

# APPENDIX A

## Relevant Correspondence



National Park Service  
U.S. Department of the Interior

**Station Camp – Middle Village Park**  
Washington



**United States Department of the Interior**  
**NATIONAL PARK SERVICE**  
Lewis and Clark National Historical Park  
92343 Fort Clatsop Road  
Astoria, Oregon 97103

December 7, 2009

Dr. Allyson Brooks  
Washington State  
Department of Archeology and Historic Preservation  
1063 S. Capitol Way, Suite 106  
Olympia, WA 98501

**Re: Initiation of Section 106 consultation for the development of a unit of the National Park System at Station Camp-Middle Village**

Dear Dr. Brooks:

The National Park Service (NPS) would like to initiate consultation with the Washington State Historic Preservation Office (SHPO) for the proposed development of the Station Camp - Middle Village site, a unit of Lewis and Clark National Historical Park. The proposed park site is located in the vicinity of the existing wayside park in Pacific County, Washington (T09N R10W Sections 21, 22), on the north side of the Columbia River and US Highway 101 (MP 1.85-2.3), west of the Astoria Megler Bridge, and east of Fort Columbia State Park. This site was designated by Congress as a unit of the National Park Service in November, 2004.

The NPS and its partners intend to begin an Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA), Section 106 consultation, and a Biological Assessment (BA) in December, 2009, to assess the impacts of developing this park unit.

Recent archeological investigations have revealed the significance of the Chinookan Middle Village that once occupied the location. These investigations documented the interaction between the Euro-American fur traders and the powerful Chinook people who controlled trade at the mouth of the Columbia River in the late 18<sup>th</sup> and early 19<sup>th</sup> centuries. Additional known periods of significance for the property include Lewis and Clark's Station Camp (1805-1806) and the fishing and cannery town of McGowan (late 19<sup>th</sup> and early 20<sup>th</sup> century). As a whole, the project site opens a window on the first contact period in the Columbia Pacific area and the early development of the river's mouth. It is that knowledge that we wish to share with visitors to the area.

Our most important responsibilities are to protect the irreplaceable cultural resources, objects, and sacred items at the site and to minimize impacts to the natural and human environment.

Modification proposals to US Highway 101 would be minor only to improve vehicular access in the vicinity of the parking lot. We do not intent to cause any disturbance to the Columbia River shoreline.

A core project team comprised of Tribal, State and Federal agencies will be developing a proposed action for this site. The purpose is to provide visitor experiences at this NPS unit site, improve visitor access to the site, provide interpretation of the site's historical significance, and create a direct connection to adjacent Fort Columbia State Park. Identified needs for this proposal include protection and preservation of the site's archaeological discoveries, improvement of a site that is already being used informally by visitors, management and restoration of a deteriorating landscape, and unification of two adjacent park facilities.

To date, the National Park Service has been working in partnership with the Chinook Nation, the Washington State Historical Society (WSHS), Washington State Parks and Recreation Commission, Washington State Department of Transportation, and the Garvin-McGowan family that owns land adjacent to the property, and others to develop this site. These partners will continue to play key roles as we move forward.

As the lead federal agency for the project, the National Park Service would like to initiate consultation with the Washington SHPO, pursuant to Section 106 of the National Historic Preservation Act [36 CFR 800.2(c)(4)].

We request that you review the attached Area of Potential Effects and either concur or suggest modifications to it. We also cordially invite you or your representative(s) to attend an agency and tribal scoping meeting on Thursday, December 17, 2009 at 2:00 p.m. at the theater at Fort Columbia State Park.

We would also like to invite you to advise us in the development of a study plan for a cultural resources inventory. This inventory is intended to ensure that the project site is adequately protected and that sensitive sites are identified. The study plan will be developed in January with any Tribal, local, state, or federal partners who wish to participate. The park will coordinate with parties on dates and meeting.

Thank you for taking the time to consider these requests. If you have any questions, please contact me (503-861-4401).

Sincerely,



David Szymanski  
Superintendent



# United States Department of the Interior

NATIONAL PARK SERVICE  
Lewis and Clark National Historical Park  
92343 Fort Clatsop Road  
Astoria, Oregon 97103

IN REPLY REFER TO:

Date December 3, 2009

The Honorable David Burnett  
Chehalis Confederated Tribes  
420 Howanut Road, P.O. Box 536  
Oakville, WA 98568

**Re: Development of a National Park Unit at Station Camp – Middle Village  
Environmental Assessment**

Dear Chairman Burnett:

The National Park Service (NPS) would like to initiate government-to-government consultation with the Chehalis Confederated Tribes for the development of a unit of the National Park System along the lower Columbia River in Pacific County, Washington. The National Park Service, in cooperation with its partners, intends to begin an Environmental Assessment (EA) in December, 2009, to assess the impacts of the development of this park unit. In coordination with this undertaking, we are initiating the Section 106 process.

The proposed park site is located at the Chinook Middle Village (*qi'qayaqilxam*) on the north side of the Columbia River, west of the Astoria Megler Bridge landing at Point Ellice, and east of Fort Columbia State Park. This site was designated by Congress as a unit of the National Park System in November, 2004.

Recent archeological investigations have revealed the global significance of the Chinookan Middle Village that once occupied the location. These investigations documented the interaction between the Euro-American fur traders and the powerful Chinook people who controlled the trade at the mouth of the Columbia River in the late 18<sup>th</sup> and early 19<sup>th</sup> centuries. Additional periods of significance for the property include Lewis and Clark's Station Camp (1805-1806) and the fishing and cannery town of McGowan, WA (late 19<sup>th</sup> and early 20<sup>th</sup> century). As a whole, the project site opens a window on the first contact period in the Columbia Pacific area, and has the potential to increase dramatically our knowledge of both the Chinook people and those who explored and settled the banks of the Columbia River. It is that knowledge that we wish to share with visitors to the area.

Our most important responsibility is to protect the irreplaceable resources, objects, and sacred items at the site. The location is sacred to the Chinook and other First Americans. We believe that the current use of the site as a vacant, weedy field often visited by recreationists for inappropriate reasons is unbecoming a site of this significance.

As the lead federal agency for the project, the National Park Service would like to initiate consultation with the Chehalis Confederated Tribes, pursuant to Section 106 of the National Historic Preservation Act [36 CFR 800.2(c)(4)]. We seek any information the Chehalis Confederated Tribes has on historic resources within or near the vicinity of the project.

Ray Gardner, Chair of the Chinook Nation, has challenged us to move beyond government-to-government consultation to government-to-government collaboration. We intend to use his challenge as a guiding principle during this project.

To date, the National Park Service is working in partnership with the Chinook Nation, the Washington State Historical Society (WSHS), Washington State Parks, the Garvin-McGowan family that owns land adjacent to the property, and many others to develop this site. These partners will continue to play key roles as we move forward.

We would very much appreciate the opportunity to meet with you and other appropriate representatives of the Chehalis Confederated Tribes in order to commence government-to-government consultation on the development of a national park unit at Station Camp – Middle Village. The goal of the consultation is to identify any concerns early in the environmental review process and reach mutually agreeable decisions while taking into account the interests of Tribal, State and Federal governments.

We cordially invite you or your representative(s) to attend a tribal and agency scoping meeting on Thursday, December 17, 2009 at 2:00 p.m. at the theater at Fort Columbia State Park. We would also like to invite you to participate in the development of a study plan for a cultural resources inventory. This inventory is intended to ensure that the project site is adequately protected and that sensitive sites are identified. The study plan will be developed in January with any Tribal, State, or Federal partners who wish to participate. Deborah Wood from our staff will provide additional information on dates and meeting times as these are set.

Thank you for taking the time to consider these requests. Our tribal liaison, Deborah S. Wood will contact your office in the coming weeks to inquire about scheduling a meeting to discuss these matters further. Deborah is intimately familiar with the project site and its resources. If you have any questions, please contact me (503-861-4401) or Deborah (503-861-4442).

Sincerely,

A handwritten signature in black ink that reads "David M. Szymanski". The signature is written in a cursive, slightly slanted style.

David Szymanski  
Superintendent



# United States Department of the Interior

NATIONAL PARK SERVICE  
Lewis and Clark National Historical Park  
92343 Fort Clatsop Road  
Astoria, Oregon 97103

IN REPLY REFER TO:

Date December 3, 2009

The Honorable Ray Gardner  
Chinook Nation  
PO Box 368  
Bay Center, WA 98527

**Re: Development of a National Park Unit at Station Camp – Middle Village  
Environmental Assessment**

Dear Chairman Gardner:

The National Park Service (NPS) would like to initiate government-to-government consultation with the Chinook Nation for the development of a unit of the National Park System along the lower Columbia River in Pacific County, Washington. The National Park Service, in cooperation with its partners, intends to begin an Environmental Assessment (EA) in December, 2009, to assess the impacts of the development of this park unit. In coordination with this undertaking, we are initiating the Section 106 process.

The proposed park site is located at the Chinook Middle Village (*qi'qayaqilxam*) on the north side of the Columbia River, west of the Astoria Megler Bridge landing at Point Ellice, and east of Fort Columbia State Park. This site was designated by Congress as a unit of the National Park System in November, 2004.

Recent archeological investigations have revealed the global significance of the Chinookan Middle Village that once occupied the location. These investigations documented the interaction between the Euro-American fur traders and the powerful Chinook people who controlled the trade at the mouth of the Columbia River in the late 18<sup>th</sup> and early 19<sup>th</sup> centuries. Additional periods of significance for the property include Lewis and Clark's Station Camp (1805-1806) and the fishing and cannery town of McGowan, WA (late 19<sup>th</sup> and early 20<sup>th</sup> century). As a whole, the project site opens a window on the first contact period in the Columbia Pacific area, and has the potential to increase dramatically our knowledge of both the Chinook people and those who explored and settled the banks of the Columbia River. It is that knowledge that we wish to share with visitors to the area.

Our most important responsibility is to protect the irreplaceable resources, objects, and sacred items at the site. The location is sacred to the Chinook and other First Americans. We believe that the current use of the site as a vacant, weedy field often visited by recreationists for inappropriate reasons is unbecoming a site of this significance.

As the lead federal agency for the project, the National Park Service would like to initiate consultation with the Chinook Nation, pursuant to Section 106 of the National Historic Preservation Act [36 CFR 800.2(c)(4)]. We seek any information the Chinook Nation has on historic resources within or near the vicinity of the project.

As Chair of the Chinook Nation, you challenged us to move beyond government-to-government consultation to government-to-government collaboration. We intend to use this challenge as a guiding principle during this project.

To date, the National Park Service is working in partnership with the Chinook Nation, the Washington State Historical Society (WSHS), Washington State Parks, the Garvin-McGowan family that owns land adjacent to the property, and many others to develop this site. These partners will continue to play key roles as we move forward.

We would very much appreciate the opportunity to meet with you and other appropriate representatives of the Chinook Nation in order to commence government-to-government consultation on the development of a national park unit at Station Camp – Middle Village. The goal of the consultation is to identify any concerns early in the environmental review process and reach mutually agreeable decisions while taking into account the interests of Tribal, State and Federal governments.

We cordially invite you or your representative(s) to attend a tribal and agency scoping meeting on Thursday, December 17, 2009 at 2:00 p.m. at the theater at Fort Columbia State Park. We would also like to invite you to participate in the development of a study plan for a cultural resources inventory. This inventory is intended to ensure that the project site is adequately protected and that sensitive sites are identified. The study plan will be developed in January with any Tribal, state, or federal partners who wish to participate. Deborah Wood from our staff will provide additional information on dates and meeting times as these are set.

Thank you for taking the time to consider these requests. Our tribal liaison, Deborah S. Wood will contact your office in the coming weeks to inquire about scheduling a meeting to discuss these matters further. Deborah is intimately familiar with the project site and its resources. If you have any questions, please contact me (503-861-4401) or Deborah (503-861-4442).

Sincerely,

A handwritten signature in black ink that reads "David M. Szymanski". The signature is written in a cursive style with a large initial "D" and "M".

David Szymanski  
Superintendent



# United States Department of the Interior

NATIONAL PARK SERVICE  
Lewis and Clark National Historical Park  
92343 Fort Clatsop Road  
Astoria, Oregon 97103

IN REPLY REFER TO:

Date December 3, 2009

The Honorable William Iyall  
Cowlitz Indian Tribe  
1055 9th Avenue Suite B  
Longview, WA 98632

## **Re: Development of a National Park Unit at Station Camp – Middle Village Environmental Assessment**

Dear Chairman Iyall:

The National Park Service (NPS) would like to initiate government-to-government consultation with the Cowlitz Indian Tribe for the development of a unit of the National Park System along the lower Columbia River in Pacific County, Washington. The National Park Service, in cooperation with its partners, intends to begin an Environmental Assessment (EA) in December, 2009, to assess the impacts of the development of this park unit. In coordination with this undertaking, we are initiating the Section 106 process.

The proposed park site is located at the Chinook Middle Village (*qí'qayaqilxam*) on the north side of the Columbia River, west of the Astoria Megler Bridge landing at Point Ellice, and east of Fort Columbia State Park. This site was designated by Congress as a unit of the National Park System in November, 2004.

Recent archeological investigations have revealed the global significance of the Chinookan Middle Village that once occupied the location. These investigations documented the interaction between the Euro-American fur traders and the powerful Chinook people who controlled the trade at the mouth of the Columbia River in the late 18<sup>th</sup> and early 19<sup>th</sup> centuries. Additional periods of significance for the property include Lewis and Clark's Station Camp (1805-1806) and the fishing and cannery town of McGowan, WA (late 19<sup>th</sup> and early 20<sup>th</sup> century). As a whole, the project site opens a window on the first contact period in the Columbia Pacific area, and has the potential to increase dramatically our knowledge of both the Chinook people and those who explored and settled the banks of the Columbia River. It is that knowledge that we wish to share with visitors to the area.

Our most important responsibility is to protect the irreplaceable resources, objects, and sacred items at the site. The location is sacred to the Chinook and other First Americans. We believe that the current use of the site as a vacant, weedy field often visited by recreationists for inappropriate reasons is unbecoming a site of this significance.

As the lead federal agency for the project, the National Park Service would like to initiate consultation with the Cowlitz Indian Tribe, pursuant to Section 106 of the National Historic Preservation Act [36 CFR 800.2(c)(4)]. We seek any information the Cowlitz Indian Tribe has on historic resources within or near the vicinity of the project.

Ray Gardner, Chair of the Chinook Nation, has challenged us to move beyond government-to-government consultation to government-to-government collaboration. We intend to use his challenge as a guiding principle during this project.

To date, the National Park Service is working in partnership with the Chinook Nation, the Washington State Historical Society (WSHS), Washington State Parks, the Garvin-McGowan family that owns land adjacent to the property, and many others to develop this site. These partners will continue to play key roles as we move forward.

We would very much appreciate the opportunity to meet with you and other appropriate representatives of the Cowlitz Indian Tribe in order to commence government-to-government consultation on the development of a national park unit at Station Camp – Middle Village. The goal of the consultation is to identify any concerns early in the environmental review process and reach mutually agreeable decisions while taking into account the interests of Tribal, State and Federal governments.

We cordially invite you or your representative(s) to attend a tribal and agency scoping meeting on Thursday, December 17, 2009 at 2:00 p.m. at the theater at Fort Columbia State Park. We would also like to invite you to participate in the development of a study plan for a cultural resources inventory. This inventory is intended to ensure that the project site is adequately protected and that sensitive sites are identified. The study plan will be developed in January with any Tribal, State, or Federal partners who wish to participate. Deborah Wood from our staff will provide additional information on dates and meeting times as these are set.

Thank you for taking the time to consider these requests. Our tribal liaison, Deborah S. Wood will contact your office in the coming weeks to inquire about scheduling a meeting to discuss these matters further. Deborah is intimately familiar with the project site and its resources. If you have any questions, please contact me (503-861-4401) or Deborah (503-861-4442).

Sincerely,



David Szymanski  
Superintendent



# United States Department of the Interior

NATIONAL PARK SERVICE  
Lewis and Clark National Historical Park  
92343 Fort Clatsop Road  
Astoria, Oregon 97103

IN REPLY REFER TO:

Date December 3, 2009

The Honorable Cheryle A. Kennedy  
Confederated Tribes of the Grand Ronde  
9615 Grand Ronde Road  
Grand Ronde, OR 97347-0038

**Re: Development of a National Park Unit at Station Camp – Middle Village  
Environmental Assessment**

Dear Chairwoman Kennedy:

The National Park Service (NPS) would like to initiate government-to-government consultation with the Confederated Tribes of the Grand Ronde for the development of a unit of the National Park System along the lower Columbia River in Pacific County, Washington. The National Park Service, in cooperation with its partners, intends to begin an Environmental Assessment (EA) in December, 2009, to assess the impacts of the development of this park unit. In coordination with this undertaking, we are initiating the Section 106 process.

The proposed park site is located at the Chinook Middle Village (*qí'qayaqilxam*) on the north side of the Columbia River, west of the Astoria Megler Bridge landing at Point Ellice, and east of Fort Columbia State Park. This site was designated by Congress as a unit of the National Park System in November, 2004.

Recent archeological investigations have revealed the global significance of the Chinookan Middle Village that once occupied the location. These investigations documented the interaction between the Euro-American fur traders and the powerful Chinook people who controlled the trade at the mouth of the Columbia River in the late 18<sup>th</sup> and early 19<sup>th</sup> centuries. Additional periods of significance for the property include Lewis and Clark's Station Camp (1805-1806) and the fishing and cannery town of McGowan, WA (late 19<sup>th</sup> and early 20<sup>th</sup> century). As a whole, the project site opens a window on the first contact period in the Columbia Pacific area, and has the potential to increase dramatically our knowledge of both the Chinook people and those who explored and settled the banks of the Columbia River. It is that knowledge that we wish to share with visitors to the area.

Our most important responsibility is to protect the irreplaceable resources, objects, and sacred items at the site. The location is sacred to the Chinook and other First Americans. We believe that the current use of the site as a vacant, weedy field often visited by recreationists for inappropriate reasons is unbecoming a site of this significance.

As the lead federal agency for the project, the National Park Service would like to initiate consultation with the Confederated Tribes of the Grand Ronde, pursuant to Section 106 of the National Historic Preservation Act [36 CFR 800.2(c)(4)]. We seek any information the Confederated Tribes of the Grand Ronde has on historic resources within or near the vicinity of the project.

Ray Gardner, Chair of the Chinook Nation, has challenged us to move beyond government-to-government consultation to government-to-government collaboration. We intend to use his challenge as a guiding principle during this project.

