The U.S. Fish and Wildlife Service also recognizes the importance of enhancing ecosystem resiliency as a tool for adapting to climate change, and highlights the vital role that wilderness areas will play in achieving that goal:

“Wilderness will be a key part of our understanding of climate-mitigated changes. Large, unfragmented wilderness areas will support ecosystem resiliency and species adaptation, and be a source of valuable baseline data as the climate changes. . . . Strategies that will enhance ecological resilience and provide opportunities for fish, wildlife and plants to adapt to climate change include maintaining or restoring the ecological integrity of existing refuges and other protected areas, enhancing linkages and connectivity among protected areas, buffering core protected areas, such as wilderness, with conservation efforts on private working landscapes, identifying and protecting climate refugia, and ensuring adequate representation, size and redundancy of ecological communities in the collective conservation estate.”⁵⁹

By delaying implementation of full wilderness protection by at least 10 years and by continuing and/or increasing commercial oyster operations and the stress they impose on the Estero and the species that rely on it, each of the action alternatives will likely reduce the resiliency of Drakes Estero and the species that rely on it to climate change. The Draft EIS should evaluate this potentially significant adverse impact.

3. The Final EIS Must Evaluate the Cumulative Impacts of Climate Change

CEQ recently advised all Federal agencies that the magnifying and additive effects of global warming must be evaluated when examining the direct, indirect, and cumulative impacts of a proposed action:⁶⁰

“Climate change can increase the vulnerability of a resource, ecosystem, or human community, causing a proposed action to result in consequences that are more damaging than prior experience with environmental impacts analysis might indicate . . . [and] climate change can magnify the damaging strength of certain effects of a proposed action.”

* * *

“Agencies should consider the specific effects of the proposed action (including the proposed action’s effect on the vulnerability of affected ecosystems), the nexus of those effects with projected climate change effects on the same aspects

⁵⁹ U.S. Fish and Wildlife Service, *Conserving the Future: Wildlife Refuges and the Next Generation*, October 2011 at 36-37.

⁶⁰ The CEQ guidance makes it clear that analyzing the impacts of climate change is not restricted to evaluating whether a project could itself exacerbate global warming. The magnifying and additive effects of global warming also must be evaluated. Council on Environmental Quality, *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions* (February 18, 2010).

of our environment, and the implications for the environment to adapt to the projected effects of climate change.”⁶¹

The effects of global warming on Drakes Estero *and* the many species that rely on the Estero are potentially quite significant, and the EIS must carefully consider whether the impacts of climate change could exacerbate the impacts of issuing a new Special Use Permit to DBOC.⁶²

As a shallow tidal habitat, Drakes Estero — and the many species that rely on it — are on the front lines of sea level rise and other climate change induced impacts. As discussed at length above, sea level rise, increased storms, increased erosion, and temperature changes can cause significant adverse impacts to the Estero in a short period of time.

Climate change may cause even greater adverse impacts for the many migratory species that utilize Drakes Estero, and these impacts must be considered particularly in the context of the cumulative impact analysis. As recognized by the United Nations Environment Program and the Convention on the Conservation of Migratory Species of Wild Animals:

“As a group, migratory wildlife appears to be particularly vulnerable to the impacts of Climate Change because it uses multiple habitats and sites and use a wide range of resources at different points of their migratory cycle. They are also subject to a wide range of physical conditions and often rely on predictable weather patterns, such as winds and ocean currents, which might change under the influence of Climate Change. Finally, they face a wide range of biological influences, such as predators, competitors and diseases that could be affected by Climate Change. While some of this is also true for more sedentary species, migrants have the potential to be affected by Climate Change not only on their breeding and non-breeding grounds but also while on migration.”

“Apart from such direct impacts, factors that affect the migratory journey itself may affect other parts of a species’ life cycle. Changes in the timing of migration may affect breeding or hibernation, for example if a species has to take longer than normal on migration, due to changes in conditions *en route*, then it may arrive late, obtain poorer quality breeding resources (such as territory) and be less

⁶¹ Council on Environmental Quality, *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions* (February 18, 2010).

⁶² See *Center for Biological Diversity v. Nat’l Hwy Traffic Safety Administration*, 538 F.3d 1172, 1217 (9th Cir. 2008) (holding that analyzing the impacts of climate change is “precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct” and that NEPA requires analysis of the cumulative impact of greenhouse gas emissions when deciding not to set certain CAFE standards); *Center for Biological Diversity v. Kempthorne*, 588 F.3d 701, 711 (9th Cir. 2009) (NEPA analysis properly included analysis of the effects of climate change on polar bears, including “increased use of coastal environments, increased bear/human encounters, changes in polar bear body condition, decline in cub survival, and increased potential for stress and mortality, and energetic needs in hunting for seals, as well as traveling and swimming to denning sites and feeding areas.”).

productive as a result. If migration consumes more resources than normal, then individuals may have fewer resources to put into breeding”

* * *

“Key factors that are likely to affect all species, regardless of migratory tendency, are changes in prey distributions and changes or loss of habitat. Changes in prey may occur in terms of their distributions or in timing. The latter may occur through differential changes in developmental rates and can lead to a mismatch in timing between predators and prey (“phenological disjunction”). Changes in habitat quality (leading ultimately to habitat loss) may be important for migratory species that need a coherent network of sites to facilitate their migratory journeys. Habitat quality is especially important on staging or stop-over sites, as individuals need to consume large amounts of resource rapidly to continue their onward journey. Such high quality sites may [be] crucial to allow migrants to cross large ecological barriers, such as oceans or deserts.”⁶³