To date, the National Park Service is working in partnership with the Chinook Nation, the Washington State Historical Society (WSHS), Washington State Parks, the Garvin-McGowan family that owns land adjacent to the property, and many others to develop this site. These partners will continue to play key roles as we move forward.

We would very much appreciate the opportunity to meet with you and other appropriate representatives of the Confederated Tribes of the Grand Ronde in order to commence government-to-government consultation on the development of a national park unit at Station Camp – Middle Village. The goal of the consultation is to identify any concerns early in the environmental review process and reach mutually agreeable decisions while taking into account the interests of Tribal, State and Federal governments.

We cordially invite you or your representative(s) to attend a tribal and agency scoping meeting on Thursday, December 17, 2009 at 2:00 p.m. at the theater at Fort Columbia State Park. We would also like to invite you to participate in the development of a study plan for a cultural resources inventory. This inventory is intended to ensure that the project site is adequately protected and that sensitive sites are identified. The study plan will be developed in January with any Tribal, State, or Federal partners who wish to participate. Deborah Wood from our staff will provide additional information on dates and meeting times as these are set.

Thank you for taking the time to consider these requests. Our tribal liaison, Deborah S. Wood will contact your office in the coming weeks to inquire about scheduling a meeting to discuss these matters further. Deborah is intimately familiar with the project site and its resources. If you have any questions, please contact me (503-861-4401) or Deborah (503-861-4442).

Sincerely,

A handwritten signature in black ink that reads "David M. Szymanski". The signature is written in a cursive style with a large initial "D" and "M".

David Szymanski  
Superintendent



# United States Department of the Interior

NATIONAL PARK SERVICE  
Lewis and Clark National Historical Park  
92343 Fort Clatsop Road  
Astoria, Oregon 97103

IN REPLY REFER TO:

Date December 3, 2009

The Honorable Fawn Sharp  
Quinault Indian Nation  
PO Box 189  
Taholah, WA 98587

**Re: Development of a National Park Unit at Station Camp – Middle Village  
Environmental Assessment**

Dear President Sharp:

The National Park Service (NPS) would like to initiate government-to-government consultation with the Quinault Indian Nation for the development of a unit of the National Park System along the lower Columbia River in Pacific County, Washington. The National Park Service, in cooperation with its partners, intends to begin an Environmental Assessment (EA) in December, 2009, to assess the impacts of the development of this park unit. In coordination with this undertaking, we are initiating the Section 106 process.

The proposed park site is located at the Chinook Middle Village (*qí'qayaqilxam*) on the north side of the Columbia River, west of the Astoria Megler Bridge landing at Point Ellice, and east of Fort Columbia State Park. This site was designated by Congress as a unit of the National Park System in November, 2004.

Recent archeological investigations have revealed the global significance of the Chinookan Middle Village that once occupied the location. These investigations documented the interaction between the Euro-American fur traders and the powerful Chinook people who controlled the trade at the mouth of the Columbia River in the late 18<sup>th</sup> and early 19<sup>th</sup> centuries. Additional periods of significance for the property include Lewis and Clark's Station Camp (1805-1806) and the fishing and cannery town of McGowan, WA (late 19<sup>th</sup> and early 20<sup>th</sup> century). As a whole, the project site opens a window on the first contact period in the Columbia Pacific area, and has the potential to increase dramatically our knowledge of both the Chinook people and those who explored and settled the banks of the Columbia River. It is that knowledge that we wish to share with visitors to the area.

Our most important responsibility is to protect the irreplaceable resources, objects, and sacred items at the site. The location is sacred to the Chinook and other First Americans. We believe that the current use of the site as a vacant, weedy field often visited by recreationists for inappropriate reasons is unbecoming a site of this significance.

As the lead federal agency for the project, the National Park Service would like to initiate consultation with the Quinault Indian Nation, pursuant to Section 106 of the National Historic Preservation Act [36 CFR 800.2(c)(4)]. We seek any information the Quinault Indian Nation has on historic resources within or near the vicinity of the project.

Ray Gardner, Chair of the Chinook Nation, has challenged us to move beyond government-to-government consultation to government-to-government collaboration. We intend to use his challenge as a guiding principle during this project.

To date, the National Park Service is working in partnership with the Chinook Nation, the Washington State Historical Society (WSHS), Washington State Parks, the Garvin-McGowan family that owns land adjacent to the property, and many others to develop this site. These partners will continue to play key roles as we move forward.

We would very much appreciate the opportunity to meet with you and other appropriate representatives of the Quinault Indian Nation in order to commence government-to-government consultation on the development of a national park unit at Station Camp – Middle Village. The goal of the consultation is to identify any concerns early in the environmental review process and reach mutually agreeable decisions while taking into account the interests of Tribal, State and Federal governments.

We cordially invite you or your representative(s) to attend a tribal and agency scoping meeting on Thursday, December 17, 2009 at 2:00 p.m. at the theater at Fort Columbia State Park. We would also like to invite you to participate in the development of a study plan for a cultural resources inventory. This inventory is intended to ensure that the project site is adequately protected and that sensitive sites are identified. The study plan will be developed in January with any Tribal, State, or Federal partners who wish to participate. Deborah Wood from our staff will provide additional information on dates and meeting times as these are set.

Thank you for taking the time to consider these requests. Our tribal liaison, Deborah S. Wood will contact your office in the coming weeks to inquire about scheduling a meeting to discuss these matters further. Deborah is intimately familiar with the project site and its resources. If you have any questions, please contact me (503-861-4401) or Deborah (503-861-4442).

Sincerely,

A handwritten signature in black ink that reads "David M. Szymanski". The signature is written in a cursive, slightly slanted style.

David Szymanski  
Superintendent



# United States Department of the Interior

NATIONAL PARK SERVICE  
Lewis and Clark National Historical Park  
92343 Fort Clatsop Road  
Astoria, Oregon 97103

IN REPLY REFER TO:

Date December 3, 2009

The Honorable Charlene Nelson  
Shoalwater Bay Indian Tribe  
PO Box 130  
Tokeland, WA 98590

**Re: Development of a National Park Unit at Station Camp – Middle Village  
Environmental Assessment**

Dear Chairperson Nelson:

The National Park Service (NPS) would like to initiate government-to-government consultation with the Shoalwater Bay Indian Tribe for the development of a unit of the National Park System along the lower Columbia River in Pacific County, Washington. The National Park Service, in cooperation with its partners, intends to begin an Environmental Assessment (EA) in December, 2009, to assess the impacts of the development of this park unit. In coordination with this undertaking, we are initiating the Section 106 process.

The proposed park site is located at the Chinook Middle Village (*qi'qayaqilxam*) on the north side of the Columbia River, west of the Astoria Megler Bridge landing at Point Ellice, and east of Fort Columbia State Park. This site was designated by Congress as a unit of the National Park System in November, 2004.

Recent archeological investigations have revealed the global significance of the Chinookan Middle Village that once occupied the location. These investigations documented the interaction between the Euro-American fur traders and the powerful Chinook people who controlled the trade at the mouth of the Columbia River in the late 18<sup>th</sup> and early 19<sup>th</sup> centuries. Additional periods of significance for the property include Lewis and Clark's Station Camp (1805-1806) and the fishing and cannery town of McGowan, WA (late 19<sup>th</sup> and early 20<sup>th</sup> century). As a whole, the project site opens a window on the first contact period in the Columbia Pacific area, and has the potential to increase dramatically our knowledge of both the Chinook people and those who explored and settled the banks of the Columbia River. It is that knowledge that we wish to share with visitors to the area.

Our most important responsibility is to protect the irreplaceable resources, objects, and sacred items at the site. The location is sacred to the Chinook and other First Americans. We believe that the current use of the site as a vacant, weedy field often visited by recreationists for inappropriate reasons is unbecoming a site of this significance.

As the lead federal agency for the project, the National Park Service would like to initiate consultation with the Shoalwater Bay Indian Tribe, pursuant to Section 106 of the National Historic Preservation Act [36 CFR 800.2(c)(4)]. We seek any information the Shoalwater Bay Indian Tribe has on historic resources within or near the vicinity of the project.

Ray Gardner, Chair of the Chinook Nation, has challenged us to move beyond government-to-government consultation to government-to-government collaboration. We intend to use his challenge as a guiding principle during this project.

To date, the National Park Service is working in partnership with the Chinook Nation, the Washington State Historical Society (WSHS), Washington State Parks, the Garvin-McGowan family that owns land adjacent to the property, and many others to develop this site. These partners will continue to play key roles as we move forward.

We would very much appreciate the opportunity to meet with you and other appropriate representatives of the Shoalwater Bay Indian Tribe in order to commence government-to-government consultation on the development of a national park unit at Station Camp – Middle Village. The goal of the consultation is to identify any concerns early in the environmental review process and reach mutually agreeable decisions while taking into account the interests of Tribal, State and Federal governments.

We cordially invite you or your representative(s) to attend a tribal and agency scoping meeting on Thursday, December 17, 2009 at 2:00 p.m. at the theater at Fort Columbia State Park. We would also like to invite you to participate in the development of a study plan for a cultural resources inventory. This inventory is intended to ensure that the project site is adequately protected and that sensitive sites are identified. The study plan will be developed in January with any Tribal, State, or Federal partners who wish to participate. Deborah Wood from our staff will provide additional information on dates and meeting times as these are set.

Thank you for taking the time to consider these requests. Our tribal liaison, Deborah S. Wood will contact your office in the coming weeks to inquire about scheduling a meeting to discuss these matters further. Deborah is intimately familiar with the project site and its resources. If you have any questions, please contact me (503-861-4401) or Deborah (503-861-4442).

Sincerely,

A handwritten signature in black ink that reads "David M. Szymanski". The signature is written in a cursive style with a large initial "D" and "M".

David Szymanski  
Superintendent

# APPENDIX B

## Biological Evaluation



National Park Service  
U.S. Department of the Interior

**Station Camp – Middle Village Park**  
Washington

**Biological Evaluation**  
for  
**Station Camp - Middle Village Park**  
**Pacific County, Washington**  
ESA and EFH Consultation

*Prepared for:*

Otak, Inc.  
10230 NE Points Drive, Suite 400  
Kirkland, Washington 98033  
425-250-5900

*On behalf of:*

Washington State Historical Society  
1911 Pacific Avenue  
Tacoma, Washington 98402  
253-798-5900

*Prepared by:*

Ecological Land Services, Inc.  
1157 3<sup>rd</sup> Avenue, Suite 220  
Longview, Washington 98632  
360-578-1371  
ELS Project Number 729.08

***Revised August 19, 2010***

## SIGNATURE PAGE

The information and data in this report were compiled and prepared under the supervision and direction of the undersigned.



---

Lynn Simpson  
Environmental Scientist

## **EXECUTIVE SUMMARY**

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### **Project Description**

The project is in a portion of the northwest quarter of Section 22 and the extreme northeast quarter of Section 21, Township 9 North, Range 10 West, Willamette Meridian, in Pacific County, Washington. The proposed park lies immediately north of the north bank of the Columbia River, at River Mile 10 at latitude 46° 14' 49" North and longitude 123° 54' 32" West. The 5<sup>th</sup> field hydrologic unit code (HUC) is 1708000603.

The Washington State Historical Society and the National Park Service are planning to develop Station Camp - Middle Village Park to recognize the Native American and maritime heritage of the site, the McGowan town settlement, and the Corps of Discovery (Lewis and Clark Expedition). In the second phase of park development, a pedestrian trail is planned to connect Station Camp - Middle Village Park with Fort Columbia State Park to the west, which is a 593-acre day-use historical park at the Chinook Point National Historic Landmark.

The developed park will highlight the McGowan Family history, McGowan Church history, the local Native Americans, the unique ecology of the Columbia River estuary and the Lewis and Clark Expedition. Currently, the historic Station Camp site, which was named after the surveying measurements conducted by Captain William Clark, is unidentified except for a small roadside monument to the north of Highway 101. This site was also near the Chinook Tribe's "Middle Village" which was the site of tribal fishing and trading. The project will create a 7.63-acre public park with interpretive and recreational opportunities.

All permitting for the original project was completed in 2004, and project construction began during the construction season of 2005. During initial construction, the project was halted following the discovery of significant heritage resources on the proposed highway realignment, so the project was re-designed without highway realignment.

Phase 1 construction is scheduled to occur within the proposed park in spring 2011 and will be finished in fall 2011. A pedestrian trail is planned as part of Phase 2 of this project that connects Station Camp - Middle Village Park with the Fort Columbia State Park to the west; however, construction timing is uncertain because negotiations are still in progress to attain access across the parcel on the western boundary of Station Camp - Middle Village Park.

### **Impact-Minimization Measures**

Park design followed the guiding principle of minimizing impacts and honoring the sensitivity of the site's heritage. Context-sensitive design methods and low-impact development features were used to minimize effects to the site and surrounding environmental resources. The pervious-pavement parking area will infiltrate stormwater, and recharge groundwater. Boardwalk design throughout the park will minimize effects to wetlands and preserve the natural environment as much as possible. Invasive-vegetation management and treatment will remove unwanted plant species, and re-establish native coastal prairie plants. During design, path alignments were shifted to avoid wetlands and sensitive cultural features associated with the site. The trail to Fort Columbia was designed to use the existing logging road and existing stream-crossing locations as much as possible to

avoid tree cutting and earth moving. Impact-minimization measures for the project include the following actions:

1. The contractor will follow the Temporary Erosion and Sediment Control Plan
2. Follow provisions in any Hydraulic Project Approval permit received from WDFW for Phase 2.
3. Locate construction staging and stockpile areas within the project area at least 150 feet from the nearest wetland or stream.
4. Fuel equipment at least 100 feet from the nearest wetland or waterbody.
5. Locate stockpiles and staging areas at least 150 feet from the nearest wetland or waterbody.
6. Cover exposed soils with erosion-control fabric or mulch. Hydroseed newly disturbed areas.
7. Future bridge construction and repair on the trail will take place in summer or early fall, when site conditions are driest and the erosion potential is lowest.
8. Some materials will consist of pressure-treated wood. Care will be taken to keep sawdust from treated wood from entering the environment by cutting these materials over a tarp. Sawdust will be removed from the site and will be properly disposed.
9. During the critical marbled murrelet nesting season, between April 1 and September 15, bridge construction, repair, and chain-saw maintenance tasks near Fort Columbia will not take place during the following times: one hour before official sunrise until two hours after official sunrise, and one hour before official sunset until one hours after official sunset.
10. Boardwalk construction will take place when in mid-summer to early fall, when site conditions are driest to minimize soil compaction and temporary damage to wetland plants.
11. Posts will consist of pressure-treated members anchored on pier foundations. Care will be taken to keep sawdust from treated wood from entering the wetland or streams by cutting these materials over a tarp. Sawdust will be removed from the site and will be properly disposed.

### **Potential Project Effects**

Potential direct effects from construction include the following activities:

- Soil compaction in the wetland from boardwalk construction.
- Temporary vegetation damage from boardwalk construction.
- Visual and noise disturbances in the park and along the trail connecting the parks.
- Stormwater runoff flowing into the wetlands from areas with disturbed soils.
- Fluid releases from construction equipment.
- Increased suspended solids or construction-equipment contaminants to streams from road-widening activities.
- Increased suspended solids to streams or construction-equipment contaminants from bridge construction and repair on the pedestrian trail.

Potential indirect effects from the project include the increased human activity and noise from daytime use of the park and pedestrian trail.

### **Effect Determinations**

The project **may affect, but is not likely to adversely affect** the following species and critical habitat:

- 13 ESUs/DPSs of Salmon and Steelhead
- Designated Critical Habitat for 12 ESUs/DPSs of Salmon and Steelhead
- North American Green Sturgeon – Southern DPS
- Designated Critical Habitat for North American Green Sturgeon – Southern DPS
- Columbia River Smelt (Eulachon) – Southern DPS
- Steller Sea Lions
- Bull Trout – Columbia River DPS
- Marbled Murrelets
- Northern Spotted Owls

The project **will not destroy or adversely affect** proposed critical habitat for bull trout.

If bull trout critical habitat is designated prior to consultation completion, the project **may affect, but is not likely to adversely affect** designated bull trout critical habitat.

On the basis of direct effects to EFH in freshwater and estuarine habitats, this project will **not adversely affect EFH for Pacific salmon, Pacific groundfish, or coastal pelagic fisheries.**

The bald eagle (*Haliaeetus leucocephalus*) was federally de-listed in August 2007; however, the species is still protected by the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. According to the Priority Habitats and Species Map from the Washington Department of Fish and Wildlife, no bald eagle nesting sites are located within the 1,600-foot (0.3-mile) action area, so required buffers between project activities and known bald eagle nests will be maintained.

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## **INTRODUCTION**

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### **CONSULTATION HISTORY**

On August 28, 2002, a pre-biological assessment meeting was held, but National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS), collectively referred to as the Services, did not attend. Minutes from the meeting were sent to all parties invited. A federal nexus was created because the project was sponsored in part by the Washington State Historical Society in cooperation with Washington State Department of Transportation (WSDOT) and the National Park Service. A second meeting was held on September 25, 2002, and Nancy Brennan-Dubbs from USFWS, and Bill Leonard from NMFS attended and provided comments on the project and mitigation strategies.

The first biological assessment was written for this project by Ecological Land Services, Inc. (ELS 2003). The project was reviewed by WSDOT Highways and Local Programs and the Federal Highways Administration. Letters dated July 17, 2003 from NMFS and December 29, 2003 from USFWS stated concurrence with the informal consultation.

Addendum Number 1 (ELS 2005) was submitted to address proposed critical habitat for nine ESUs/DPSs of salmon and steelhead. Addendum Number 2 (ELS 2008) was reviewed by WSDOT Highways and Local Programs to address the recent listing of the Lower Columbia River Evolutionarily Significant Unit (ESU) for coho salmon (*Oncorhynchus kisutch*) and the Southern Distinct Population Segment (DPS) of green sturgeon (*Acipenser medirostris*). It also included other species not addressed in the original BA or Addendum 1. Critical habitat for salmon and steelhead ESUs/DPSs had also been designated since that time. Addendum Number 2 also addressed project design changes and construction timing because the highway alignment and other project features were redesigned to avoid the heritage resources.

The WSDOT reviewer of Addendum Number 2 requested more information, because the project design, construction timing, and listed species had changed significantly since the first BA. However, the project was again postponed for further design revisions, so it was not submitted to the Services for concurrence.