Migratory seals and birds are at particular risk from climate change. The climate change impacts on seal populations include changes in the distribution, abundance, and community composition of their food supply; impacts of warmer waters on reproduction; and “loss of undisturbed haul-out sites, due to sea-level rise, which are used for breeding, nurseries and resting.”⁶⁴ Migratory birds are affected by changes in water regime, mismatches with food supply, sea level rise, and habitat shifts, changes in prey range, and increased storm frequency.⁶⁵

Peer reviewed science also links climate change to the facilitation of the spread of invasive species. A 2002 study published in the Proceedings of the National Academy of Sciences concludes that “the greatest effects of climate change on biotic communities may be” to “facilitate a shift of dominance by nonnative species, accelerating the homogenization of the global biota.”⁶⁶ This study looked exclusively at invasive marine species:

“The spread of exotic species and climate change are among the most serious global environmental threats. Each independently causes considerable ecological damage, yet few data are available to assess whether changing climate might facilitate invasions by favoring introduced over native species. Here, we compare our long-term record of weekly sessile marine invertebrate recruitment with interannual variation in water temperature to assess the likely effect of climate change on the success and spread of introduced species. For the three most abundant introduced species of ascidian (sea

⁶³ UNEP/CMS Secretariat, Bonn, Germany, *Migratory Species and Climate Change: Impacts of a Changing Environment on Wild Animals* (2006) at 40-41 (available at http://www.cms.int/publications/pdf/CMS_CimateChange.pdf).

⁶⁴ *Id.* at 42.

⁶⁵ *Id.* at 42-43.

⁶⁶ John J. Stachowicz, Terwins J.R., Whitlatch R.B., Osman R.W., *Linking climate change and biological invasions: Ocean warming facilitates nonindigenous species invasions*, Proceedings of the National Academy of Sciences (PNAS) Vol. 99, No 24: 15497–15500 (November 26, 2002) available at www.pnas.org/cgi/doi/10.1073/pnas.242437499. A copy of this study is attached to these comments.

squirt), the timing of the initiation of recruitment was strongly negatively correlated with winter water temperature, indicating that invaders arrived earlier in the season in years with warmer winters. Total recruitment of introduced species during the following summer also was positively correlated with winter water temperature. In contrast, the magnitude of native ascidian recruitment was negatively correlated with winter temperature (more recruitment in colder years) and the timing of native recruitment was unaffected. In manipulative laboratory experiments, two introduced compound ascidians grew faster than a native species, but only at temperatures near the maximum observed in summer. These data suggest that the greatest effects of climate change on biotic communities may be due to changing maximum and minimum temperatures rather than annual means. By giving introduced species an earlier start, and increasing the magnitude of their growth and recruitment relative to natives, global warming may facilitate a shift to dominance by nonnative species, accelerating the homogenization of the global biota. These data suggest that the greatest effects of climate change on biotic communities may be due to changing maximum and minimum temperatures rather than annual means. By giving introduced species an earlier start, and increasing the magnitude of their growth and recruitment relative to natives, global warming may facilitate a shift to dominance by nonnative species, accelerating the homogenization of the global biota.”⁶⁷

As the Draft EIS makes clear, that the highly invasive and destructive tunicate (*Didemnum vexillum*) “has already been observed in association with DBOC’s offshore infrastructure.” Draft EIS at 279. This highly invasive sea squirt is already creating very real adverse impacts to the Estero and its critical eelgrass habitat. Climate change induced acceleration of the spread of this and other invasive species in the Estero could have devastating impacts to the Estero and the species that rely on it.

As discussed above, the Draft EIS also recognizes that sea level rise could create significant changes to wetland habitat and hydrology in the Estero and that significant erosion is already occurring in the Seashore, including near the mouth of Drakes Estero. Acceleration of erosion due to climate change could have significant adverse impacts to the Estero and the species that rely on it.

The Final EIS should carefully examine the additive and magnifying effects of climate change induced impacts on the stress to the Estero and species that rely on the Estero created by the action alternatives. These climate change induced impacts include:

- Climate change induced sea level rise;
- Climate change induced losses of regional and local eelgrass and wetland habitat, including but not limited to impacts for species at particular risk of such losses like the Black Brant;
- Climate change induced spread of invasive species;
- Climate change induced impacts to geographic range and phenology for species that utilize the Estero, including for migratory species;

⁶⁷ *Id.*

- Climate change induced increased erosion; and
- Climate change induced changes in water temperature and chemistry (ocean acidification).

Please see section III.C. below for an additional discussion of issues that must be included in a meaningful cumulative impacts analysis for this project.

B. The Draft EIS Understates the Adverse Impacts of the Action Alternatives by Failing to Assess the Significant Risk and Impacts of Non-Compliance with Permitting Requirements and Permit Conditions

The Draft EIS improperly ignores DBOC’s abysmal record of complying with permit conditions and requirements when analyzing impacts of continued operations. There has been *no time* during DBOC’s ownership when it has been in compliance with its permit conditions or permitting requirements. DBOC’s predecessor, the Johnson Oyster Company, had a similarly long history of environmentally destructive violations. These violations have caused – and continue to cause – significant harm to the environment. There is nothing to suggest that these problems will be rectified if DBOC is granted a new special use permit.