Because initial construction work revealed unforeseen cultural resources, the project design has been changed to avoid ground disturbance and highway re-alignment will no longer be allowed. Therefore, the Washington State Department of Transportation (WSDOT) and the Federal Highways Administration are no longer directly involved with project design. Additionally, the previous park design required a wetland permit from the U.S. Army Corps of Engineers, creating a federal nexus with that federal agency. The project proponent is now the Washington State Historical Society in cooperation with the National Park Service. Because the project design no longer requires a wetland permit, the federal nexus for the project is now the National Park Service.

There have been numerous changes to park design and federal listings of species and critical habitats since the original BE in 2002. This document is being submitted as a complete BE instead of another addendum to the 2002 BE to facilitate its review.

## **BACKGROUND**

The project is in a portion of the northwest quarter of Section 22 and the extreme northeast quarter of Section 21, Township 9 North, Range 10 West, Willamette Meridian, in Pacific County, Washington (see Figure 1). The proposed park lies immediately north of the north bank of the Columbia River, at River Mile 10 at latitude 46° 14' 49" North and longitude 123° 54' 32" West. The 5<sup>th</sup> field hydrologic unit code (HUC) is 1708000603.

The estuarine shoreline in both Washington and Oregon are primarily rocky, forested cliffs or low-elevation, gently sloping floodplain areas. Because the estuary has a large diversity of aquatic, wetland, and upland habitats, hundreds of fish and wildlife species reside in or migrate through the estuary (LCFRB 2004).

The Washington State Historical Society and the National Park Service are planning to develop Station Camp - Middle Village Park to recognize the Native American and maritime heritage of the site, the McGowan town settlement, and the Corps of Discovery (Lewis and Clark Expedition). In the second phase of park development, a pedestrian trail is planned to connect Station Camp - Middle Village Park with Fort Columbia State Park to the west, which is a 593-acre day-use historical park at the Chinook Point National Historic Landmark.

The developed park will highlight the McGowan Family history, McGowan Church history, the local Native Americans, the unique ecology of the Columbia River estuary and commemorate the Lewis and Clark Expedition. Currently, the historic Station Camp site, which was named after the surveying measurements conducted by Captain William Clark, is unidentified except for a small roadside monument to the north of Highway 101. This site was also near the Chinook Tribe's "Middle Village" which was the site of tribal fishing and trading. The project will create a 7.63-acre public park with interpretive and recreational opportunities.

## **WORK COMPLETED TO DATE**

All permitting for the original project was completed in 2004, and project construction began during the construction season of 2005. During initial construction, the project was halted following the discovery of significant heritage resources on the proposed highway realignment, so the project was re-designed without highway realignment.

Work that has been permitted and completed is listed below, and is presented only for informational purposes. It is not considered part of this new biological evaluation. The following activities took place during the early construction phase (September 19, 2005 to November 29, 2006) along the original highway realignment:

- To mitigate for onsite wetland impacts, 10.93 acres of a Category II, forested wetland was purchased in December 2004. The wetland is located in the upper Chinook River watershed, contains valuable salmonid habitat, and will be preserved for conservation

purposes in perpetuity. The offsite preservation occurred in advance of wetland impacts because project construction was suspended in 2005.

- Silt fencing was installed prior to project construction, and all exposed soil areas were hydroseeded with a native plant mixture. Silt fencing has been removed, and disturbed areas are currently revegetated.
- Approximately 2,000 linear feet of the highway realignment was cleared of brush and trees. Large merchantable timber was removed from the west side of the project area. Two large Sitka spruce trees designated for onsite mitigation were felled with roots attached and remain onsite. Brush and stumps were burned under a permit and the ashes were removed from the site.
- Approximately 1,000 linear feet of the new highway corridor was stripped of a 4- to 6-inch layer of topsoil and organic material. This material is contained in two piles adjacent to the new realignment right-of-way.
- Approximately 700 feet of the realignment was compacted with heavy machinery without removing the topsoil.
- Approximately 800 cubic yards of landscaping topsoil was delivered to the site and stacked in one pile, which remains onsite.
- Approximately 1,250 feet of utility conduit was placed at or near the surface, and two utility vaults were placed.
- The inadvertent discovery area was covered with two layers of heavy stone and approximately 70 yards of sand was placed on top of the stone.
- A temporary extension of the culvert (near MP 2.0) was installed with gravel backfill to allow exposed utility lines to be covered. This culvert is located at the west end of the project, and consists of the only wetland fill (approximately 0.002 acres) that occurred during the early construction stages.
- A residence (duplex) was removed from the site. The footing of the residence was covered with imported clean fill.
- An old structure was demolished and associated metal debris was removed from the site.
- All plastic and concrete pipe/culverts, river rock, cable, conduit, silt fencing, and other construction materials that were placed during the early construction phases were removed and/or stored at onsite locations.
- Archeological testing and data recovery were conducted within the project-impact area.
- Scot's-broom removal (May 2010).

## **DESCRIPTION OF THE PROPOSED ACTION**

Phase 1 of the project includes a parking lot with two access points from U.S. Highway 101, three interpretive exhibits, two overlook sites, and interpretive trails connecting the exhibits, and the parking lot (see Figure 5). The parking lot will be paved with pervious concrete, and no restroom services will be provided. An interpretive trail connecting site features crosses the wetland in two places, so sections over the wetland will consist of boardwalks. Existing wetlands will be avoided, so there will be no wetland impacts from the park.

McGowan Church is on a separate parcel and is not part of the park, although the park was designed to accommodate its presence. Similarly, the duplex and another structure are located east of the park and are not on the project site.

Phase 2 of the project includes constructing a approximately 3,000-foot long trail that connects Station Camp - Middle Village Park with Fort Columbia State Park, which is 0.3 miles to the west along U.S. Highway 101. Negotiations are being conducted with the adjacent property owners for the exact footprint of the trail, but tentative plans show the most-likely route includes building an approximately 1,000-foot-long on piling over portions of Wetland B. The boardwalk will cross the western stream in the park in one location and will cross Wetland B in two locations. The trail connecting the parks will follow an existing logging road that crosses two streams that are Type-N at the crossing points. An existing wooden bridge over the eastern stream will have its deck replaced and a hand-rail installed. The western stream crossing is over a smaller, ephemeral stream with an existing culvert (see Photoplates). The existing crossing over the stream will be replaced with a 40-foot bridge, and the culvert will remain in place.

### ***CONSTRUCTION SEQUENCING***

Phase 1 construction is anticipated from March through November 2011, pending permit issuance, and the timing of Phase 2 construction has not been determined. Negotiations are currently being conducted with the landowner of the parcel to the west of the park.

### ***PHASE 1***

#### ***Mobilize – (March 2011 - pickup trucks, hand tools)***

Construction staging areas will be established within project limits. Project limits will be flagged or fenced with temporary construction fencing. The contractor will implement any necessary best management practices (BMPs) and impact minimization measures (IMMs). A complete list of BMPs will be described and implemented as described in the contractor's Temporary Erosion Sedimentation Control (TESC) plan, which includes straw wattles and a temporary construction entrance. A designated TESC lead person will implement necessary construction BMPs.

#### ***Clearing, Fill, and Grading (spring 2010 and late spring 2011 - chain saws, dump truck, backhoe, dozer)***

Scot's broom, a non-native, invasive shrub, was removed from the site in late spring 2010, and removal efforts will continue, if necessary. The park will require approximately 14,000 cubic yards of fill from a local, offsite source to construct two, elevated, interpretive overlooks and create a coastal dune landscape along the U.S. Highway 101 right-of-way. After fill and grading is complete, a decomposed granite path will be installed to access the interpretive overlooks.

#### ***Highway Widening (early summer 2011 - grader, paver, road striper)***

The north side of Highway 101 will be widened to the north to accommodate a left-turn lane into the park. The total additional paved area will be approximately 9,000 square feet. No detours will be necessary during construction. As part of the widening project, a gabion headwall will be added above the ordinary high water mark (OHWM) of the western stream

to support the widened overlay. Culvert extensions will not be necessary. Once the roadbed fill is complete, side slopes and other disturbed areas will be seeded, fertilized, and mulched. These areas will be hydroseeded with a mixture appropriate for the site and local environmental conditions. Final construction details such as signs and striping will be completed.

***Utilities (early summer - hand tools)***

The existing overhead power line extending through the site will be relocated to conduit laid on top of existing grade in the highway right-of-way. Fill materials will be placed over the power line conduit to meet acceptable WSDOT cover depths for underground burial. No trenching or excavation will occur during this utility relocation process to protect cultural resources.

***Parking Lot Construction (summer 2011 - backhoe, dozer, grader, dump truck, trencher, paver, curb layer)***

After the site is graded, pervious concrete/asphalt will be installed.

***Interpretive Exhibit and Path Construction (summer 2011 - dump truck, backhoe, dozer, compactor, hand tools)***

After fill is placed for the Columbia River Overlook, the exhibit floor will be installed. Materials that may be selected for the floor include pervious concrete/asphalt, stained/colored/textured concrete, or seeded-pattern concrete. Materials that may be selected for the paths include gravel, crushed granite, pervious concrete/asphalt, crushed seashells, mown grass, or wood chips. Edging material for the paths will consist of aluminum or wood. Stormwater generated from the paths and exhibit floors will infiltrate into surrounding sandy soils.

***Fence Construction (summer or fall 2011 - dump truck, backhoe, chain saws)***

A break-away park fence will be added along the north side of the highway from the eastern stream to about 200 feet west of the western stream. Materials that may be selected include cedar, stacked stone/metal, stacked stone/concrete, or metal.

***Finishing (late summer/fall 2011 - curb layer, hand tools, striping)***

Curbing for the parking area and site ingress/egress, as well as lighting and other items will be installed. These include picnic benches and tables, interpretive signs, and edging. Materials that may be selected for site furnishings include metal/wood, metal, or custom (driftwood, stone, etc). The roadway and parking lot will be striped.

***Boardwalk Construction over Wetlands (fall 2011 - backhoe, hand tools)***

Boardwalks 10-feet wide and totaling 1,078-feet long will be installed to create walkways over wetlands. Diamond-pier or equal-post foundations will be installed to minimize surface-area contact with the wetland while providing structural security. Framing, decking, kick-rails, and railing will be attached to the anchored posts. Boardwalk materials include pressure-treated timber, concrete, or metal treads and kick-rails. Posts will consist of pressure-treated members anchored on pier foundations. Care will be taken to keep sawdust

from treated wood from entering the wetland or stream by cutting these materials over a tarp. Sawdust will be removed from the site.

***Restored Coastal Prairie (fall 2011 - hydroseeder)***

Most of the park area will be restored as a coastal prairie. Planting details are in the *Vegetation Management Plan* (ELS 2010). Restoration has already begun in this area with the removal and spraying of Scot's broom. Planting is not allowed in this area to protect archaeological resources, so restoration will include seeding and weed control.

***Landscaping (fall 2011 - backhoe, dump truck, hand tools, hydroseeding truck)***

Native plants appropriate to the site and local environmental conditions will be planted in fill material brought into the site. Driftwood will be added to complete the design.

***Stormwater Management***

The paved parking lot will consist of pervious concrete, and stormwater from pathways will infiltrate into the site's sandy soils, so no stormwater facilities will be necessary.

**PHASE 2 (TIMING UNDETERMINED)**

***Boardwalk Construction over Western Stream (truck, hand tools)***

All construction will take above the OHWM using the same materials and construction techniques as described above. Construction BMPs will be followed to avoid impacts to the stream and wetland, and hydroseeding will take place in areas of soil disturbance. Sawdust from pressure-treated wood will be collected on a tarp and will be properly disposed offsite.

***Trail to Fort Columbia State Park (to take place as needed - truck, chain saw, hand tools)***

The existing trail is in good shape and no vegetation needs to be removed. Trees and branches that fall on the trail will be cleared as part of regular maintenance, as will trees or snags that have become hazardous to pedestrians. Water bars will be installed on steeper areas to facilitate stormwater runoff and to minimize trail erosion.

***Bridge Construction and Repair (truck, chain saw, hand tools)***

A 40-foot bridge over the eastern stream will be constructed, and the existing 15-foot bridge on the western stream will be re-decked; both crossing locations are over Type-N stream segments and all work on both bridges will take place entirely above the OHWMs. A typical boardwalk-bridge structure is shown on Figure 6 that will be constructed over the eastern stream. Wood-and-cable railings will be constructed on the downslope side for western bridge, and railings will be constructed on both sides of the eastern bridge. The trail will be open all year to pedestrian and bicycle traffic, and most of the use is anticipated during the summer. Horses and motorized vehicles will not be allowed on the trail.

**INTERRELATED AND INTERDEPENDENT ACTIONS**

The interrelated activity of this project is wetland mitigation for impacts to the wetland buffer, as described above. Interdependent actions include stockpiles and staging areas, which will occur on the project site or along the trail to Fort Columbia. Detours will not be necessary.

## **IMPACT AVOIDANCE AND MINIMIZATION MEASURES**

Park design followed the guiding principle of minimizing impacts and honoring the sensitivity of the site's heritage. Context-sensitive design methods and low-impact development features were used to minimize effects to the site and surrounding environmental resources. The pervious-pavement parking area will infiltrate stormwater, and recharge groundwater. Boardwalk design throughout the park will minimize effects to wetlands and preserve the natural environment as much as possible. Invasive-vegetation management and treatment will remove unwanted plant species, and re-establish native coastal prairie plants. During design, path alignments were shifted to avoid wetlands and sensitive cultural features associated with the site. The trail to Fort Columbia was designed to use the existing logging road and existing stream-crossing locations as much as possible to avoid tree cutting and earth moving. Impact-minimization measures for the project include the following actions:

### **General Impact-Minimization Measures**

1. The contractor will follow the Temporary Erosion and Sediment Control Plan (see Figure 7).
2. Follow provisions in any Hydraulic Project Approval permit received from WDFW for Phase 2.
3. Locate construction staging and stockpile areas within the project area at least 150 feet from the nearest wetland or stream.
4. Fuel equipment at least 100 feet from the nearest wetland or waterbody.
5. Locate stockpiles and staging areas at least 150 feet from the nearest wetland or waterbody.
6. Cover exposed soils with erosion-control fabric or mulch. Hydroseed newly disturbed areas.

### **Bridge Construction and Repair**

7. Future bridge construction and repair on the trail will take place in summer or early fall, when site conditions are driest and the erosion potential is lowest.
8. Some materials will consist of pressure-treated wood. Care will be taken to keep sawdust from treated wood from entering the environment by cutting these materials over a tarp. Sawdust will be removed from the site and will be properly disposed.
9. During the critical marbled murrelet nesting season, between April 1 and September 15, bridge construction, repair, and chain-saw maintenance tasks near Fort Columbia will not take place during the following times: one hour before official sunrise until two hours after official sunrise, and one hour before official sunset until one hours after official sunset.

### **Boardwalk Construction**

10. Boardwalk construction will take place when in mid-summer to early fall, when site conditions are driest to minimize soil compaction and temporary damage to wetland plants.
11. Posts will consist of pressure-treated members anchored on pier foundations. Care will be taken to keep sawdust from treated wood from entering the wetland or streams by

cutting these materials over a tarp. Sawdust will be removed from the site and will be properly disposed.

## **ACTION AREA**

The action area is defined as all areas that will be directly and indirectly affected by the project. It is constructed by overlaying zones of impact from direct and indirect effects in both the terrestrial and aquatic environments.

### **Direct Effects to the Environment**

Potential effects of the project to the environment are summarized below.

#### *Direct Effects on Terrestrial/Wetland Habitats:*

Potential direct effects from construction include the following activities:

- Soil compaction in the wetland from boardwalk construction.
- Temporary vegetation damage from boardwalk construction.
- Visual and noise disturbances in the park and along the trail connecting the parks.
- Stormwater runoff flowing into the wetlands from areas with disturbed soils.

Background information involving noise-impact assessments are explained more fully in the *WSDOT Advanced Biological Assessment Manual, Version 02-2010* (February 2010). A baseline noise level of 68 dBA for nearby traffic from U.S. Highway 101 (55 mph, 500 vehicles per hour) was used. Construction equipment with the loudest atmospheric noise will be from graders (89 dBA). Noise-attenuation calculations predict that noise from construction equipment will attenuate to the highway noise level of 68 dBA at a 1,600-foot (0.3-mile) radius from the project site.

Noise along the pedestrian trail from visitors is estimated to be between 60 and 70 dBA (conversational speech and business-office levels). Background noise in rural, forested areas has been estimated by USFWS as between 35 and 40 dBA. A chain saw (78 dBA), and hand tools will be used for bridge construction and repairs on the eastern and western streams, and chain saws will be used to clear fallen trees from the trail. Noise-attenuation calculations predict that noise from construction will attenuate to the estimated background noise level of 38 dBA at a 1,600-foot (0.3 miles) radius from the project site. Noise-reduction factors used in the calculation include “soft site” conditions with line-of-site breaks.

#### *Direct Effects on Aquatic Habitats:*

The project will potentially cause the following direct effects to aquatic habitats:

- Fluid releases from construction equipment.
- Increased suspended solids or construction-equipment contaminants to streams from road-widening activities.
- Increased suspended solids to streams or construction-equipment contaminants from bridge construction and repair on the pedestrian trail.

### Onsite Western Stream and Columbia River

Impact-minimization measures for proper equipment maintenance, fueling, and operations will avoid or reduce impacts from equipment fluids. Storms that cause erosion and sedimentation are unlikely during the dry season while the work above the OHWM is being performed. The first-flush rain event could wash construction-related soils or contaminants into the Type-F stream on the west side of the park, but the stream only flows into the Columbia River during heavy precipitation, and first-flush storm events rarely produce enough rain to cause the western stream to flow into the Columbia River (see description in *Environmental Settings* section). By incorporating the impact-minimization measures, and because of the hydrologic characteristics of the site, direct aquatic effects in the Columbia River are not anticipated, but could possibly occur if rainfall causes more runoff than is typical for construction season.

### Streams along the Trail to Fort Columbia

Bridge repair and construction will occur on the western and eastern Type-N stream crossings, respectively, along the trail between the parks. Impact-minimization measures for proper equipment maintenance, fueling, and operations will avoid or reduce aquatic impacts from equipment fluids, although the eastern stream will not likely be flowing during the dry season. Storms that cause erosion and sedimentation are unlikely during the dry season while the work above the OHWM will be performed. The first-flush rain event could wash construction-related solids or contaminants into the streams.

The western stream flows into a permanently inundated area on the west side of Wetland A, which is connected to the Columbia River by a 24-inch culvert that appears to flow year-round. Any solids or contaminants that enter the streams during construction or a first-flush event would enter Wetland A, where suspended solids would settle out and minor amounts of contaminants would be diluted before they could enter the Columbia River. By incorporating the impact-minimization measures, and because of the hydrologic characteristics of the streams, direct aquatic effects could occur in the streams and in Wetland A, but it is considered unlikely. They could possibly occur if rainfall causes more runoff than is typical during construction season.

### **Indirect Effects to the Environment**

Indirect effects are defined as those effects caused by the project, but occur after project completion.

#### *Indirect Effects to Terrestrial/Wetland Habitats*

This project will increase human presence on the park site, but is not expected to cause more vehicle trips along U.S. 101, because the park does not allow overnight use and does not provide new recreational opportunities other than a scenic interpretive exhibit. The site currently experiences noise from people using the onsite structures and cars pulling over at the small wayside area on the west side of the site. The park will be open during daylight hours with associated visual and noise disturbances from vehicles and pedestrians expected to increase above current levels.

Noise along the trail from pedestrian use is estimated to be between 60 and 70 dBA (conversational speech and business-office levels). Background noise in rural, forested areas has been estimated by USFWS as between 35 and 40 dBA. Using the most conservative estimates (70 dBA and 35 dBA), noise is estimated to attenuate to background levels 300 feet from the trail. Noise-reduction factors include that the area has “soft site” conditions with line-of-site breaks.

#### *Indirect Effects to Aquatic Habitats*

There will be no adverse indirect effects to aquatic habitats in the action area. Stormwater on the park site will infiltrate into the sandy soils, so contaminated runoff to streams is not anticipated. No adverse indirect effects to aquatic environments are expected from pedestrian and bicycle traffic along the trail.

#### **Effects Associated with Interdependent Activities**

Interdependent actions have no independent utility apart from the proposed action. Staging and stockpile areas are expected to be located within the project boundaries in upland areas at least 150 feet away from aquatic resources and wetlands. If impact-minimization measures for the project are followed, there will be no effects to the environment above current levels of use.

#### **Effects Associated with Interrelated Activities**

Interrelated actions are a part of a larger action and only occur if the project occurs. This project has avoided all wetland impacts, but a portion of Wetland B with heavy coverage of reed canarygrass will be enhanced as a part of wetland-buffer mitigation, as required by Pacific County. This will require weed-control methods that do not disturb the cultural resources of the site, so increased suspended solids from exposed soils are not a concern. Canarygrass will be initially mowed with a brush hog and hand tools, and will be maintained using hand tools.

#### **Action Area Definition and Description**

The action area has been defined based on the extent of all anticipated direct and indirect effects, and the effects from any interrelated and/or interdependent actions. The action area is defined as a 1,600-foot radius (0.3 miles) around Station Camp - Middle Village Park and on each side of the pedestrian trail connecting the parks (see Figure 8). The extent of the action area is based on construction noise.

### **SPECIES AND CRITICAL HABITAT IN THE ACTION AREA**

Endangered, threatened, proposed, and candidate species and critical habitat protected under the ESA were obtained from the following agencies and can be found in Appendix A:

- NOAA Fisheries, National Marine Fisheries Services (NMFS) website research for species lists on May 17, 2010 (NMFS 2010).
- U.S. Fish and Wildlife Service (USFWS) website research for county species and habitats list on May 17, 2010 (USFWS 2007).
- U.S. Fish and Wildlife Service (USFWS) *Critical Habitat Portal* website research on May 17, 2010 (USFWS 2010).

- WDFW *Priority Habitats and Species (PHS) Report* dated April 13, 2010 (WDFW 2010a).
- WDFW *SalmonScape* website research on May 17, 2010 (WDFW 2010b).
- Washington Department of Natural Resources (WDNR) Website research conducted on May 17, 2010 (WDNR 2010).

The following table shows federally endangered, threatened, proposed, and candidate species and critical habitat that may occur within the action area of the project. Life history information for species addressed in this report is included in Appendix B.

**Table 1. Listed, Proposed, and Candidate Species and Critical Habitat Addressed in this Document.**

Species, ESU, or DPS	Federal Status	Critical Habitat in Action Area?
<b>NMFS Jurisdiction</b>		
<b>Chinook Salmon (<i>Onchorhynchus tshawytscha</i>)</b>		
Lower Columbia River Chinook ESU	Threatened	Designated
Upper Willamette River Chinook ESU	Threatened	Designated
Upper Columbia River Spring-run Chinook ESU	Endangered	Designated
Snake River Spring-run Chinook ESU	Threatened	Designated
Snake River Fall-run Chinook ESU	Threatened	Designated
<b>Chum Salmon (<i>Onchorhynchus keta</i>)</b>		
Columbia River Chum Salmon ESU	Threatened	Designated
<b>Coho Salmon (<i>Onchorhynchus kisutch</i>)</b>		
Lower Columbia River Coho Salmon ESU	Threatened	No
<b>Sockeye Salmon (<i>Onchorhynchus nerka</i>)</b>		
Snake River Sockeye DPS	Endangered	Designated
<b>Steelhead (<i>Onchorhynchus mykiss</i>)</b>		
Lower Columbia River Steelhead DPS	Threatened	Designated
Upper Willamette River Steelhead DPS	Threatened	Designated
Middle Columbia River Steelhead DPS	Threatened	Designated
Upper Columbia River Steelhead DPS	Threatened	Designated
Snake River Basin Steelhead DPS	Endangered	Designated
<b>North American Green Sturgeon - Southern DPS (<i>Acipenser medirostris</i>)</b>		
Columbia River Smelt (Eulachon) Southern DPS ( <i>Thaleichthys pacificus</i> )	Threatened	No
Steller Sea Lion ( <i>Eumetopias jubatus</i> )	Threatened	No
<b>USFWS Jurisdiction</b>		
<b>Bull Trout - Columbia River DPS (<i>Salvelinus confluentus</i>)</b>	Threatened	<i>Proposed</i>
<b>Marbled Murrelet (<i>Brachyramphus marmoratus</i>)</b>	Threatened	No
<b>Northern Spotted Owl (<i>Strix occidentalis caurina</i>)</b>	Threatened	No

DPS = Distinct Population Segment    ESU = Evolutionarily Significant Unit

## **NMFS Jurisdiction**

### *Salmon and Steelhead*

Each of the listed 13 ESUs/DPSs of salmon and steelhead occur within the Columbia River and the action area for rearing and migration. The Columbia River estuary is designated critical habitat for 12 ESUs/DPSs of salmon and steelhead as a rearing and migration corridor. Tributaries to the Columbia River within the project area are not designated as critical habitat (Federal Register 2005a). Critical habitat for coho is currently under review and has not been designated or proposed.

The *SalmonScope* internet map (WDFW 2010) shows that coho spawn in the western Type-F stream that flows through the park site, and winter steelhead presence is not shown as potential, presumed, historic, or documented. Juvenile coho were observed in the western stream of the park during an electrofishing survey in spring 2001 and December 2002. The WDFW Area Habitat Biologist (pers. comm. K. McMurry) stated that there is no spawning habitat in either stream within the project area, but the streams serve as off-channel habitat during high water when the western culvert outlet is not perched and when the eastern stream has standing or flowing water, which rare. If coho spawn upstream of the site as shown by *SalmonScope*, the western stream and the artificially created ditch connecting the eastern and western stream within Wetland B could also be used by juvenile coho for rearing.

The *SalmonScope* internet map (WDFW 2010) does not show salmonid presence as potential, presumed, historic, or documented in the western stream that flows into Wetland A. The eastern stream is not shown on the *SalmonScope* map, but it is shown on the WDNR stream-typing map. Electrofishing was not conducted on these streams, because they were not part of the project at that time.

### *North American Green Sturgeon*

Subadult and adult green sturgeon use the Columbia River estuary in the summer and fall months for thermal refugia and for foraging (Federal Register 2008). Their presence in the Columbia River occurs from June through September, with the peak occurring in August. Green sturgeon generally remain in the Columbia River estuary in saltwater habitat; however, they have been found upriver as far as Bonneville Dam. Critical habitat has been designated in the Columbia River estuary, which is in the (USFWS 2009).

### *Columbia River Smelt (Eulachon)*

The Southern DPS of Columbia River smelt spawn in the mainstem Columbia River and some of its major tributaries in winter, and juveniles rear in the estuary. Critical habitat is expected to be proposed in 2011 and will likely include the portion of the estuary within the action area.

### *Steller Sea Lions*

Recent surveys by WDFW show a substantial increase in Steller sea lion abundance at the South Jetty in the Columbia River from peak counts of 50 to 60 animals in the 1980s to peak counts of 300 to 700 animals in unpublished reports. Numbers typically peak during winter months (Beach *et al.* as cited in LCFRB 2004). Steller sea lions may forage within the action

area. There are no Steller sea lion rookeries or haul-out locations in the action area (Jeffries 2000), and there is no designated critical habitat in Washington (NMFS 2008b).

## **USFWS Jurisdiction**

### *Bull Trout*

The *SalmonScape* map shows that bull trout are present in the Columbia River, but not in the small streams within the action area. Adult bull trout mainly use the upper 20 feet of the Columbia River and estuary water column for foraging and they may also use deeper portion of the water column for movement and migration (USFWS 2002). Critical habitat in the Columbia River estuary is being revised, and it will be finalized on September 30, 2010. Currently, the Columbia River estuary is proposed critical habitat (Federal Register 2010).

No suitable bull trout spawning or rearing habitat is present in Type-F streams in the proposed park, because they flow intermittently. Bull trout could forage or overwinter in these streams during high river levels, and they have access to Wetland A and the lower fish-bearing reaches of the streams that flow into Wetland A.

### *Marbled Murrelets*

According to the USFWS and WDFW species databases, marbled murrelets occur in the vicinity of the project. The WDFW PHS map shows a marbled murrelet occupancy site in the vicinity of the trail that connects the proposed park with Fort Columbia. Construction is planned during their breeding season of April 1 through September 15. The nearest designated critical habitat is approximately 4 miles northeast of the site (Federal Register 2008a).

Based on historic aerial photographs, forested areas near the park were logged in the 1940s, 1960s, and 1970s. Consequently, most of the trees near the park range from approximately 40 to 70 years of age, not the 200+ years generally needed to develop the old-growth characteristics that provide suitable nesting habitat. Nests are generally found in trees at least 30-inches diameter and breast height (dbh), although suitable nest platforms are more important than tree height. Along some stream corridors near the park, there are some pockets of trees greater than 60 years of age.

About half of the forested component in Wetland A was selectively logged in the 1960s, so that area does not meet the criteria for mature or old-growth forest. Prior to the 1960s, much of Wetland B was farm fields and not forested. It is unlikely that the park area provides suitable marbled murrelet nesting habitat.

Within the proposed park, Sitka spruce is the most common tree species, followed by western crabapple, red alder, and Douglas-fir in order of frequency. Few trees and no forested stands are present within the park that would provide suitable marbled-murrelet nesting habitat. The isolated trees within the project area lack old-growth characteristics and sufficient upper canopy coverage, are widely spaced, and are located in a heavily disturbed area (adjacent to a busy highway in an area is frequently buffeted by strong coastal winds). Windthrown trees and downed woody debris are present and have created large gaps in the canopy. The park area does not meet the USFWS definition of suitable marbled murrelet

habitat because, although suitable platform trees are present, the trees within the project area are isolated in a greater than 5-acre patch and not a part of a contiguous forested area (pers. comm. W. Pierce). The western project area, in which the possible platform trees are located, grades into a wetland area dominated by deciduous species without a contiguous overstory canopy.

A contiguous forested area that appears to meet the criteria for suitable marbled-murrelet habitat is located on Fort Columbia State Park property where there is an estimated 400-acre tree stand with trees greater than 70 years old. USFWS representatives onsite in 2003 identified this area as the nearest suitable habitat, as reported in the original BE for the project (ELS 2003).

#### *Northern Spotted Owls*

The USFWS species list for Pacific County shows northern spotted owls are present in the county (USFWS 2010); however, they are not identified within or near the vicinity of the action area according to the WDFW PHS database (WDFW 2010a). There is no designated critical habitat in Pacific County (Federal Register 2008b).

This species has nesting and roosting habitat requirements similar to those for marbled murrelets, which according to the USFWS representatives, occurs on Fort Columbia State Park property near the western end of the trail. The early breeding season for northern spotted owls is March 1 through July 15, and the breeding season is October 1 through February 28 (WSDOT 2010).

Dispersal habitat refers to any areas used for movement and typically includes stands with adequate tree size and canopy closure to protect them from avian predators (Federal Register 1992b). Washington Department of Natural Resources (2001) defines dispersal habitat as timber stands of at least 5 acres with the following characteristics: 1) 70 percent or more canopy cover, 2) 50 percent or more of the stand in conifer species greater than 6 inches dbh, 3) a minimum of 130 trees per acre with a dbh of at least 10 inches or a basal area of 100 square feet and at least 10 inches dbh, 4) a total tree density of 300 trees per acre or less, and 5) a minimum of 20 feet between the top of the understory vegetation and the bottom of the live canopy, with lower boles relatively clear of dead limbs. Foraging habitat is a continuum between dispersal and nesting/roosting habitat (Federal Register 1992b). The subject property has habitat that meets these criteria, so northern spotted owls may use areas within the park for dispersal and foraging.

### **SPECIES AND CRITICAL HABITAT NOT PRESENT IN THE ACTION AREA**

Table 2 summarizes species not addressed in this document because the action area does not have suitable habitat or critical habitat for the species.

**Table 2. Species and Critical Habitats Not Addressed in this Document.**

Species, ESU, or DPS	Federal Status	Critical Habitat in Action Area?
<i>USFWS Jurisdiction</i>		
<b>Oregon Silverspot Butterfly</b> <i>(Speyeria zerene hippolyta)</i>	Threatened	No
<b>Short-Tailed Albatross</b> <i>(Phoebastria albatrus)</i>	Endangered	No
<b>Streaked Horned Lark</b> <i>(Eremophila alpestris strigata)</i>	<i>Candidate</i>	No
<b>Western Snowy Plover</b> <i>(Charadrius alexandrinus nivosus)</i>	Threatened	No

The above-listed species are not expected to occur in the action area because suitable habitat and critical habitat for these species does not occur in the action area:

- Oregon silverspot butterfly (no salt-spray meadows or meadow habitat supporting early blue violets (*Viola adunca*)).
- Short-tailed albatross (the action area does not include nearshore marine habitat).
- Streaked horned lark (no beach, native prairie, or dredge-spoil island habitat).
- Western snowy plover (no beach habitat or sparsely vegetated, sandy shorelines). The nearest critical habitat is 27 miles northwest of the site on the Long Beach Peninsula.

Because suitable habitat for these species does not occur in the action area, the project will have **no effect** on the Oregon silverspot butterfly, short-tailed albatross, streaked horned lark, and western snowy plover. Critical habitat for the western snowy plover does not occur in the action area, so the project will have **no effect** on western snowy plover critical habitat.

**Bald Eagle and Golden Eagle Management Act**

The bald eagle (*Haliaeetus leucocephalus*) was federally de-listed in August 2007; however, the species is still protected by the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act. According to the WDFW PHS map and database, no bald-eagle nesting sites are located within the action area, so state and federal nest-buffers requirements will be met.

**ENVIRONMENTAL SETTING**

**PROJECT AREA**

The project area extends approximately ½ mile along the shoreline of the Columbia River and encompasses the park development and the highway-widening area to accommodate the left-turn lane. The project area also includes the trail corridor connecting the two state parks.

## **PARK SETTING**

The project area, which includes the park and trail to Fort Columbia, lies immediately north of U.S. Highway 101, which aligns the north bank of the Columbia River, at River Mile 10. Near the project area, the Columbia River is approximately 4.4 miles wide and has depths that range to 50 feet (Pacific County 2000; National Ocean Service 1991). The Pacific County *Shoreline Master Program* (2000) characterizes the aquatic environment in the McGowan area as having strong tidal currents, with rapid flushing action, and moderate to high fish support. The shoreline has steep slopes and is composed of coarse sand with gravel and larger rock. In the vicinity of the project area and action area, the shoreline consists of large riprap 2 to 5 feet in diameter. U.S. Highway 101 lies immediately north of the riprap in a 120-foot right-of-way. The existing highway lacks designed water-quality treatment and detention facilities for runoff, and much of the runoff infiltrates into the sandy soils.

Under the Pacific County *Shoreline Master Program* (2000), most of the Columbia River shoreline adjacent to the project area is designated Rural Shorelands. Rural Shorelands are shoreline areas in which private and public recreational facilities are encouraged. The Pacific County *Comprehensive Plan* (1998) designates the land use of the project area as Transitional Forest and the surrounding land uses as Public Preserve and Forest of Long Term Significance. The land-use designation in the vicinity of the project is to protect transitional forest areas, primarily located adjacent to rural shoreline property, and is generally intended for small-scale farms, forestry activities, dispersed single-family homes, and open space. Most of the land surrounding the project area is publicly-owned state park land or privately-owned by the Garvin Family (descendants of the McGowan Family). According to the Pacific County *Comprehensive Plan* (1998), the land-use designations of the surrounding lands are a) to protect ecologically, recreationally, or geologically unique and publicly owned areas, and b) to conserve forest lands of long-term commercial significance and discourage residential encroachment.

The structures within the project boundaries include a small wayside state park with a vehicle pull-off area and an interpretive sign. Other buildings include the McGowan Church with grass parking area near the center of the site; however, the church is on a parcel that is not within the park boundaries. The church was built in 1904 and is still used during the summer months for Sunday mass and weddings. It is accessed from the U.S. Highway 101 by a gravel driveway and has a grass parking area.

Two private residences that share a gravel driveway are east of the park and are outside of the park boundaries. The guest house, which was originally used as a post office, was located north of the existing highway until being moved to its present location in 1981. The large, two-story house was built in 1911 in its current location, and has remained occupied by descendants of the McGowan Family and caretakers for most years since being built (Columbia Diachronic Services 2002). The other residence is a 1970s duplex that was moved from its former location near the highway to its present location.

## **TERRESTRIAL HABITAT**

### **Uplands**

Upland fields occupy most of the project area and are comprised of native and non-native grasses, rushes, plantain, hairy cat's-ears, and weedy species typical of upland fields. Scot's broom existed mostly in the northern and eastern portions. It was noticeably dense and reaches the stature of small trees, but it was removed in May 2010 by hand cutting. Stumps were painted with herbicide and re-sprouted portions were sprayed.