This history of constant non-compliance must be evaluated and considered in assessing the potential impacts of any of the action alternatives. Ignoring this long history produces an inaccurate and unrealistically positive assessment of adverse impacts. In reality, the adverse impacts of continuing operations under any of the three action alternatives are likely to be far worse than identified in the Draft EIS.

Since its purchase of Johnson’s Oyster Company, DBOC has operated in knowing violation of California Coastal Commission, National Park Service, and U.S. Army Corps of Engineers permit conditions and requirements. DBOC was most recently cited for violations of its California Coastal Commission permit in September 2011. For example:

- December 2004: DBOC purchases the remaining seven years of the existing mariculture lease, knowing that it will expire in 2012, and assumes responsibility for complying with the cease and desist order issued to the prior owner, the Johnson Cease and Desist Order No CCC-03-CD-12.⁶⁸
- May 2005: The California Coastal Commission advises DBOC that it still is not in compliance with the Johnson Cease and Desist Order and that it must obtain a coastal development permit.⁶⁹
- March 2006: The California Coastal Commission again advises DBOC that it is not in compliance with the Johnson Cease and Desist Order, that it is in violation of the Coastal

⁶⁸ Consent Cease and Desist Order CCC-03-CD-12; November 29, 2007 Staff Report and Findings for Cease and Desist Order; Draft EIS Ch. 1 at 19.

⁶⁹ May 11, 2005 Letter from the California Coastal Commission to DBOC.

Act, and that it must obtain a coastal development permit for additional new and unpermitted development.⁷⁰

- June 2007: The California Coastal Commission again advises DBOC that it is not in compliance with the Johnson Cease and Desist Order and that it is also may require a coastal development permit and permits from the U.S. Army Corps of Engineers and the Park Service.⁷¹
- October 2007: The California Coastal Commission advises DBOC that it intends to commence Cease and Desist Order Proceedings due to DBOC's continued unpermitted offshore and onshore operations and facilities.⁷²
- December 2007: The California Coastal Commission issues a Consent Cease and Desist Order to DBOC regarding unpermitted activities carried out in connection with DBOC oyster operations in Drakes Estero. The related November 2007 staff report states that DBOC is not in compliance with the Johnson Cease and Desist Order and that DBOC has constructed additional development and engaged in unauthorized uses without the required permits (e.g., refrigerated storage units installed, second leach field constructed, parking area paved, boat transit outside established channels).⁷³
- February 2009: DBOC begins harvesting Manila clams without a Park Service permit and 10 months prior to review and approval by the California Fish and Game Commission. DBOC declines to provide information on cultivation to assist the Park Service in evaluating this expansion of species cultivation. Manila clam cultivation has never been approved by the Park Service.⁷⁴
- September 2009: The California Coastal Commission advises DBOC of numerous ongoing violations of the 2007 Cease and Desist and Consent Order, including provisions developed to protect the Estero from invasive species, to impose appropriate restrictions on new construction, and to protect water quality.⁷⁵
- December 2009: The California Coastal Commission fines DBOC \$61,500 for numerous ongoing violations of five separate provisions of the Cease and Desist and Consent Order issued to DBOC in 2007 and advises DBOC that the fines will continue to accrue until DBOC comes into compliance. Violations include operating in areas of Drakes Estero that are off limits during the crucial harbor seal pupping and rearing season.⁷⁶

⁷⁰ March 21, 2006 Letter from the California Coastal Commission to DBOC.

⁷¹ June 5, 2007 Letter from the California Coastal Commission to DBOC.

⁷² October 3, 2007 Letter from the California Coastal Commission to DBOC.

⁷³ Consent Cease and Desist Order CCC-07-CD-11, December 12, 2007; November 29, 2007 Staff Report and Findings for Cease and Desist Order; Draft EIS, Ch. 1 at 19.

⁷⁴ Draft EIS, Ch. 1 at 20.

⁷⁵ September 16, 2009 Letter to DBOC from the Coastal Commission.

⁷⁶ December 7, 2009 Letter to DBOC from the Coastal Commission.

- November 2010: The U.S. Army Corps of Engineers advises the Park Service that the DBOC aquaculture activities require a Corps permit but that the Corps does not have either a current permit application or permit on file.⁷⁷
- September 2011: The California Coastal Commission advises DBOC to “aggressively and comprehensively” address significant amounts of plastic and other marine debris from DBOC operations that pose “a hazard to the marine environment and natural resources of Drakes Estero” and address “adverse impacts from the boats and DBOC personnel on the sensitive harbor seals and their habitat during the breeding and pupping season.”⁷⁸

Individually, each of DBOC’s violations of permit conditions and permitting requirements is cause for concern. Cumulatively, they significantly undermine the ability of the Park Service, the California Coastal Commission, and the U.S. Army Corps of Engineers to administer the activities of DBOC in accordance with federal and state law and policy and in a manner that will protect and enhance the Seashore’s natural resources.

Issuance of a new Special Use Permit to DBOC includes a significant risk that DBOC will continue to violate conditions attached to the new permit and other applicable regulations designed to protect the environment. While the Draft EIS summarizes DBOC’s history of non-compliance it goes on to assume that DBOC will comply fully with all permitting conditions and requirements if a new Special Use Permit is issued pursuant to any of the three action alternatives. Given the long history of non-compliance with permit conditions and terms, the assumption that the conditions attached to a new Special Use Permit and other permitting conditions would be strictly complied with presents a false picture of the impacts of issuing a new Special Use Permit.