Three small areas of forested upland are also present within the project area. Most of the forest within the action area is a multi-aged, mixed coniferous and deciduous forest that is over 60 years old, based on historical aerial photographs. The forest lacks late-successional or old-growth characteristics.

The pedestrian-trail corridor between Wetland B and Fort Columbia passes through mixed deciduous and coniferous forested areas. Near the western portion of the trail near Fort Columbia, there is an area of contiguous, mature forest. In 2003, USFWS representatives identified this area as the nearest suitable habitat for marbled murrelets.

Fort Columbia State Park is located about 0.3 miles west of the project and covers more than 500 acres. The Fort was constructed in the late 1800s and was used to defend the Columbia River from 1896 to 1947. Flat areas near the highway between the proposed park and Fort Columbia have wetlands in low areas, and the hillsides have a continuous, mixed-forest cover and natural understory between about 50 and 70 years old. Forested areas higher on the hill are roughly the same age, with older stands within state park property. The hills within and surrounding state-park property have elevations of 700 to 1000 feet above sea level. Surrounding industrial forests have scattered patches of clearcuts and stands of various ages that are noticeably younger than those within the state park.

### **Wetlands**

According to the National Wetlands Inventory Map (NWI), palustrine forested and scrub-shrub wetlands that are seasonally flooded are present within and adjacent to the project area. The palustrine wetlands are fed by streams identified as seasonally-flooded and intermittent riverine streambed wetlands. Additionally, the Columbia River shoreline immediately south of the project area is identified as unconsolidated, intertidal estuarine wetlands, which may be regularly flooded or irregularly exposed depending on the specific water regime.

Wetlands A and B were identified within and adjacent to the project area. A summary of their characteristics is shown in the following table.

**Table 3. Summary of Delineated Wetlands**

Wetland	Size	Cowardin Class <sup>1</sup>	Category/ Class <sup>2</sup>	Buffer <sup>3</sup>
A	14.5 acres	Forested, Scrub-shrub, Emergent, Aquatic Bed, Open Water	I	100 feet
B	22.2 acres	Forested, Scrub-shrub, Emergent, Open Water	II	75 feet

1 = Based on Cowardin *et al.* 1979.

2 = Based on WDOE 2006/ CARL Section 4.

3 = Based on CARL Section 4.

Forested portions of Wetland A and Wetland B extend north of the project area to the toe of the headlands. As the slope rises to the north, the vegetation grades into a fairly even-aged upland forest that was logged in sections in the 1940s, 1960s, and 1970s. Pockets of older, larger diameter trees, which were not harvested, exist along drainages in the upland forest areas.

*Wetland A.* Wetland A is an approximately 14.5-acre Class/Category I wetland, and requires 100-foot buffers according to Pacific County (Section 4 CARL). The wetland consists of forested, scrub-shrub, emergent, aquatic bed, and open water components (Cowardin *et al.* 1979). Wetland A is fed by two unnamed Type-N streams that originate in the extensive upland forest to the north. Wetland A has a permanently flooded open-water area that appears to outlet year-round to the Columbia River through a 24-inch concrete culvert. During high water events, water from the river may back up into the culvert and enter the open water component of Wetland A, and thus serve as refugia for fish during storms or floods. The wetland appears to outlet year-round to the Columbia River and the culvert appears fish-passable. Wetland A soils have a thin organic layer that covers a sandy-textured mineral layer.

The forested wetland class occupies the largest area of Wetland A and is dominated by Sitka spruce, red alder, and black cottonwood. Douglas-fir and Oregon ash (*Fraxinus latifolia*) are also present in the overstory. Within the forested areas, false lily-of-the-valley (*Maianthemum dilatatum*) and slough sedge (*Carex obnupta*) are common understory species. Drier pockets within Wetland A contain upland species, such as sword fern (*Polystichum munitum*) trailing blackberry (*Rubus ursinus*), common snowberry (*Symphoricarpos albus*), evergreen huckleberry (*Vaccinium ovatum*), and bigleaf maple. The overstory canopy of Wetland A is not contiguous and has gaps due to windblown trees and snags. Strong coastal winds and excessively saturated soils likely weakened tree roots and caused windthrow.

Scrub-shrub species are found as a separate wetland class and as mid-understory throughout the forested wetland area. The shrub species are diverse and consist of willows (*Salix*), Douglas spiraea (*Spiraea douglasii*), black twinberry (*Lonicera involucrata*), red alder, salmonberry (*Rubus spectabilis*), Nootka rose (*Rosa nutkana*), and western crabapple (*Malus fusca*).

The aquatic bed class, which is located along the western extent of Wetland A, is dominated by duckweed (*Lemna minor*), yellow spatterdock (*Nupha luteum* spp. *polysepalum*), broadleaf water-plantain (*Alisma plantago-aquatica* var. *americanum*), and marsh-pennywort (*Hydrocotyle ranunculoides*). Emergent species surround the perimeter of the aquatic bed, include yellow iris (*Iris pseudacorus*), common cattail (*Typha latifolia*), slough sedge, giant horsetail (*Equisetum telmateia* var. *braunii*), yellow touch-me-not (*Impatiens noli-tangere*), bulrushes (*Scirpus*), and willowherbs (*Epilobium*).

*Wetland B.* Wetland B is an approximately 22.2-acre Category/Class II wetland that requires a 75-foot buffer (Section 4 CARL). The wetland consists of forested, scrub-shrub, emergent, and open-water components (Cowardin *et al.* 1979). The forested vegetation consists of Sitka spruce, Douglas-fir, black cottonwood, and red alder in the overstory. Oregon ash, western crabapple, salmonberry, Douglas spiraea, and other shrubs occupy the mid-understory. Slough sedge, trailing blackberry, and sword fern are prominent understory species in most of the forested wetland and adjacent buffer. Scrub-shrub wetland areas are dominated by the same species found in the mid-understory of the forested wetland. The wetland buffers for forested and scrub-shrub areas grade into upland species such as non-native blackberries, red huckleberry, snowberry, Indian plum (*Oemleria cerasiformis*), Nootka rose, and salal (*Gaultheria shallon*).

Wetland B is hydrologically maintained by groundwater and by an unnamed Type-F stream that originates in the extensive upland forest to the north and outside of the action area. During low to normal precipitation, the stream flows southwest toward the existing western culvert within the project area but makes an abrupt greater-than 90-degree bend about 50 feet north of the culvert and flows east into a drainage ditch, eventually infiltrating into the sandy substrate. Apparently, the western culvert receives water and outlets to the Columbia River only during periods of heavy rainfall when water spills out of the ditch at the greater-than 90-degree bend (ELS observations; pers. comm. K. McMurry). The drainage ditch, which has been maintained since at least the 1940s, runs west-east between the western and eastern culverts. Water apparently infiltrates in the drainage ditch.

According to the WDFW Area Habitat Biologist (pers. comm. K. McMurry), the eastern channel is generally dry year-round and does not support fish. In contrast, the western channel contains water seasonally and the culvert is fish passable. Coho salmon, mottled sculpins (*Cottus bairdi*), and three-spine stickle backs (*Gasterosteus aculeatus*) were identified in the channel immediately north of the western culvert during the spring 2001 electrofishing survey conducted by the WDFW Area Habitat Biologist. The coho salmon likely use the area around the western culvert as a refuge during winter storms. Coho salmon were not identified upstream in the channel, beyond the area immediately north of the western culvert, in spring 2001 and winter 2002 electrofishing surveys.

The eastern ditch consists of a monoculture of reed canarygrass with a fringe of Himalayan blackberry and other shrubs. The substrate is grass, and underlying soils have a sandy loam texture. North of the western culvert, the drainage is dominated by reed canarygrass with a

fringe of Himalayan blackberry and red alder. The substrate is grass, and underlying soils have a sandy to sandy loam texture.

Like Wetland A, the overstory canopy of Wetland B is not contiguous and has gaps due to windblown trees and snags. Strong coastal winds and excessively saturated soils likely weakened tree roots and caused the windthrow.

## **AQUATIC HABITAT**

The project is located in the Columbia River estuary, approximately 10 miles from the Pacific Ocean. The elevation of mean sea level (MSL) is at 5 feet, and mean higher high water is at 8.2 feet MSL). Ordinary high water is at approximately 10.0 feet MSL.

### **Fish Habitat**

#### *Columbia River*

The Columbia River estuary provides both commercial and recreation fisheries, and serves as a migratory corridor for shorebirds, waterfowl, birds of prey, anadromous fish, and various life stages of pelagic marine species and groundfish. No water-quality impairments are shown on Ecology's 2008 303(d) List (WDOE 2008) for the onsite streams or for the action area of the Columbia River.

#### *Park – Type-F Streams*

Two Type-F streams flow from the north into the project area at the park site. The western Type-F stream flows seasonally into the western outlet channel. During heavy precipitation, the stream flows south and outlets to the Columbia River via the western culvert under the existing highway. During low to normal precipitation, the stream flows south to within about 150 feet of the western culvert, but makes an abrupt greater-than 90-degree bend and flows east in the maintained drainage ditch where it eventually infiltrates, except during high precipitation events. The eastern stream only flows through the culvert beneath the highway during heavy rainfall.

Existing culverts are round, pre-cast concrete culverts at the western and eastern stream crossings beneath Highway 101. The existing western culvert is 24 inches in diameter and 55 feet long, and the existing eastern culvert is 36 inches in diameter and 64 feet long. There is an outfall drop at the western culvert of 2 feet, creating a partial fish-passage barrier, except during high water levels. Culvert slopes are currently 1.61 percent at the western culvert and 0.12 percent for the eastern culvert. According to the *WSDOT Fish Passage Inventory* (WDFW/WSDOT 2008), there are 4,495 and 3,346 linear feet of fish habitat upstream of the western and eastern culverts, respectively.

Coho were previously found in the western stream above the culvert during the electrofishing surveys conducted in spring 2001, but they were not found above the eastern culvert. The channel above the western culvert has water in the rainy season and has documented fish use by coho salmon, mottled sculpins, and three-spine stickle backs in the area immediately north of the culvert (pers. comm. K. McMurry). An electrofishing survey in December 2002 revealed mottled sculpins in the drainage above the western culvert; no other fish species were encountered.

### *Trail Corridor – Type-N Streams*

There are two unnamed Type-N streams along the trail to Fort Columbia. They originate in the extensive upland forest to the north and flow into Wetland A. Both streams are shown as Type-F streams in the lower reaches near Wetland A, and the portions on the steeper slope are shown as Type N (WDNR 2010). Both streams likely have intermittent flow during the dry season in most years. The riparian buffers are vegetated with an overstory consisting primarily of alder, a shrub understory, and herbaceous groundcover.

Wetland A likely drains year-round to the Columbia River through a 24-inch concrete culvert that appears to be fish-passable. During high water events, water from the river may back up into the culvert and enter the open-water component of Wetland A and thus serve as refugia for fish during storms or high-water events in the Columbia River.

### *NMFS Baseline Condition Summary and Impact Analysis*

An evaluation of the baseline environmental conditions for freshwater habitat the project area was conducted for listed salmonids according to *Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996). The Columbia River is not evaluated using this method, because it is an estuary at the project site and is not fresh water. The western Type-F stream was the only stream evaluated, because it is near the road-widening area and park development. The eastern Type-F stream was not evaluated because it does not flow as often as the western stream, and it is not located near project-impact areas.

The Type-F stream evaluation on the western side of the project site is summarized in Table 4. Several baseline indicators were assessed to determine whether the proposed action would restore, maintain, or degrade existing baseline conditions at the watershed and project-area scales. The evaluation is based on field measurements, review of site and aerial photographs, and consultation with USACE, WDFW, USFWS, and NOAA Fisheries staff (pers. comm. G. Terzi, K. McMurry, N. Brennan-Dubbs, and B. Leonard).

The environmental baseline conditions are “at risk” or “not properly functioning” in many pathways at the project-area scale, including water quality, habitat elements, channel condition and dynamics, flow hydrology, and watershed conditions. The stream has a perched culvert and is “not properly functioning” at the habitat-access pathway. The stream channel within the project area is also “at risk” because the sandy substrate is vegetated with reed canarygrass, and contains no suitable substrate for spawning.

Other habitat elements such as large woody debris, pool frequency pool quality, and off-channel habitat and refugia are “at risk” for the stream because they are lacking in sufficient quality or quantity. Within the channel condition and dynamics pathway, width-to-depth ratio is “properly functioning” for the Type-F stream. The streambank within the project area is vegetated and stable, and therefore “properly functioning” for this indicator. Floodplain connectivity is “not properly functioning” because of reduced linkage to wetlands, floodplains, and riparian areas. The timing of peak/base flows appears unaltered, and this indicator is identified as “properly functioning”. The watershed-condition indicators

are “at risk” because of the highway crossing, a high level of disturbance, and a moderately poor riparian reserves.

At the watershed scale, the project will maintain all pathways and indicators. At the project scale, water-quality indicators could be degraded during construction, but they will be maintained in the long term because any ground disturbance during construction will revegetate and all stormwater runoff from the park will be infiltrated through pervious pavement.

**Table 4. National Marine Fisheries Service Environmental Baseline Condition Summary for the Western Type-F Stream by Watershed Scale and Project-Area Scale for Listed Salmonids.**

PATHWAYS <sup>1</sup> ▪ Indicators	ENVIRONMENTAL BASELINE			PROJECT EFFECTS AT WATERSHED SCALE			PROJECT EFFECTS AT PROJECT SCALE		
	Properly Functioning	At Risk	Not properly Functioning	Restore	Maintain	Degrade	Restore	Maintain	Degrade
WATER QUALITY ▪ Temperature  ▪ Sediment  ▪ Chemical Contam./Nutrients		X			X			X	
		X			X			X Long-term	X Short-term
			X		X			X	X Potentially, short-term
HABITAT ACCESS ▪ Physical Barriers			X		X			X	
HABITAT ELEMENTS ▪ Substrate  ▪ Large Woody Debris  ▪ Pool Frequency  ▪ Pool Quality  ▪ Off-channel Habitat  ▪ Refugia			X		X			X	
		X			X			X	
		X			X			X	
		X			X			X	
		X			X			X	
		X			X			X	
CHANNEL CONDITION & DYNAMICS ▪ Width/Depth Ratio  ▪ Streambank Condition	X				X			X	
	X				X			X	

PATHWAYS <sup>1</sup> ▪ Indicators	ENVIRONMENTAL BASELINE			PROJECT EFFECTS AT WATERSHED SCALE			PROJECT EFFECTS AT PROJECT SCALE		
	Properly Functioning	At Risk	Not properly Functioning	Restore	Maintain	Degrade	Restore	Maintain	Degrade
▪ Floodplain Connectivity			X		X			X	
FLOW HYDROLOGY ▪ Change in Peak/Base Flows	X				X			X	
▪ Drainage Network Increase		X			X			X	
WATERSHED CONDITIONS ▪ Road Density & Location			X		X			X	
▪ Disturbance History		X			X			X	
▪ Riparian Reserves		X			X			X	

<sup>1</sup>Wade, G. 2002. *Salmon and Steelhead Habitat Limiting Factors: Water Resource Inventory Area 25*. Washington State Conservation Commission. Note: this report addresses parts of WRIA 24.

### Critical Habitat - Primary Constituent Elements Present in Action Area

#### *Salmon and Steelhead*

Onsite streams have not been designated as critical habitat; however, critical habitat has been designated in the Columbia River for 12 ESUs of salmon and steelhead as a rearing/migration corridor. The primary constituent elements (PCEs) addressing estuarine areas of critical habitat include “areas free of obstruction with water quality and quantity, and salinity conditions supporting juvenile and adult physiological transitions between fresh- and saltwater; natural cover and side channels, and juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation.” The shoreline in the action area does not have natural cover or side channels, but the other estuarine PCEs are present.

All but two estuarine PCEs are functioning properly. The exceptions are natural cover and side channels, and juvenile and adult foraging areas. The shoreline has been developed and diked, reducing former floodplain connectivity, wetlands, and side channels that provide juvenile cover and forage. Project effects were discussed in the *Action Area* section of this report. There may be direct effects due to the water-quality PCE to first-flush rainfall events, but no indirect effects to PCEs in the Columbia River are anticipated.

#### *North American Green Sturgeon*

Critical habitat has been proposed in the Columbia River from the mouth to Bonneville Dam (Federal Register 2009); this entire reach is considered an estuary. The six primary constituent elements for estuaries are listed below:

1. Food resources, primarily benthic invertebrates and fishes.
2. Water flow (applies only to California).

3. Water quality. Characteristics necessary for normal behavior, growth, and viability of all life stages including temperature, salinity, oxygen, and chemical contaminants.
4. Migratory corridor. Safe and timely passage between riverine, estuarine, and marine habitats.
5. Water depth. A diversity of depths to support different life stages and habitat uses.
6. Sediment quality. Free of elevated levels of chemical contaminants that can cause adverse effects to all life stages.

The following PCEs apply to critical habitat present in the Columbia River and at the project site: food resources, water quality, migratory corridor, water depth, and sediment quality. These PCEs appear to be properly functioning. There may be direct effects to the water-quality PCE due to first-flush rainfall events, but no indirect effects to PCEs in the Columbia River are anticipated.

#### *Bull Trout*

Critical habitat has been proposed in the Columbia River from the mouth to Okanogan County (Federal Register 2010). The PCEs for bull trout critical habitat are listed below:

1. Springs, seeps, groundwater sources, and subsurface water connectivity (hyporehic flows) to contribute to water quality and quantity and provide thermal refugia.
2. Migratory habitats with minimal physical, biological, or water quality impediments between spawning, rearing, overwintering, and freshwater and marine foraging habitats, including but not limited to permanent, partial, intermittent, or seasonal barriers.
3. An abundant food base, including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish.
4. Complex river, stream, lake, reservoir, and marine shoreline aquatic environments and processes with features such as large wood, side channels, pools, undercut banks, and substrates to provide a variety of depths, gradients, velocities, and structure.
5. Water temperatures ranging from 2 to 15 °C (36 to 59 °F) with adequate thermal refugia available for temperatures at the upper end of this range. Specific temperatures within this range will vary depending on bull through life-history stage and form; geography; elevation; diurnal and seasonal variation; shade, such as that provided by riparian habitat; and local groundwater influence.
6. Substrates of sufficient amount, size, and composition to ensure success of egg and embryo overwinter survival, fry emergence, and young-of-the-year and juvenile survival. A minimal amount (e.g., less than 12 percent) of fine substrate less than 0.85 mm (0.03 inches) in diameter and minimize embeddedness of these fines in larger substrates are characteristic of these conditions.
7. A natural hydrograph, including peak, high, low, and base flows within historic and seasonal ranges or, if flows are controlled, they minimize departures from a natural hydrograph.
8. Sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited.
9. Few or no nonnative predatory (e.g., lake trout, walleye, northern pike, smallmouth bass); inbreeding (e.g., brook trout); or competitive (e.g., brown trout) species present.

PCEs that apply to estuarine environments are properly functioning, with the exception that the shoreline has been simplified with riprap and wetlands and off-channel areas have largely been eliminated since the 1800s. Also, numerous dams on the river have altered the natural hydrograph. There may be direct effects to the water-quality PCE due to first-flush rainfall events, but no indirect effects to PCEs in the Columbia River are anticipated.

## **EFFECTS OF THE ACTION**

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### **NMFS JURISDICTION**

#### **13 ESUs/DPSs of Salmon and Steelhead**

Each of the listed 13 ESUs/DPSs of salmon and steelhead occur within the action area for adult migration and juvenile rearing and migration. Effects from construction (May through October) may occur in aquatic habitats during the first-flush rainfall event. Juveniles and adults may be exposed to a minor increase of suspended solids or contaminant releases from work near the western Type-F stream, streams where bridge construction and repair will occur, near Wetland A, or near the Columbia River.

Exposure to increased suspended sediments can have negative, neutral, or beneficial effects, which include gill irritation and reduced visibility. The response of juveniles to increased suspended solids is reduced visibility, which may reduce feeding rates, cause juveniles to feed in other areas, or it can provide visual cover from predators. Increased feeding rates have been observed, presumably because they feel less vulnerable to predators.

Contaminant exposure can cause a wide range of negative effects, including tissue irritation, olfactory alteration, reduced numbers of prey, direct toxic effects, or toxic effects from bioaccumulation in the food chain. Responses to contaminant exposure include avoidance of contaminated areas, behavioral effects, illness, and death. Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and construction BMPs will reduce the potential for suspended sediment or contaminant releases.

All ESUs/DPSs could be in the Columbia River during the May through October construction season. Juvenile coho are likely to be in Wetland A year round and in the western Type-F stream if river levels are high.

Direct effects to adult and juvenile salmon and steelhead and their prey will be insignificant for the following reasons:

- Increased suspended-solids concentrations are only expected during the first-flush rainfall event and will not likely reach the Columbia River.
- The chance of chemical contamination is low because impact-minimization measures will be in place and construction will occur during the dry season.
- Bridge construction and repair will not occur below OHWM.
- The Columbia River estuary is a large waterbody, and a small amount of suspended solids that may occur during the project or after the first flush will dissipate quickly.

There will be no adverse, indirect effects to juvenile or adult salmon and steelhead as a result of increased use of the project area. Pervious paved surfaces will infiltrate all stormwater from pollution-generating surfaces.

### **Designated Critical Habitat – Salmon and Steelhead - 12 ESUs/DPSs**

There is designated critical habitat in the Columbia River, adjacent to the proposed park. PCEs in estuarine areas are “areas free of obstruction, with water quantity and quality conditions, and salinity conditions supporting juvenile and adult physiological transitions between fresh and saltwater; natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side channels; and juvenile and adult forage, including aquatic invertebrates and fishes supporting growth and maturation.” The shoreline of the action area currently does not have natural cover and does not have side channels, but the other estuarine PCEs are present.

The project will have no effect on the following PCEs: areas free from obstruction, water quantity, salinity, and forage for juveniles and adults. The project may adversely affect the water-quality PCE from construction stormwater runoff containing pollutants from construction-equipment leaks or suspended sediments. Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and construction BMPs will reduce the potential for suspended sediment or contaminant releases.

Direct effects to the water-quality PCE will be insignificant for the following reasons:

- Increased suspended solids during a first-flush rain event will be temporary and will not likely reach the Columbia River.
- The chance of chemical contamination is low because impact-minimization measures will be in place and construction will occur during the dry season.
- Bridge construction and repair will not occur below OHWM.
- The Columbia River estuary is a large waterbody, and a small amount of suspended solids that may occur during the project or after the first flush will dissipate quickly.

There will be no adverse, indirect effects to salmon and steelhead PCEs as a result of increased use of the project area. Pervious paved surfaces will infiltrate all stormwater from pollution-generating surfaces.

### **North American Green Sturgeon – Southern DPS**

The Southern DPS of North American green sturgeon occur in the Columbia River estuary during summer and early fall as subadults and adults. Effects from construction may occur in aquatic habitats during the first-flush rainfall event, causing a minor increase of suspended solids or contaminant releases from work near the western Type-F stream, streams where bridge construction and repair will occur, near Wetland A, or near the Columbia River.

Exposure to increased suspended sediments may include gill irritation or reduced visibility. The response of green sturgeon to increased suspended sediments may include reduced feeding rates, they may move to other areas, or it may provide visual cover from predators.

Contaminant exposure can cause a wide range of negative effects, including tissue irritation, olfactory alteration, reduced numbers of prey, direct toxic effects, or toxic effects from bioaccumulation in the food chain. Responses to contaminant exposure include avoidance of contaminated areas, behavioral effects, illness, and death. Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and construction BMPs will reduce the potential for suspended sediment or contaminant releases.

Direct effects to green sturgeon and their prey will be insignificant for the following reasons:

- Increased suspended solids during a first-flush rain event will be temporary and will not likely reach the Columbia River.
- The chance of chemical contamination is low because impact-minimization measures will be in place and construction will occur during the dry season.
- Bridge construction and repair will not occur below OHWM.
- The Columbia River estuary is a large waterbody, and a small amount of suspended solids that may occur during the project or after the first flush will dissipate quickly.

There will be no adverse, indirect effects to juvenile or adult salmon and steelhead as a result of increased use of the project area. Pervious paved surfaces will infiltrate all stormwater from pollution-generating surfaces.

#### **Designated Critical Habitat – North American Green Sturgeon – Southern DPS**

Critical habitat has been designated in the Columbia River adjacent to this site. The following PCEs apply to critical habitat present in the Columbia River and at the project site: food resources, water quality, migratory corridor, water depth, and sediment quality.

The project will have no effect on the migratory corridor, water depth, and sediment quality PCEs. The project may adversely affect water quality from construction stormwater runoff containing pollutants from construction-equipment leaks or suspended sediments. Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and construction BMPs will reduce the potential for suspended sediments releases. Temporary effects to the water-quality PCE may also affect the food-resources PCE.

Direct effects to the water-quality PCE will be insignificant for the following reasons:

- Increased suspended solids during a first-flush rain event will be temporary and will not likely reach the Columbia River.
- The chance of chemical contamination is low because impact-minimization measures will be in place and construction will occur during the dry season.
- Bridge construction and repair will not occur below OHWM.
- The Columbia River estuary is a large waterbody, and a small amount of suspended solids that may occur during the project or after the first flush will dissipate quickly.

There will be no adverse, indirect effects to the water-quality or food-resources PCEs as a result of increased use of the project area. Pervious paved surfaces will infiltrate all stormwater from pollution-generating surfaces.

### **Columbia River Smelt – Southern DPS**

Columbia River smelt spawn in freshwater in the mainstem Columbia River and some of its major tributaries in winter. Larvae float downstream to the estuary for rearing. Available life-history information is unclear about how long juveniles rear in the estuary.

Effects from construction may occur in aquatic habitats during the first-flush rainfall event in summer through fall, causing a minor increase of suspended solids or contaminant releases from work near the western Type-F stream, streams where bridge construction and repair will occur, near Wetland A, or near the Columbia River. Adults and larvae will not be in the action area until winter, when no project effects are anticipated.

Exposure of smelt juveniles to increased suspended sediments are expected to be similar to salmon and steelhead juveniles, which may include tissue irritation or reduced visibility. The response of individuals in these life stages may include reduced feeding rates, may cause them to move to other areas, or it may provide visual cover from predators.

Contaminant exposure will likely cause a wide range of effects, as they do in salmon and steelhead. Exposure may include tissue irritation, olfactory alteration, reduced numbers of prey, direct toxic effects, or toxic effects from bioaccumulation in the food chain. Responses to contaminant exposure include avoidance of contaminated areas, behavioral effects, illness, and death. Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and construction BMPs will reduce the potential for suspended sediment or contaminant releases.

Direct effects to smelt and their prey will be insignificant for the following reasons:

- First-flush events will not occur during the winter, so there will be no effects to smelt adults or larvae.
- Increased suspended-solids concentrations are only expected during the first-flush rainfall event, which will not likely reach the Columbia River.
- The chance of chemical contamination is low because impact-minimization measures will be in place and construction will occur during the dry season.
- Bridge construction and repair will not occur below OHWM.
- The Columbia River estuary is a large waterbody, so a small amount of suspended solids that may occur during the project or after the first flush will dissipate quickly.

There will be no adverse, indirect effects to larvae, juvenile, or adult smelt as a result of increased use of the project area. Pervious paved surfaces will infiltrate all stormwater from pollution-generating surfaces.

### **Steller Sea Lions**

Steller sea lions may forage within the action area, so they may be exposed to increased suspended sediments from construction runoff or pollutants from construction equipment if they reach the Columbia River. Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and stormwater BMPs will reduce suspended sediments from the site. Additionally, the Columbia River estuary is a large

waterbody, and a small amount of suspended solids that may occur during construction or after the first-flush rainfall will dissipate quickly.

Exposure to increased suspended sediments may include tissue irritation and reduced visibility. The primary response of sea lions to increased suspended solids is likely reduced visibility, which may reduce feeding rates or cause them to forage in other areas.

Contaminant exposure can cause a wide range of negative effects, including tissue irritation, olfactory alteration, reduced numbers of prey, direct toxic effects, or toxic effects from bioaccumulation in the food chain. Responses to contaminant exposure include avoidance of contaminated areas, behavioral effects, illness, and death. Impact-minimization measures for construction-equipment maintenance, fueling, and operation will be implemented, and construction BMPs will reduce the potential for contaminant releases.

Direct effects to sea lions and their prey will be insignificant for the following reasons:

- First-flush events will not occur during the winter when Steller sea lions are most likely to be present.
- Increased suspended-solids concentrations are only expected during the first-flush rainfall event, which will not likely reach the Columbia River.
- The chance of chemical contamination is low because impact-minimization measures will be in place and construction will occur during the dry season.
- Bridge construction and repair will not occur below OHWM.
- The Columbia River estuary is a large waterbody, so a small amount of suspended solids that may occur during the project or after the first flush will dissipate quickly.

There will be no adverse, indirect effects to Steller sea lions as a result of increased use of the project area. Pervious paved surfaces will infiltrate all stormwater from pollution-generating surfaces.

## **USFWS JURISDICTION**

### **Bull Trout**

Adult or subadult bull trout may be overwintering, migrating, or foraging in the Columbia River in the action area, so they may be exposed to increased suspended sediments from construction runoff or pollutants from construction equipment. Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and stormwater BMPs will reduce suspended sediments from the site.

Exposure to increased suspended sediments will likely include tissue irritation and reduced visibility, but it can also provide cover from predators. The primary response of bull trout to increased suspended solids is likely reduced visibility, which may reduce feeding rates, cause them to forage in other areas, or result in greater survival from predator attacks.

Contaminant exposure can cause a wide range of negative effects, including tissue irritation, olfactory alteration, reduced prey numbers, direct toxic effects, or toxic effects from bioaccumulation in the food chain. Responses to contaminant exposure include avoidance of

contaminated areas, behavioral effects, illness, and death. However, this project is expected to produce little or no contaminants during construction.

Direct effects to bull trout and their prey will be insignificant for the following reasons:

- Increased suspended solids during a first-flush rain event will be temporary and will not likely reach the Columbia River.
- The chance of chemical contamination is low because impact-minimization measures will be in place and construction will occur during the dry season.
- Bridge construction and repair will not occur below OHWM.
- The Columbia River estuary is a large waterbody, and a small amount of suspended solids that may occur during the project or after the first flush will dissipate quickly.

There will be no adverse, indirect effects to bull trout as a result of increased use of the project area. Pervious paved surfaces will infiltrate all stormwater from pollution-generating surfaces.

### **Proposed Critical Habitat – Bull Trout – Columbia River DPS**

Critical habitat has been proposed in the Columbia River adjacent to this site. PCEs have been specified for currently designated critical habitat, and they are likely to remain the same for any revised designations.

The following PCEs apply to critical habitat present in the Columbia River estuary in the action area: impediments between habitats; food resources; habitat diversity; natural hydrograph; sufficient water quality and quantity; and nonnative predators, inbreeding, or competitive species present.

The project will have no effect on the PCEs regarding impediments between habitats; habitat diversity; natural hydrograph; and nonnative predators, inbreeding, or competitive species present. The project may adversely affect the water-quality PCE and the food-resources PCE from construction stormwater runoff containing pollutants from construction-equipment leaks or suspended sediments. Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and construction BMPs will reduce the potential for suspended sediments releases that could temporarily affect the PCE that addresses sufficient water quality and quantity;. Temporary effects to the water-quality PCE may also affect the food-resources PCE.

Direct effects to the water-quality and food-resources PCEs will be insignificant for the following reasons:

- Increased suspended solids during a first-flush rain event will be temporary and will not likely reach Wetland A or the Columbia River.
- The chance of chemical contamination is low because impact-minimization measures will be in place and construction will occur during the dry season.
- Bridge construction and repair will not occur below OHWM.
- The Columbia River estuary is a large waterbody, and a small amount of suspended solids that may occur during the project or after the first flush will dissipate quickly.

There will be no adverse, indirect effects to the water-quality or food-resources PCEs as a result of increased use of the project area. Pervious paved surfaces will infiltrate all stormwater from pollution-generating surfaces.

### **Marbled Murrelets**

As stated above, the trail on Fort Columbia State Park property is on the edge of a forested area has been identified by USFWS representatives to meet the criteria for suitable marbled-murrelet habitat is located near the portion of. An increased level of noise and human activity will take place along the trail connecting the parks. After project construction, human disturbance from pedestrians and bicycle traffic will be above the forested background noise level, and is estimated to carry 300 feet from the trail before the noise attenuates to background conditions. The WDFW Priority Habitats and Species map shows a marbled-murrelet occupancy site that is farther than 300 feet from the trail.

The USFWS *Recovery Plan for the Threatened Marbled Murrelet* (1997) does not advise specific management guidelines, such as buffers or timing restrictions for marbled murrelets. Instead, the Recovery Plan identifies that the decline in murrelets appears largely due to 1) loss of old-growth forest, nesting habitat, and direct loss and changes in forest-age distribution, and 2) poor reproductive success in the remaining habitat because of increased vulnerability of nests to predators in highly fragmented landscapes.

According to the WDFW *Management Recommendations for Washington's Priority Habitats and Species* (Rodrick and Milner 1991), a 0.5-mile radius buffer is an appropriate distance between construction activities and marbled-murrelet occupancy sites. This distance was suggested before noise-attenuation calculations were used to predict noise from specific types of construction equipment under different site conditions.

Noise calculations discussed in the *Action Area* section of this report stated that noise from culvert removal and bridge construction will attenuate to the estimated background noise level of 38 dBA at a distance of 1,600 feet (0.3 miles) from the activity. This distance includes the occupancy site and suitable habitat as identified by USFWS representatives in 2003. For this reason, the following impact-minimization measure will be followed for construction work along the trail: during the critical marbled-murrelet nesting season, between April 1 and September 15, construction work and chain-saw maintenance tasks on the trail to Fort Columbia will not take place during the following times: one hour before official sunrise until two hours after official sunrise, and one hour before official sunset until one hour after official sunset.

Marbled murrelets may nest or roost in mature forested areas on the edge of the action area near the trail to Fort Columbia, so they may be exposed to direct effects during construction from visual and noise disturbances during the nesting season; however, the project is not between nesting sites and marine-foraging areas, so these impacts will be smaller than if murrelets had to cross the project area. Because nesting habitat is on the edge of the action area, and there are other noise and visual disturbances from the highway, residences, and Fort Columbia, the likelihood of delayed or missed feedings of young murrelets is judged to

be small. The overall anticipated response of murrelets is no change in behavior. Because disturbances to nesting behavior could occur, but is not likely to occur, direct effects to murrelets are considered insignificant.

### **Northern Spotted Owls**

Northern spotted owls may use suitable nesting and roosting habitat on Fort Columbia State Park property near the western portion of the trail. Dispersal and foraging habitat also occurs within the state park and may also occur near or within the Station Camp – Middle Village Park. Currently, there is suitable foraging habitat in the action area, and there are other noise and visual disturbances from the highway, residences, Fort Columbia, and the existing trail.

Direct effects from bridge construction and repair include increased noise for a 1,600-foot radius from the pedestrian trail. This area includes dispersal and foraging habitat, and may include suitable nesting and roosting habitat.

During and after construction, there will be an increase of human activity in the park and along the trail, indirect effects from visual and noise disturbances may occur during the daytime when the park and trail are being used. Construction will take place from May to October, and the early breeding season for northern spotted owls is March 1 through July 15, and the breeding season is October 1 through February 28 (WSDOT 2010).

The owls may also react to the increased daytime activity by adjusting their use of the park and vicinity to times when there are no visitors. Their response to increased activity along the trail may be to avoid the area. However, northern spotted owls are known to be less disturbed by human presence than many species. Humans can walk to within several feet of northern spotted owls before they fly away (Thomas *et al* 1990).

Because owls are less susceptible to human presence, there is currently human presence in these areas, owls are more active at night, and the park and trail will be open only during the day, the likelihood of significantly impacting nesting, roosting, dispersal, or foraging habitat is judged to be small. Therefore, direct and indirect effects of the proposed project to northern spotted owls are considered insignificant.

## **EFFECT DETERMINATIONS**

Effect determinations below include a summary of direct, indirect, and beneficial effects to species and critical habitat discussed earlier.

### **NMFS JURISDICTION**

#### **13 ESUs/DPSs of Salmon and Steelhead**

The project **may affect, but is not likely to adversely affect** salmon and steelhead. A “**may affect**” determination is warranted because: juveniles and adults may be exposed to the following adverse effects:

- In the Columbia River estuary during the construction period, juveniles could be migrating or rearing, and adults could be migrating through the action area.

Construction could cause temporary increases of suspended solids from exposed soils or chemicals from heavy equipment.