The EIS must consider the impacts of the likely failure of DBOC to comply with permit conditions and requirements on the ecological health of Drakes Estero and the many sensitive species that utilize the Estero. These impacts extend to all the impacts evaluated in the Draft EIS, including the impacts to Park Service operations.

C. The Draft EIS Understates the Adverse Impacts of the Action Alternatives by Failing to Assess the Cumulative Impacts of Past Actions and Climate Change

Understanding historic losses and impacts, both locally and regionally, is essential for accurately determining the cumulative impact of additional losses. Without this understanding, an impacts evaluation will take place in a vacuum and cannot meaningfully evaluate the cumulative impacts – i.e., the additive and magnifying effects of the action alternatives on existing impacts. To prevent this from happening, the NEPA regulations explicitly require an assessment of “past actions” as part of the cumulative impacts analysis.

⁷⁷ Draft EIS, Ch. 2 at 130, Table 2-6; November 16, 2010 Letter to the Park Service from the Corps of Engineers.

⁷⁸ September 29, 2011 Letter to DBOC from the Coastal Commission.

While the Draft EIS evaluates the cumulative impacts of certain reasonably foreseeable future actions, it does not conduct any type of meaningful examination of the incremental impact of any of the alternatives when added to “other past ... actions.” Indeed, the past actions identified in the Draft EIS cumulative impacts analysis do not even recognize the adverse impacts caused by either DBOC or Johnson Oyster Company operations over the life of the existing special use permit. As a result, the Draft EIS cannot meaningfully evaluate the additive and magnifying effects of the action alternatives on those impacts. In the absence of an analysis of past actions, the Draft EIS almost certainly is **understating** the cumulative impacts of the action alternatives.

Cumulative impacts are defined as:

“the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”⁷⁹

An analysis of these cumulative impacts ensures that the agency will not “treat the identified environmental concern in a vacuum.”⁸⁰

“Cumulative effects occur through the accumulation of effects over varying periods of time. For this reason, an understanding of the historical context of effects is critical to assessing the direct, indirect, and cumulative effects of proposed actions.” This assists in evaluating the significance of the effects relative to historical degradation.⁸¹

“Generally, agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions.”⁸² However, the cumulative effects analysis also must analyze the effects of individual past actions if that information “is necessary to describe the cumulative effect of all past actions combined.”⁸³

Under no circumstances, however, can the cumulative effects analysis ignore the impacts of past actions. To the contrary, understanding the historical context of impacts is an essential component of the cumulative impacts analysis:

“The analyst’s primary goal is to determine the magnitude and significance of the environmental consequences of the proposed action in the context of the cumulative effects of other past, present, and future actions. Much of the environment has been greatly modified by human activities, and most resources, ecosystems, and human

⁷⁹ 40 C.F.R. § 1508.7.

⁸⁰ *Grand Canyon Trust v. FAA*, 290 F.3d 339, 346 (D.C. Cir. 2002).

⁸¹ Council on Environmental Quality, *Considering Cumulative Effects Under the National Environmental Policy Act* (January 1997) at 31.

⁸² CEQ Memorandum to Heads of Federal Agencies, *Guidance on the Consideration of Past Actions in Cumulative Effects Analysis* (June 24, 2005).

⁸³ *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 376-77 (1989).

communities are in the process of change as a result of cumulative effects. The analyst must determine the realistic potential for the resource to sustain itself in the future and whether the proposed action will affect this potential; therefore, the baseline condition of the resource of concern should include a description of how conditions have changed over time and how they are likely to change in the future without the proposed action. The potential for a resource, ecosystem, and human community to sustain its structure and function depends on its resistance to stress and its ability to recover (i.e., its resilience). Determining whether the condition of the resource is within the range of natural variability or is vulnerable to rapid degradation is frequently problematic. Ideally, the analyst can identify a threshold beyond which change in the resource condition is detrimental. More often, the analyst must review the history of that resource and evaluate whether past degradation may place it near such a threshold. For example, the loss of 50% of historical wetlands within a watershed may indicate that further losses would significantly affect the capacity of the watershed to withstand floods. It is often the case that when a large proportion of a resource is lost, the system nears collapse as the surviving portion is pressed into service to perform more functions.”⁸⁴

The Final EIS must provide “quantified or detailed information” on the cumulative impacts (and on the direct and indirect impacts), so that the courts and the public can be assured that the agency has taken the mandated hard look at the environmental consequences of the Project.⁸⁵ If information that is essential for making a reasoned choice among alternatives is not available, the Park Service must obtain that information unless the costs of doing so would be “exorbitant.”⁸⁶ The Park Service should utilize the best available, peer reviewed science in evaluating the impacts of issuing a new Special Use Permit.

The cumulative impact analysis must include an analysis of:

- The long term impacts of past DBOC and Johnson Oyster Company operations in Drakes Estero. Understanding the changes wrought by past oyster activities is critical for understanding (i) the full extent of the same and/or similar activities and (ii) the additive or magnifying effect of the same and/or similar activities that would occur under any of the action alternatives.
- The historic local and regional losses of wetlands and eelgrass, the significant degradation of regional coastal estuaries, and the significant infestation of invasive species in nearby and regional estuaries. Understanding these impacts is critical for understanding the true import of the habitat degradation that would occur under any of the action alternatives. For example, knowing that Drakes Estero is one of only a few sites still supporting significant eelgrass beds in California, the loss or degradation of eelgrass in Drakes Estero should lead to a finding that loss of eelgrass in Drakes Estero would have a greater cumulative impact than if eelgrass was abundant throughout the

⁸⁴ Council on Environmental Quality, *Considering Cumulative Effects Under the National Environmental Policy Act* (January 1997) at 41.

⁸⁵ *Neighbors of Cuddy Mountain v. U. S. Forest Service*, 137 F.3d 1372, 1379 (9th Cir. 1998); *Natural Resources Defense Council v. Callaway*, 524 F.2d 79, 87 (2d Cir. 1975).

⁸⁶ 40 C.F.R. § 1502.22.

California coast. To properly reach this conclusion it is important to know the historic losses to eelgrass both locally and regionally.

- The impacts of climate change. As discussed in detail above, the cumulative impact analysis must examine the impacts of climate change and evaluate whether the action alternatives would add to and magnify the climate change induced stresses on the Estero and the species that rely on it. The Final EIS should also evaluate whether the action alternatives would increase or decrease resiliency to climate change.
- The extent to which any of the action alternatives could undermine or otherwise affect completed, ongoing, or reasonably foreseeable future restoration projects in the Seashore and the resulting net impacts to the environment.

Without this information, the Park Service is almost certainly understating the cumulative impacts of the action alternatives.

D. The Draft EIS Understates the Adverse Impacts of the Action Alternatives by Failing to Fully Assess the Impacts to Resources of Concern

The Draft EIS fails to fully assess the impacts to a number of resources of concern. The Final EIS should evaluate at least the additional information discussed below in its analysis of direct, indirect, and cumulative impacts to ensure the most robust analysis of impacts possible. Without addressing this information, the Park Service is almost certainly understating the impacts of the action alternatives.

The Final EIS should also assess the relative degree of impacts (i.e., major, moderate, minor) in full recognition of the special importance of Drakes Estero and the knowledge that the two greatest threats to biodiversity are habitat loss and invasive species.⁸⁷

1. Invasive Species

While the Draft EIS acknowledges significant problems caused by invasive species (*see* Draft EIS at 279, 281) it does not adequately acknowledge the threat that continued oyster operations, both alone and in combination with the facilitation of the spread of invasive species from climate change, will lead to a significant proliferation and further introduction of invasive species in Drakes Estero. It also does not acknowledge the potential for a catastrophic infestation of invasive species and the impacts that would have on the Estero and the species that rely on it.

Invasive species and habitat destruction are the top two causes of the decline of global biodiversity.⁸⁸ The impacts from invasive species in Drakes Estero are already highly noticeable. It is of the utmost importance and urgency to stop the further spread of invasive species in the Estero and to begin efforts to remove the existing infestations as quickly as possible, as required by Park Service policies.

⁸⁷ Higgins et al. 1999, *Conservation Biology* 13: 303-313.

⁸⁸ *Id.*

Invasive marine fouling organisms that presently exist in the Estero include the noxious tunicate, viruses, algae, the Manila clam, and the Pacific oyster. Of particular concern is the spread of *Didemnum vexillum* from mariculture gear and shellfish to eelgrass. The Draft EIS establishes very clearly that both this invasive non-native tunicate as well as epiphytic algae are attaching onto the leaves of eelgrass. This disrupts photosynthesis, prevents black brant sea geese from eating their only food source, and potentially disrupts the entire marine food chain, given how critical eelgrass beds are for so many different native species.

Under any of the action alternatives, the oyster operations that are facilitating these impacts will continue and expand for at least 10 more years. During this time, *Didemnum vexillum*, Manila clams and other potentially invasive species will increase causing significant – and possibly irreversibly disastrous – impacts to the Estero.

The Final EIS must examine the full potential for continued oyster operations to speed and expand the introduction of invasive species, the role of climate change in facilitating this expansion, the extent of invasive species invasions locally and regionally, the extreme difficulty associated with attempting to eradicate invasive species, and the potential for catastrophic invasions. The Final EIS must also measure the degree of impacts with a full understanding of the disastrous consequences of a broad scale infestation of invasive species in the Estero. The Final EIS should establish a stand-alone analysis of invasive species and classify the adverse impacts from the action alternatives on invasive species (including under the “Benthic Fauna” and “Eelgrass” sections) to “major adverse”.

2. Eelgrass

While the Draft EIS recognizes the importance of eelgrass in Drakes Estero (*see* Draft EIS at 170-173), it does not adequately acknowledge the significance of the adverse impacts to this vital resource. It also does not analyze the significance of the impacts in light of the scarcity of eelgrass in California or in light of the heightened scrutiny eelgrass should receive given its status as a special aquatic site under the Clean Water Act.

Eelgrass beds provide critically important habitat and food source for many species, including spawning and larval fish, over-wintering black brant, and invertebrates; and are recognized as special aquatic sites under the Clean Water Act. Draft EIS at 170-173. Critically, eelgrass also forms the base of the food web in Drakes Estero. Draft EIS at 170. Importantly, Drakes Estero is also “one of only a few sites with significant eelgrass beds in California and these beds represent approximately 7% of all eelgrass in California, and at 750 acres, comprise one of the most expansive contiguous eelgrass sites in the state.”⁸⁹

The adverse impacts to eelgrass are significant. They include: extensive scarring by motorboat propellers, erosion and displacement from turbidity (caused by the boats) and by racks and bags, smothering by the invasive tunicate and epiphytic algae, and the cascading impacts that would have on the organisms that depend upon eelgrass, including federally threatened steelhead and their prey species.

⁸⁹ California Coastal Commission Letter to DBOC dated June 5, 2007. While various acreage figures for eelgrass have been presented, the scarcity of eelgrass in California has not been challenged in any way.