- Juveniles from any of the 13 ESUs/DPSs may be using Wetland A as off-channel habitat during bridge construction and repair. Juvenile coho may also be rearing in Wetland A. Construction could cause temporary increases of suspended solids from exposed soils or chemicals from heavy equipment.
- Juveniles from any of the 13 ESUs/DPSs may be using the western Type-F stream or parts of Wetland B for off-channel rearing if river levels are high during construction. Construction could cause temporary increases of suspended solids from exposed soils or chemicals from heavy-equipment leaks.

A “**not likely to adversely affect**” determination is warranted because:

- There will be no indirect effects to aquatic habitats, because all stormwater will be infiltrated and no restroom facilities will be added.
- Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and stormwater BMPs will reduce suspended-sediment releases or heavy-equipment leaks from the site.
- Increased suspended-solids concentrations or heavy-equipment leaks are only expected during the first-flush rainfall event and will not likely reach the Columbia River.
- Bridge construction and repair will not occur below OHWM.
- The Columbia River estuary is a large waterbody, and a small amount of suspended solids or chemicals that may occur during the project or after the first flush will dissipate quickly.

#### **Designated Critical Habitat for 12 ESUs/DPSs of Salmon and Steelhead**

The project **may affect, but is not likely to adversely affect** 12 ESUs/DPS of designated critical habitat for salmon and steelhead. A “**may affect**” determination is warranted because:

- The project may directly affect the water-quality PCE from construction stormwater runoff containing pollutants from construction-equipment leaks or suspended solids.

A “**not likely to adversely affect**” determination is warranted because:

- There will be no indirect effects to aquatic habitats, because all stormwater will be infiltrated and no restroom facilities will be added.
- Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and stormwater BMPs will reduce suspended-sediment releases or heavy-equipment leaks from the site.
- Increased suspended-solids concentrations or heavy-equipment leaks are only expected during the first-flush rainfall event and will not likely reach the Columbia River.
- Bridge construction and repair will not occur below OHWM.
- The Columbia River estuary is a large waterbody, and a small amount of suspended solids or chemicals that may occur during the project or after the first flush will dissipate quickly.

- There will be no adverse, indirect effects as a result of increased use of the project area. Pervious paved surfaces will infiltrate all stormwater from pollution-generating surfaces.

#### **North American Green Sturgeon – Southern DPS**

The project **may affect, but is not likely to adversely affect** green sturgeon. A “**may affect**” determination is warranted because:

- The action area includes suitable foraging and over-summering habitat for subadult and adult green sturgeon during the construction period.
- The project may directly affect water quality from construction stormwater runoff containing pollutants from construction-equipment leaks or suspended solid increases.

A “**not likely to adversely affect**” determination is warranted because:

- There will be no indirect effects to aquatic habitats, because all stormwater will be infiltrated and no restroom facilities will be added.
- Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and stormwater BMPs will reduce suspended-sediment releases or heavy-equipment leaks from the site.
- Increased suspended-solids concentrations or heavy-equipment leaks are only expected during the first-flush rainfall event and will not likely reach the Columbia River.
- Bridge construction and repair will not occur below OHWM.
- The Columbia River estuary is a large waterbody, and a small amount of suspended solids or chemicals that may occur during the project or after the first flush will dissipate quickly.

#### **Designated Critical Habitat for North American Green Sturgeon – Southern DPS**

The project **may affect, but is not likely to adversely affect** designated critical habitat for the green sturgeon. A “**may affect**” determination is warranted because:

- The project may directly affect the water-quality PCE from construction stormwater runoff containing pollutants from construction-equipment leaks or suspended solids.

A “**not likely to adversely affect**” determination is warranted because:

- There will be no indirect effects to aquatic habitats, because all stormwater will be infiltrated and no restroom facilities will be added.
- Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and stormwater BMPs will reduce suspended-sediment releases or heavy-equipment leaks from the site.
- Increased suspended-solids concentrations or heavy-equipment leaks are only expected during the first-flush rainfall event and will not likely reach the Columbia River.
- Bridge construction and repair will not occur below OHWM.

- The Columbia River estuary is a large waterbody, and a small amount of suspended solids or chemicals that may occur during the project or after the first flush will dissipate quickly.

### **Steller Sea Lions**

The project **may affect, but is not likely to adversely affect** Steller sea lions. A “**may affect**” determination is warranted because:

- The action area includes suitable foraging habitat for Steller sea lions.
- The project may directly affect water quality from construction stormwater runoff containing pollutants from construction-equipment leaks or increased suspended solids.

A “**not likely to adversely affect**” determination is warranted because:

- There will be no indirect effects to aquatic habitats, because all stormwater will be infiltrated and no restroom facilities will be added.
- Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and stormwater BMPs will reduce suspended-sediment releases or heavy-equipment leaks from the site.
- Increased suspended-solids concentrations or heavy-equipment leaks are only expected during the first-flush rainfall event and will not likely reach the Columbia River.
- Bridge construction and repair will not occur below OHWM.
- The Columbia River estuary is a large waterbody, and a small amount of suspended solids or chemicals that may occur during the project or after the first flush will dissipate quickly.

## **USFWS JURISDICTION**

### **Bull Trout – Columbia River DPS**

The project **may affect, but is not likely to adversely affect** bull trout. A “**may affect**” determination is warranted because:

- The action area includes suitable foraging, overwintering, and migration habitat for adult and sub-adult bull trout during the construction period.
- The project may directly affect water quality from construction stormwater runoff containing pollutants from construction-equipment leaks or increased suspended solids.

A “**not likely to adversely affect**” determination is warranted because:

- Bull trout are rare in the Columbia River.
- There will be no indirect effects to aquatic habitats, because all stormwater will be infiltrated and no restroom facilities will be added.
- Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and stormwater BMPs will reduce suspended-sediment releases or heavy-equipment leaks from the site.

- Increased suspended-solids concentrations or heavy-equipment leaks are only expected during the first-flush rainfall event and will not likely reach the Columbia River.
- Bridge construction and repair will not occur below OHWM.
- The Columbia River estuary is a large waterbody, and a small amount of suspended solids or chemicals that may occur during the project or after the first flush will dissipate quickly.

### **Proposed Critical Habitat for Bull Trout – Columbia River DPS**

The project may directly affect the water-quality and food-resources PCEs from construction stormwater runoff containing pollutants from construction-equipment leaks or suspended solids; however, it **is not likely to destroy or adversely modify** proposed critical habitat for bull trout. This determination is warranted because:

- There will be no indirect effects to aquatic habitats, because all stormwater will be infiltrated and no restroom facilities will be added.
- Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and stormwater BMPs will reduce suspended-sediment releases or heavy-equipment leaks from the site.
- Increased suspended-solids concentrations or heavy-equipment leaks are only expected during the first-flush rainfall event and will not likely reach the Columbia River.
- Bridge construction and repair will not occur below OHWM.
- The Columbia River estuary is a large waterbody, and a small amount of suspended solids or chemicals that may occur during the project or after the first flush will dissipate quickly.

### **Marbled Murrelets**

The project **may affect, but is not likely to adversely affect** marbled murrelets. A “**may affect**” determination is warranted because:

- The western edge of the action area may contain suitable nesting and roosting habitat.
- There will be increased disturbances from visual and atmospheric-noise levels from construction and possibly from permanent increases in public use during the daytime.

A “**not likely to adversely affect**” determination is warranted because:

- Murrelets will not have to fly through or around the action area or project area between marine-foraging areas and nesting areas.
- The pedestrian trail near suitable habitat is currently in use.
- Potential nesting areas are at the outer edge of the action area, so effects will be insignificant.
- Long-term indirect effects may or may not occur from increased public use and they will only occur during the daytime when the park is open.

### **Northern Spotted Owl**

The project **may affect, but is not likely to adversely affect** northern spotted owls. A “**may affect**” determination is warranted because:

- The western edge of the action area may contain suitable nesting and roosting habitat.
- The project site and pedestrian trail may currently be used for foraging and dispersal habitat
- There will be increased disturbances from visual and atmospheric-noise levels from construction and possibly from permanent increases in public use during the daytime.

A “**not likely to adversely affect**” determination is warranted because:

- Potential nesting and roosting areas are at the outer edge of the action area, so effects will be insignificant.
- Long-term effects may or may not occur from increased public use and they would only occur during the daytime when the park is open.
- These areas currently experience human activity and noise.

### **SUMMARY**

The project **may affect, but is not likely to adversely affect** the following species and critical habitat:

- 13 ESUs/DPSs of Salmon and Steelhead
- Designated Critical Habitat for 12 ESUs/DPSs of Salmon and Steelhead
- North American Green Sturgeon – Southern DPS
- Designated Critical Habitat for North American Green Sturgeon – Southern DPS
- Columbia River Smelt (Eulachon) – Southern DPS
- Steller Sea Lions
- Bull Trout – Columbia River DPS
- Marbled Murrelets
- Northern Spotted Owls

The project **will not destroy or adversely affect** proposed critical habitat for bull trout.

If bull trout critical habitat is designated prior to consultation completion, the project **may affect, but is not likely to adversely affect** designated bull trout critical habitat.

On the basis of direct effects to EFH in freshwater and estuarine habitats, this project will **not adversely affect EFH for Pacific salmon, Pacific groundfish, or coastal pelagic fisheries** (see Appendix C for the analysis).

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## **PERSONAL COMMUNICATIONS**

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## **FIGURES**

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## **APPENDIX A**

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### **Official Species Lists:**

*National Marine Fisheries Service (NMFS),  
U.S. Fish and Wildlife Service (USFWS)*

## **APPENDIX B**

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### **Biology of Listed Species**

## Listed Species under NMFS Jurisdiction

### Salmon and Steelhead ESUs (*Oncorhynchus* species)

#### *Status*

Table 1 lists 13 salmon and steelhead ESUs as threatened or endangered (NMFS 2006). Critical habitat has been designated in the action area for all chinook, chum, sockeye, and steelhead ESUs, because each fish run must migrate through the Columbia River mainstem Critical habitat for coho is currently under review.

#### *Life-History Types and Habitat Requirements*

All life-history information in this section is from the USACE *Biological Assessment for Columbia River Channel Improvements Project* (channel deepening), December 28, 2001.

Individual fish from each population may be present within the action area as juveniles or adults, because they move through the action area as juveniles on their way to the ocean and again as adults during their return migration to spawn in their ESU or DPS. However, the amount of time spent in the lower Columbia River during different life stages and at different seasons varies greatly among populations. Because of differences in each of these salmonid types, different portions of the habitat are used, so changes to habitat may affect them differently.

Water depth, water velocity, and substrate type are basic physical characteristics determining habitat suitability for young and adult salmon. Water temperature, salinity, and turbidity are secondary physical factors that influence habitat suitability.

As adults, returning salmonids have much less restrictive habitat requirements than juveniles tend to migrate in deeper water. This biological evaluation focuses on juvenile life stages, because they are more vulnerable to environmental disturbances. Habitat requirements for salmon and steelhead can be divided into two life-history strategies. The ocean-type rears in freshwater for only a few weeks to a few months before migrating to sea during their first year of life. Stream-type salmonids spend at least a year rearing in fresh water prior to their downstream migration. Table 2 shows life-history types and juvenile life stages of each listed ESU or DPS within the action area.

**Table B-1. Life-History Types and Juvenile Life Stages of Listed ESUs and DPSs in the Action Area.**

<b>Common Name</b>	<b>Scientific Name</b>	<b>Life-History Type</b>	<b>Juvenile Life Stage in Action Area</b>
<b>Chinook</b> <i>Lower Columbia River ESU</i> Upper Columbia River Spring Run ESU Snake River Spring/Summer Run ESU <i>Snake River Fall Run ESU</i> Upper Willamette River ESU	<i>Oncorhynchus tshawytscha</i>	Ocean Stream Stream Ocean Ocean	Subyearling Yearling + Yearling + Subyearling Subyearling
<b>Chum</b> <i>Columbia River ESU</i>	<i>Oncorhynchus keta</i>	Ocean	Subyearling
<b>Coho</b> Lower Columbia River ESU	<i>Oncorhynchus kisutch</i>	Stream	Yearling +
<b>Sockeye</b> Snake River ESU	<i>Oncorhynchus nerka</i>	Stream	Yearling +
<b>Steelhead</b> Lower Columbia River DPS Middle Columbia River DPS Upper Columbia River DPS Snake River Basin DPS Upper Willamette River DPS	<i>Oncorhynchus mykiss</i>	Stream Stream Stream Stream Stream	Yearling + Yearling + Yearling + Yearling + Yearling +

Ocean Type

Ocean-type salmon migrate downstream to the estuary as subyearlings, generally leaving the spawning area where they hatched within days to months following their emergence from the gravel. Ocean-type salmon ESUs in the Columbia River include some chinook ESUs (Lower Columbia River, Snake River fall, and Upper Willamette River) and the Columbia River chum ESU.

The first outbound migrants of the lower Columbia River fall chinook and chum may arrive in the lower Columbia River as early as late February. The majority of these fish are present from March through June. Outbound Snake River fall chinook begin their migration much farther upstream and arrive in the lower Columbia River approximately one month later.

There is considerable variability in the freshwater-rearing period of ocean-type juveniles. Subyearlings from the mid-Columbia and Snake Rivers tend to be substantially larger than the Lower Columbia ESU by the time they reach the lower Columbia River. Larger subyearlings from the Snake River can likely use a greater range of depth and current conditions than the subyearlings of the lower Columbia River ESUs.

Once ocean-type subyearlings arrive in the lower Columbia River, they may remain for weeks to months. Because these fish arrive small in size, they undergo extended lower river and estuary rearing before they reach the transitional size necessary to migrate to the ocean. This larger size is necessary to deal with the physical conditions and predators they face in

the ocean environment, as well as to be successful in obtaining prey in that environment. Ocean-type yearlings require weeks to months in the lower Columbia River to reach this larger size.

Subyearlings are commonly found within a few meters of the shoreline at water depths of less than 1 meter. Although they migrate between areas over deeper water, they generally remain close to the water surface and near the shoreline during rearing, favoring water no more than 2 meters deep and areas where currents do not exceed 0.3 meters per second. They seek lower-energy areas where waves and currents do not require them to expend considerable energy to remain in position while they consume invertebrates that live on or near the substrate.

### Stream Type

Stream-type salmon rear in freshwater, usually remaining in the stream where they hatched for a year or more before beginning their downstream migration to the ocean. Steelhead trout may rear in freshwater for several years before migrating to the ocean. Sockeye rear in lakes rather than in streams. Stream-type ESUs and DPSs include some of the chinook salmon ESUs (upper Columbia spring run and Snake River spring/summer runs), sockeye, coho, and steelhead. Stream-type populations migrate to the ocean in their second year of life or later as relatively large smolts (generally 100 to 300 mm) and travel quickly through riverine reaches of the river within days to weeks.

Smolts undergo a physiological alteration in the spring that prepares them for migration and saltwater adaptation. Although fish of various populations may migrate at somewhat different times, smolts tend to migrate from early April through September. Migration timing varies with species and with distance between the ocean and the stream where they hatched.

The larger size of the yearling smolts allows them to occupy a wider range of habitats. Smolts are commonly found farther from shore with a deeper distribution than ocean-type migrants. They are not shoreline oriented, but they are typically found within the top 20 feet of the water column. Yearling smolts are also found in a wider range of current speeds and tend to avoid low-velocity areas except during brief periods when they hold position against river currents. These fish either remain in major channels where substantial current occurs or are actively swimming at a high rate. They also move between channels. Yearling salmon are not associated with specific substrate types, because they tend to be water-column oriented rather than shoreline oriented.

### Adult Salmon and Steelhead

Adult salmon and steelhead returning to the Columbia River migrate through the river mouth throughout the year. The majority migrate in or near the action area from early spring through autumn, with the exception that winter steelhead peak migration is from April to July (NMFS 2005b).

## **North American Green Sturgeon (*Acipenser medirostris*)**

### *Status*

The Southern DPS of North American green sturgeon is federally listed as threatened (the Northern DPS is a species of concern) (Federal Register 2006). Critical habitat has not been designated (USFWS 2008b).

### *Life History*

Sturgeon are large, primitive, bottom-dwelling fish with a skeleton consisting mostly of cartilage. Like all sturgeon, green sturgeon are anadromous and they are the most marine-oriented of the sturgeon species. They range from Mexico to the Bearing Sea and are commonly observed in bays and estuaries along the west coast of North America, with particularly large concentrations entering the Columbia River estuary, Willapa Bay, and Grays Harbor during late summer, peaking in August. Reasons for these concentrations are unclear, but do not appear to be related to spawning or feeding. Studies show green sturgeon caught in the Columbia River gillnet fishery have empty stomachs, while white sturgeon stomachs contain digested material. Green sturgeon in the Columbia River are typically immature; however, at least one ripe fish has been caught in the lower Columbia River (Federal Register 2006).

Little is known about green sturgeon feeding. Adults in the Sacramento River are reported to feed on benthic invertebrates, including shrimp, mollusks, amphipods, and even small fish. Green sturgeon spawn every 2 to 5 years. They spend most of their lives in nearshore marine or estuarine waters then migrate to freshwater beginning in late February. Spawning occurs from March to July. Confirmed spawning locations of the Southern DPS are in the Sacramento and Feather Rivers up to 200 miles from the ocean. Eggs are likely broadcast over large cobbles and settle into the cracks. Stream temperatures above 68° F are lethal to embryos in laboratory experiments. Juveniles spend 1 to 4 years in freshwater and little is known about their prey, but they are known to feed on shrimp and amphipods. Life spans range from 15 to 40 years old, with maximum ages likely to 60 or 70 years. They can reach 350 pounds (Federal Register 2006).

### *Habitat*

The principal threat to the Southern DPS is the reduction in spawning habitat due to the construction of stream barriers along the Sacramento and Feather Rivers. Other threats are sufficient flow rates, increase water temperatures, water diversion, non-native species, poaching, pesticide and heavy-metal contamination, and local fishing (NMFS 2007).

## **Columbia River Smelt (Eulachon) – Southern DPS (*Thaleichthys pacificus*)**

### *Status*

The Southern DPS of eulachon were proposed for listing as a threatened species under the ESA on March 13, 2009 (Federal Register 2009). The Southern DPS is defined as south of, but not including the Nass River, near Prince Rupert in Canada.

### *Life History*

Columbia River smelt (also called, eulachon, candlefish, or hooligan) are endemic to the northeastern Pacific Ocean, ranging from northern California to the southwest and south-central Alaska and to the southeastern Bering Sea. South of the United States/Canada border, most smelt production occurs within the Columbia River just upstream from the estuary (River Mile [RM] 25) to immediately downstream of Bonneville Dam at RM 146 and in the Cowlitz River. Adults average from 180 to 200 millimeters (5.1 inches) and 40 to 58 grams at age 2, to 220-225 millimeters (5.7 inches) and 80 to 90 grams at age 5. Periodic spawning also occurs in the Grays, Skamokawa, Elochoman, Kalama, Lewis, and Sandy rivers (Columbia River tributaries). Other river basins below the Canadian border with documented spawning runs include the Klamath River in northern California and infrequently in some, but not all, coastal rivers.