The Final EIS must fully analyze at least the following:

- The fact that the current damage to eelgrass is likely understated and does not account for the areal extent of the losses. The Draft EIS refers to 8.5 linear miles of boat scars, 5 linear miles of racks, and 84 acres of oyster bags. However, it does not evaluate the areal extent of these impacts nor does it account for the fact that oyster bag locations are not static. The areal extent of these losses should be calculated.
- The extent to which continued oyster operations will facilitate the spread of *Didemnum* and algae to eelgrass and the cumulative impact of climate change on that facilitation.
- The significant likelihood that eelgrass beds decrease as oyster production increases.
- The historic losses of eelgrass in Drakes Estero, and the scarcity of eelgrass resources in California.

Under any of the action alternatives, the oyster operations that are facilitating these impacts will continue and expand for at least 10 more years. Given the vital importance of this eelgrass resource, the Final EIS must give special scrutiny to the analysis of adverse impacts to eelgrass in Drakes Estero. Those impacts also must be evaluated in light of both the significant importance of the resource and the relative scarcity of the resource in California. The impacts also must be considered in light of the significant potential for increased spread of invasive species and algae on the eelgrass resource. The Final ES should reclassify the adverse impacts on eelgrass from the action alternatives to "*major* adverse".

3. Wetlands

California has already lost 91% of its historic wetlands — more than any other state.⁹⁰ In this context, every acre of wetland lost must be deemed to be a major impact. The extensive impacts to wetlands (including impacts to *at least* 84 acres of mudflats) under any of the action alternatives certainly qualify as major adverse impacts.

Moreover, the true extent of adverse impacts to special aquatic sites under the Clean Water Act⁹¹ includes impacts to wetlands, mudflats, eelgrass, and sanctuaries or refuges (defined as “areas designed under State and Federal laws . . . to be managed principal for the preservation and use of fish and wildlife resources.”⁹² Special aquatic sites “are generally recognized as significantly influencing or positively contributing to the general overall environmental health or vitality of the entire ecosystem of a region.”⁹³

⁹⁰ U.S. Fish and wildlife Service, Wetland Status and Trends in the Conterminous United States Mid-1970’s to Mid-1980’s; & Conservation, A Hypertext Book by Dr. Peter J. Byant (UC Irvine School of Biological Sciences), available at [http://darwin.bio.uci.edu/~sustain/bio65/lec18/b65lec18.htm#California Wetlands](http://darwin.bio.uci.edu/~sustain/bio65/lec18/b65lec18.htm#California%20Wetlands).

⁹¹ 40 C.F.R. § 230.3; 40 C.F.R.Part 230, Subpart E.

⁹² 40 C.F.R. § 230.40.

⁹³ 40 C.F.R. § 230.3(q-1).

The Final EIS should quantify the full extent of adverse impacts to all special aquatic sites (in addition to identifying impacts specifically to eelgrass and wetlands) to provide a full picture of the extent of harm to this vital class of resources. The Final EIS also must more carefully evaluate the impacts to wetlands of continued onshore activities under the action alternatives, and evaluate the potential for additional significant climate change induced impacts that could alter the character of existing wetlands and shift the prevailing hydrologic regime as described in the Draft EIS at 170.

The Final EIS should classify the adverse impacts of the action alternatives to wetlands and all special aquatic sites as “*major* adverse.”

4. Birds

While the Draft EIS discusses numerous and significant impacts to birds from each of the action alternatives, it appears to understate the severity of those adverse impacts. These impacts include: decrease in diversity from sensitivity to noise; sound confusion leading to vulnerability to predators and altering of normal behavior; flushing by motorboats; destruction of the eelgrass beds; placement of oyster bags displacing intertidal feeding habitat; and the consequent avoidance and deprivation of rest and foraging habitat as well as reduced fitness and increased fatigue. The volume of these impacts and the citations that support the analysis is sufficient to designate impacts from the commercial, industrial oyster operation to birds as being long-term *major* adverse.

In addition, the Draft EIS omits policy considerations and specific species information that indicate major adverse impacts for certain species (Brant and Pelicans), all species in certain areas (waters, intertidal area, and shores of Schooner Bay), and many species at certain times (Spring migration, staging, feeding and resting). Each of the action alternatives would allow oyster operations to be conducted during the spring migration, leading to potentially major adverse impacts during this critical period.

Furthermore, the Draft EIS does not fully acknowledge the importance to NPS of regional planning to protect species at risk. Failure to protect Drakes Estero for 10 years adds to long term cumulative major adverse impacts on water and shorebird species in the Pacific Coast region. The Draft EIS also omits discussion of the impact of plastic marine debris from ongoing oyster operations on birds. Plastic debris can create major adverse impacts to numerous bird species. The Draft EIS also appears to understate the level of motorboat trips from the action alternatives in its analysis of bird impacts.

The Final EIS must analyze these impacts, and account for the impacts in the context of the critical importance of Drakes Estero to bird species. The Final EIS should classify adverse impacts to birds from the action alternatives as “*major* adverse.”

5. Marine Debris

The Draft EIS does not adequately assess the impacts from the plastic generated by DBOC’s operations. The California Coastal Commission recently reprimanded DBOC for the thousands

of pieces of plastic it has dumped into coastal waters in violation of its permits and Cease and Desist Order.⁹⁴

Adverse impacts to marine animals from plastic marine debris are well documented.⁹⁵ Despite the concrete evidence of the widespread dissemination of harmful plastic material, the Draft EIS mentions the word “plastic” only three times, each time in very brief association with water quality. Impacts from DBOC plastic debris are not analyzed at all in connection with adverse impacts to birds, harbor seals, eelgrass, wetlands, or even wilderness.

The Final EIS should fully analyze the adverse impacts to all resources of concern from plastic debris, and the potential for such impacts continuing and/or increasing under the action alternatives.

6. NPS Operations

In light of DBOC’s continuous history of non-compliance with its permit conditions and permitting requirements, it would appear that more than one staff position would be required to oversee and ensure full compliance with the permit terms and requirements associated with any of the action alternatives. Moreover, it is unclear why it would take approximately 1-2 FTE to monitor and enforce closure periods under Alternative A, but only one staff person to oversee the ongoing operations under the three action alternatives. *See* Draft EIS at iix.

The Final EIS should reevaluate the impacts of the action alternatives on NPS Operations in light of DBOC’s continuous history of non-compliance with its permit conditions and permitting requirements, and the extent of staff time and park resources that will be needed to ensure full compliance. In addition, the Final EIS should reevaluate the impacts of the NPS Operations in light of the Marine Mammal Commission’s strong recommendation that the Park Service should adopt an adaptive management approach and undertake long term monitoring of impacts to harbor seals if it issues a new special use permit for continued oyster operations.

IV. Formal Consultation Is Required for ESA Listed Species and Critical Habitat That May Be Affected by the Action Alternatives and Those Consultations Should Carefully Reassess the Conclusions in the Draft EIS

The Draft EIS properly concludes that the Park Service must complete its consultation on ESA listed species and critical habitat before releasing the Final EIS. Draft EIS at 138, 314. As the Park Service knows, its obligations under the ESA are separate and distinct from its obligations

⁹⁴ September 29, 2011 Letter to DBOC from the Coastal Commission.

⁹⁵ Numerous government and marine organization reports with many peer-reviewed references, which document impacts to marine animals, include:

http://calost.org/pdf/science-initiatives/marine%20debris/Plastic%20Report_10-4-11.pdf

<http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=34124>

http://www.unep.org/regionalseas/marinelitter/.../plastic_ocean_report.pdf

<http://marinedebris.noaa.gov/projects/pdfs/Microplastics.pdf>

http://calost.org/pdf/science-initiatives/marine%20debris/Hightlights_Plastic%20Debris%20Report_FINAL.doc.pdf

under NEPA – and both must be complied with.

Since the Draft EIS concludes that each of the action alternatives will impact a number of listed species and critical habitat, the Park Service will have to complete formal ESA consultation with the Fish and Wildlife Service and/or NOAA before it could authorize any of the action alternatives. Formal consultation is required where the required biological assessment, the federal agency, or the Secretary concludes that the action is likely to adversely affect one or more listed species and/or designated critical habitat areas.⁹⁶

In connection with these numerous formal consultations, NWF urges the Park Service and the Fish and Wildlife Service and /or NOAA to carefully reconsider the Draft EIS Special Status Species analyses, particularly the analyses that suggest that the action alternatives would cause a change in only a relatively small proportion of designated critical habitat.

For example, in 2007, the California Coastal Commission advised DBOC that “[a]s much as 96% of DBOC’s oyster racks are located in the Estero’s eelgrass beds and the eelgrass beds in these areas appear to have been significantly affected by the oyster racks, with approximately eight acres of eelgrass directly lost due to shading of the oyster racks, and an additional 50 acres potentially suffering secondary impacts from propeller cuts.”⁹⁷ These 58 acres account for 7.7% of the Estero’s 750 acres of eelgrass. This damage is already significant (not minor as suggested in the Draft EIS) and does not account for the full extent of propeller damage or the damage to eelgrass being caused by the invasive tunicate (*Didemnum*) which is now attaching to, and damaging, the eelgrass in Drakes Estero.

Continued and increased operations for at least 10 more years, in combination with potential climate change induced facilitation of the spread of invasive species and changes to the Estero’s hydrology, will certainly increase this damage and the impacts to this critical habitat and the species that rely on it.

In addition, the Park Service should reassess the potential for adverse impacts to listed species not already addressed in the Draft EIS, including the potential for adverse impacts from the ingestion of plastic marine debris generated by DBOC.⁹⁸

It will be essential to complete a full and careful assessment of the impacts to all listed species and designated critical habitat that may be impacted if the Park Service is considering recommending adoption of any of the action alternatives.

⁹⁶ 16 U.S.C. §1536(a)(2); 50 CFR 402.12(k)(1), 402.14(a).

⁹⁷ California Coastal Commission Letter to DBOC, dated June 5, 2007 (Exhibit 11 to DBOC CCC-07-DC-11).

⁹⁸ See, Arthur, C., J. Baker and H. Bamford (eds). 2009. Proceedings of the International Research Workshop on the Occurrence, Effects and Fate of Microplastic Marine Debris. Sept 9-11, 2008. NOAA Technical Memorandum NOS-OR&R-30, and, Plastic Debris in the California Marine Ecosystem: A Summary of Current Research, Solution Strategies and Data Gaps. 2011. C. Stevenson, University of Southern California Sea Grant. Synthetic Report. California Ocean Science Trust, Oakland, CA.

Conclusion

Law, policy, and best available science call for full Wilderness Protection for Drakes Estero in 2012. The issuance of a new 10-year special use permit under any of the three action alternatives would roll back wilderness protection to benefit a single business at the expense of the public trust and the ecological heart of Point Reyes National Seashore. It is time to return Drakes Estero all Americans as the West Coast's only marine wilderness. The National Wildlife Federation urges the Park Service to select Alternative A.

Thank you for the opportunity to provide these comments. Please do not hesitate to me at 415-762-8264 or sametm@nwf.org if I can provide any additional information.

Sincerely,



Melissa Samet
Senior Water Resources Counsel

Attachments

Geoduck Clams
ARCADIA POINT SEAFOOD
On Totten Inlet, Puget Sound

December 9, 2011

Point Reyes National Seashore
 ATTN: DBOC SUP DEIS
 1 Bear Valley Road
 Point Reyes Station, CA 94956

Re: Drake Bay Oyster Company Special Use Permit DEIS

Dear Sir/Madam:

Thank you for this opportunity to comment on the Drakes Bay Oyster Company (DBOC) Special Use Permit Draft Environmental Impact Statement (DEIS).

Science and Policy Making

As a person trained in research methods (University of Washington, 1983) who spent a career using science as a touchstone for solid policy-making in government, I am compelled to share my dismay at the continued and misplaced credibility the DEIS gives to the work of the National Park Services' "scientists". Proposing and analyzing alternative courses of action for consideration by policy makers based on flawed science (misused, selectively interpreted, incomplete, purposefully ignored or undisclosed, etc.) is beyond reason.

Although the science-of-an-issue is only one of the factors considered by a good policy maker, she or he must be able to rely on that science being unbiased, complete, and correctly analyzed and interpreted. Sources such as the "Frost Report" and the National Academy of Sciences make clear that this is not the case with respect to the DBOC DEIS. In the absence of a thorough vetting of the environmental benefits of oyster aquaculture and its unique ecosystem services, how can it be argued that the DEIS presents a balanced analysis?

The Pacific Coast Shellfish Growers Association (PCSGA) is providing comments on the DEIS. I fully support their comments and analysis of the flaws of the DEIS and urge policy makers to require a revised and more balanced EIS. (See comment letters from Plauché & Stock and Confluence Environmental on behalf of PCSGA, and from Margaret P. Barrette, Executive Director of PCSGA.)

Good Faith Dealings

In April 2008, the National Park Service (NPS) and DBOC signed a "Statement of Principles Regarding NEPA Evaluation for Special Use Permit for Drakes Bay Oyster Company" (Appendix C, DEIS). The parties subsequently "agreed to apply the statement of principles to this EIS to the extent that it is applicable" (Chapter 1, pg 48, DEIS). The principles repeatedly affirm that the parties will deal with each other (e.g., meet, confer, consult) "in good faith".

Steve & Vicki Wilson
240 SE Arcadia Pt Rd
Shelton, WA 98584

Phone: 360-426-4367
Fax: 360-432-9610
Cert #: WA-1359-SS

RECEIVED
 2011 DEC 12 PM 2:07
 POINT REYES NS
 DEC 09 2011

It appears that the NPS failed miserably in following through on that intent. To demonstrate, consider two statements from the principles, keeping in mind that these principles extend to the EIS process:

- "...NPS agrees to consider in good faith any additional information [science, technical and other information] DBOC believes is appropriate for consideration..." (Appendix C, Statement of Principles, excerpt from bullet 2) (Information in brackets added based on context of bullet 2)
- "NPS agrees to consult with DBOC in good faith in the design of any further scientific or technical studies to assist in NEPA evaluation of the project." (Appendix C, Statement of Principles, bullet 8)

Given the problems with NPS' scientific integrity that were carried through into the DEIS, one has to wonder where the good faith occurred and to what degree NPS actually considered the science, technical and other information considered appropriate by DBOC.

Equally troubling is the following statement in the DEIS:

- "The NPS fully considered DBOC's interests in developing the range of alternatives and impact topics that area addressed in this EIS." (Chapter 1, pg 22).

Any of the proposed alternatives in the DEIS will put DBOC out of business; it is a bit of stretch to imagine the "good faith" behind this statement – perhaps "considered and discarded" would be more accurate.

In light of the above, I fully support the "Collaborative Management Alternative" proposed by DBOC and urge its inclusion and recommendation in the final EIS. It is the policy alternative that best balances all environmental, economic, and cultural elements.

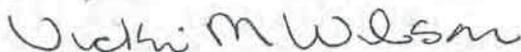
As a shellfish grower in a rural county of Washington State, I can attest to the fact that companies like DBOC play a critical role in their community – jobs, community infrastructure support, clean water, marine habitat, food, education. These roles should not be taken lightly, nor should they be blithely dismissed by assuming other companies can fill the void if DBOC is closed.

A false dichotomy often raises its head in these situations – jobs and economy versus environment. Choose one or the other, but not both. Fortunately, in this situation you can have both. You have an environmentally sustainable industry (with temporary environmental impacts offset by long-term ecosystem services), providing jobs and contributing to the economic and food security of a region.

I urge you to:

- 1. Require a revised, more balanced EIS that addresses the concerns raised in the comment letters from PCSGA.**
- 2. Consider the Collaborative Management Alternative offered by DBOC.**

Sincerely,



Vicki M. Wilson, Ph.D.
Co-owner Arcadia Point Seafood

**Steve & Vicki Wilson
240 SE Arcadia Pt Rd
Shelton, WA 98584**

**Phone: 360-426-4367
Fax: 360-432-9610
Cert #: WA-1359-SS**