Smelt typically spend 3 to 5 years in saltwater before returning to spawn in freshwater from December through March in the Columbia River watershed and are influenced by water temperatures and the occurrence of high tides. Spawning grounds are typically in the lower reaches of larger rivers fed by snowmelt, and spawning usually occurs at night. Males typically outnumber females 2:1 or more. In the Columbia River and tributaries, spawning occurs over sand, coarse gravel, or detrital substrates. Eggs are fertilized in the water column, sink, and adhere to the river bottom. Most adults die after spawning.

Smelt eggs hatch in 20 to 40 days, depending on water temperature. Shortly after hatching, larvae are carried downstream and disperse by estuarine and ocean currents. Juvenile smelt are thought to imprint on the chemical signature of their natal river basin, although returning smelt stray from their spawning sites more than salmon.

After leaving estuarine rearing areas, juvenile smelt move from shallow nearshore areas to deeper areas over the continental shelf where larvae and young juveniles become widely distributed in coastal waters. There is currently little information about their movements in nearshore areas and the open ocean.

Smelt feed on zooplankton, primarily crustaceans. Larvae and post-larvae eat phytoplankton, copepods and their eggs, mysids, barnacle larvae, worm larvae, and smelt larvae. Adults and juveniles commonly forage at moderate depths (15 to 182 meters) in inshore waters.

Smelt are very high in lipids. Due to their availability during spawning runs, they are an important part of the Pacific coastal food web. They have numerous avian and marine mammal predators. During spawning runs, bears and wolves feed on smelt. Fish predators include white sturgeon, spiny dogfish, sablefish, salmon sharks, arrowtooth flounder, salmon, Dolly Varden, Pacific halibut, and Pacific cod. Smelt seem to provide a significant food source for white sturgeon in the Columbia and Fraser rivers.

## **Steller Sea Lion (*Eumetopias jubatus*)**

### *Status*

The Steller sea lion is federally listed as threatened. Critical habitat has not been designated within the state of Washington (NMFS 2008).

### *Life History*

The average adult male Steller sea lion is 9 feet in length and 1500 pounds. The average adult female is 7 feet in length and 600 pounds. The average lifespan of a Steller sea lion is about 20 to 23 years although females may live up to 30 years. Predators include humans, sharks, and killer whales (The Alaska Sea Otter and Steller Sea Lion Consortium, 2006).

Steller sea lions become sexually mature at 3 to 7 years of age and mate and give birth on land. Males usually arrive at a rookery in May and stake out their territories for up to 60 days. Females arrive later and usually give birth to a pup that was conceived the prior year. A pregnancy lasts about 11½ months and lactation continues for 1 to 3 years. Mating occurs shortly after the pups are born, during June and July.

Steller sea lions are opportunistic and eat a wide range of fish including herring, pollock, salmon, cod, rockfishes, as well as squid, shrimp, and octopus. To survive, an adult sea lion needs to eat at least 6 percent of its body weight each day; young sea lions require twice this amount. Steller sea lions do not need to drink water because the food they eat provides them with all the water they need. Sea lions do not chew their food, most is swallowed whole. Feeding occurs in groups and at night between 9 p.m. and 6 a.m. (The Alaska Sea Otter and Steller Sea Lion Consortium, 2006).

### *Habitat Requirements*

Steller sea lions range throughout the Pacific Rim (from southern California to Northern Honshu in Japan, and to the Bering Strait). About 70 percent of the Steller sea lion population resides in Alaska. Steller sea lions are highly gregarious and they use traditional haulout sites (an area used for resting) and rookeries (an area used for breeding and rearing young) on remote and exposed islands. These sites can be rock shelves, ledges, boulders, and gravel or sand beaches (North Pacific Universities 2006).

## **Listed Species under USFWS Jurisdiction**

### **Bull Trout (*Salvelinus confluentus*)**

#### *Status*

The USFWS lists the Columbia River Distinct Population Segment (DPS) of bull trout as federally threatened (see Table 1). The nearest critical habitat has been designated in Grays Harbor (Federal Register 2005c), and proposed changes to critical habitat are expected to be finalized in September 2010.

### *Habitat Requirements*

Bull trout are members of the char subgroup of the salmon family, which also includes Dolly Varden, lake trout, and Arctic char. Bull trout and Dolly Varden look similar, and were once considered to be the same species. Bull trout are native throughout the Pacific Northwest and historically ranged from 41° to 60° north latitude (Rodrick and Milner 1991). They now exist primarily in upper tributary streams and several lake and reservoir systems (Federal Register 1999) and may exist in isolated populations above stream barriers.

Bull trout reach sexual maturity between 4 and 7 years of age and are known to live as long as 12 years. They spawn in the fall after temperatures drop below 8°C (48° F), in streams with cold, unpolluted water, clean gravel and cobble substrate, and gentle stream slopes. Some bull trout fry migrate from their natal streams to lakes and reservoirs. Because lakes and reservoirs provide poor spawning habitat for the species, migratory bull trout may swim long distances to spawn (Federal Register 1999).

Bull trout are adversely affected by high stream temperatures, lack of degraded spawning and rearing habitat, and lack of preferred food (Rodrick and Milner 1991). Small bull trout eat terrestrial and aquatic insects although they also consume insects, amphibians, crayfish, and other available food, but shift to preying on other fish as they mature. Large bull trout are primarily fish predators, eating whitefish, sculpins, and other salmonids (USACE 2001). They are more sensitive to increased water temperatures, poor water quality, and degraded stream habitat than many other salmonids. In addition, brook trout have been introduced as sport fish throughout much of the bull trout's range and the two species often hybridize, producing sterile offspring. Dams and irrigation canals also are hazards to bull trout because they can trap fish, alter water temperatures, and block migration routes (Federal Register 1999).

### *Management Recommendations*

Federal management recommendations are not explicit, but state that for the Olympic Management Unit, recovery of bull trout includes protecting, restoring, and maintaining suitable habitat conditions and water quality with actions such as removing fish-passage barriers, maintaining and improving water quality, and improving habitat conditions in and along mainstem rivers (USFWS 2004).

WDFW (Rodrick and Milner 1991) advises the following management recommendations for streams that contain bull trout and steelhead: 1) maintain buffer zones along stream banks of at least the width of the height of the tallest tree or 50 feet, whichever is wider, 2) avoid road construction and maintenance activities, and 3) avoid in-stream structures, such as bridges, trestles, boat ramps, or culverts, that impede the natural movements of fish.

## **Marbled Murrelet (*Brachyramphus marmoratus*)**

### *Status*

Marbled murrelets are designated as a threatened species at both the federal and state levels (Table 1). Critical habitat has been designated in Pacific County (Federal Register 2007).

### *Habitat Requirements*

Marbled murrelets are found year-round in late-successional and old-growth forests near the western Washington coast (Rodrick and Milner 1991). The southwest Washington coast, however, has a lower abundance of murrelets (less than 1.0 bird per square kilometer) than the northern coast (Varoujean and Williams 1995). Additionally, marbled murrelets are not common at the mouths of the Columbia River, Willapa Bay, and Grays Harbor (less than 10 individuals based on aerial surveys), although the area may serve as important summer foraging habitat (Varoujean and Williams 1995).

Favorable marbled murrelet breeding habitat generally consists of greater than 500 acres of low-elevation forests with at least 30 percent late-successional or old-growth forest components (USFWS 1997, Federal Register 1992a). Old-growth forests provide important nesting habitat for murrelets because they have developed the broad, horizontal-branching structure necessary for nest platforms. Murrelets do not build nests, but rather lay a single egg on a moss or detritus-covered branch or deformity. Old-growth forests typically have a multi-storied canopy, high to moderate canopy closure, and trees greater than 81 centimeters (32 inches) diameter at breast height. The larger trees in these areas have an average age over 200 years (USFWS 1992; Rodrick and Milner 1991). Ralph *et al.* (1995) note that murrelets likely adapted to old-growth coniferous forests during the mid-Miocene when dawn redwoods dominated the Pacific Coast. Today, as old-growth forests become fragmented, murrelets may fly up to 80 kilometers inland from marine foraging areas to nest in late-successional or old-growth forests (USFWS 1997; Ralph *et al.* 1995; Rodrick and Milner 1991). Murrelet nests have been found in Douglas fir, coastal redwood, western hemlock, western red cedar, and Sitka spruce. Nest platforms are typically found in the oldest trees in the stand with large, flat, moss or detritus-covered branches or deformities, such as forked limbs, broken tops, dwarf mistletoe infections, or witches' brooms, to support the nest (USFWS 1997; Ralph *et al.* 1995; Rodrick and Milner 1991). Overhanging branches are important to provide cover and protect nest platforms from predators and inclement weather. Canopy coverage over nests averages about 84 percent (Federal Register 1996).

Marbled murrelets favor foraging areas on inland saltwater bodies and marine waters within 1.2 miles of the shore, where they dive for small fish and invertebrates below the surface (Federal Register 1992a; Rodrick and Milner 1991). The marine birds spend the bulk of their lives on the ocean, traveling inland to nest from April through September. The species does visit some inland forest stands during all months of the year (Federal Register 1992a).

Marbled murrelets reach sexual maturity at age two, but have a variable reproductive rate and may not breed annually (Federal Register 1992a). In breeding years, murrelets produce only one egg per nest. Both male and female of the species incubate the egg in shifts for about 30

days. After hatching, the chick fledges for about 28 days. The adults fly to and from marine foraging areas to feed their young, most often at dawn and dusk.

Ralph *et al.* (1995) note that the species appears to be limited by nesting habitat, rather than foraging habitat. Marbled murrelets are primarily affected by loss of nesting habitat caused by logging and land conversion of old-growth forests throughout its range (USFWS 1997, Federal Register 1992a, Rodrick and Milner 1991). Avian predators, such as jays, crows, and ravens, also impact the species' survival. Avian predators are the most important cause of murrelet nest failure in a study of 32 marbled murrelet nests. Fire and windthrow also adversely impact forests and the nesting habitat of the species. Marbled murrelets are secondarily affected by avian predation, saltwater oil spills, and entanglement in gill-nets, especially in Washington where gill-netting is allowed (Federal Register 1992a; Rodrick and Milner 1991). Predation by great-horned owls, Steller's jays, common ravens, peregrine falcons, sharp-shinned hawks, gray jays, and common crows appears to increase as older forests become fragmented by logging and land conversion.

### *Management Recommendations*

#### Federal

The USFWS *Recovery Plan for the Threatened Marbled Murrelet* (1997) does not advise specific management guidelines, such as buffers or timing restrictions for marbled murrelets. Instead, the Recovery Plan identifies that the decline in murrelets appears largely due to 1) loss of old-growth forest, nesting habitat, and direct loss and changes in forest-age distribution, and 2) poor reproductive success in the remaining habitat because of increased vulnerability of nests to predators in highly fragmented landscapes.

#### State

According to the WDFW *Management Recommendations for Washington's Priority Habitats and Species* (Rodrick and Milner 1991), a 0.5-mile radius buffer is an appropriate distance between construction activities and marbled murrelet occupancy sites. No nesting or occupancy sites have been identified near the project site, so WDFW management recommendations will be met.

### **Northern Spotted Owls (*Strix occidentalis caurina*)**

#### *Status*

Northern spotted owls are designated as a threatened species at the federal level and endangered at the state level (Table 1). Critical habitat has been designated in Washington (Federal Register 2008).

#### *Life History*

Northern spotted owl historically inhabited heavily forested areas in Washington and other parts of the Pacific Coast. Today, the spotted owl is found in large tracts of old-growth forests (greater than 200 years old) in British Columbia, Washington, Oregon, and northern California, although the subspecies has been documented in less mature or young coniferous forests (less than 100 years old). This subspecies is distributed from 70 to 6,000 ft above sea

level. In high-elevation, western Washington Cascade forests, the spotted owl is often associated with Pacific silver fir forests.

Northern spotted owls usually mate for life, forming pairs and laying two to three eggs in the spring. Nests are built in the tops in broken trees, cavities in tree trunks, on mistletoe brooms, or atop squirrel or raptor nests. The females incubate the eggs for about 30 days and brood the young for about 35 days after hatching when the juvenile birds fledge. Spotted owl pairs are territorial and require a large amount of land for nesting and foraging; each pair may occupy up to 150 square miles. Northern spotted owls require nesting, roosting, dispersal, and foraging habitats. The subspecies selects older forests (greater than 200 year old) for roosting and foraging habitat, although the age of the forest is not as important as the vegetation and structural characteristics (Federal Register 1992b). Nesting and roosting habitat is generally characterized by: 1) moderate to high canopy cover (60 to 80 percent), 2) multi-layered and multi-species canopy with large, overstory trees greater than 30 inches dbh, 3) high incidence of large trees with deformities such as large cavities, broken tops, mistletoe infection, or other evidence of decadence, 4) large snags, 5) large accumulations of fallen trees and woody debris, and 6) sufficient open space below the canopy for owls to navigate (Federal Register 1992b).

Dispersal habitat refers to any areas used for movement and typically includes stands with adequate tree size and canopy closure to protect the subspecies from avian predators (Federal Register 1992b). Washington Department of Natural Resources (2001) defines dispersal habitat as timber stands of at least 5 acres with the following characteristics: 1) 70 percent or more canopy cover, 2) 50 percent or more of the stand in conifer species greater than 6 inches dbh, 3) a minimum of 130 trees per acre with a dbh of at least 10 inches or a basal area of 100 square feet and at least 10 inches dbh, 4) a total tree density of 300 trees per acre or less, and 5) a minimum of 20 feet between the top of the understory vegetation and the bottom of the live canopy, with lower boles relatively clear of dead limbs.

Foraging habitat is a continuum between dispersal and nesting/roosting habitat (Federal Register 1992b). Northern flying squirrels, voles, mice, and woodrats are the primary prey of spotted owls, although the subspecies preys on a variety of mammals, birds, insects, amphibians, and reptiles.

Northern spotted owls are known to be less disturbed by human presence than many species. Humans can walk to within several feet of northern spotted owls before they fly away (Thomas *et al.*).

Northern spotted owls are affected by habitat loss caused by timber practices, land conversion, and natural disturbances (Federal Register 1992b). Reduced or degraded habitat makes the subspecies more vulnerable to competitors, such as barred owls. Timber harvesting often results in fragmented forest stands that are susceptible to edge effects, such as windthrow and microclimate changes, that negatively affect the subspecies. Natural disturbances, such as fire and blowdowns, also adversely impact spotted owl habitat. Thomas *et al.* 1990, as cited in Federal Register 1992b, revealed that spotted owl distribution

and habitat quality on the western Washington Cascades is poor because of fragmented habitat, low population size, low reproductive success, competition with barred owls, and poor habitat connectivity.

## **APPENDIX C**

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### **Essential Fish Habitat Assessment**

# **ESSENTIAL FISH HABITAT ASSESSMENT**

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**Federal Action Agency:** National Park Service

**Project Name:** Station Camp – Middle Village Park

## **Essential Fish Habitat Background**

The Magnuson-Stevens Fishery Conservation and Management Act includes a mandate that NMFS must identify Essential Fish Habitat (EFH) for federally managed marine fish and federal agencies must consult with the NMFS on all activities, or proposed activities, authorized, funded, or undertaken by the agency that may adversely affect EFH. The Pacific Fisheries Management Council (PFMC) has designated EFH for the federally managed Pacific salmon, Pacific coast groundfish, and coastal pelagic fisheries (PFMC 1999, 1998a, 1998b).

## **Description of Proposed Action**

A full description of the proposed project, including impact-minimization measures is included in the section entitled *Project Description*. A brief summary is included below.

Phase 1 of the project includes a parking lot with two access points from U.S. Highway 101, three interpretive exhibits, two overlook sites, and interpretive trails connecting the exhibits, and the parking lot. The parking lot will be paved with pervious concrete, and no restroom services will be provided. An interpretive trail connecting site features crosses the wetland in two places, so sections over the wetland will consist of boardwalks. Existing wetlands will be avoided, so there will be no wetland impacts from the park.

Phase 2 of the project includes constructing a pedestrian trail that connects Station Camp - Middle Village Park with Fort Columbia State Park, which is 0.3 miles to the west along U.S. Highway 101. Negotiations are being conducted with the adjacent property owners for the exact footprint of the trail, but tentative plans show the most-likely route includes building a boardwalk on piling over portions of Wetland B. The boardwalk will cross the western stream in the park in one location and will cross Wetland B in two locations. The trail connecting the parks will follow an existing logging road that crosses two streams that are Type-N at the crossing points. An existing wooden bridge over the eastern stream will have its deck replaced and a hand-rail installed. The western stream crossing is over a smaller, ephemeral stream with an existing culvert (see Photoplates). The existing crossing over the stream will be replaced with a 40-foot bridge, and the culvert will remain in place.

## **Presence of Essential Fish Habitat in the Project Area and Action Area**

### *Pacific Salmon*

The EFH designation for the Pacific salmon fishery includes all those streams, lakes, ponds, wetlands, and other waterbodies currently or historically accessible to salmon in Washington, Oregon, Idaho, and California. In estuarine and marine areas, proposed designated EFH for salmon extends from near-shore and tidal submerged environments within state territorial waters out to the full extent of the exclusive economic zone offshore of Washington, Oregon,

and California north of Point Conception (PFMC 1999). Coho are present in the western Type-F stream, Wetland A, and in the Columbia River.

### *Groundfish and Coastal Pelagic Fisheries*

The EFH designation for groundfish and coastal pelagic species is defined as those waters and substrate necessary to ensure the production needed to support a long-term sustainable fishery. The marine extent of these essential fish habitats includes waters from the near-shore and tidal submerged environment within Washington, Oregon, and California state territorial waters out to the exclusive economic zone (231.5 miles) offshore between Canada and Mexico (PFMC 1998a, b). The estuarine extent of groundfish EFH includes all waters from the mean higher high water line and the upper extent of saltwater intrusion in river mouths along the coasts (PFMC 1998b). The estuarine extent of coastal pelagic fishery EFH includes all estuarine waters (PFMC 1998a). EFH for groundfish and pelagic fisheries are present in the project and action areas.

### **Effect Determination**

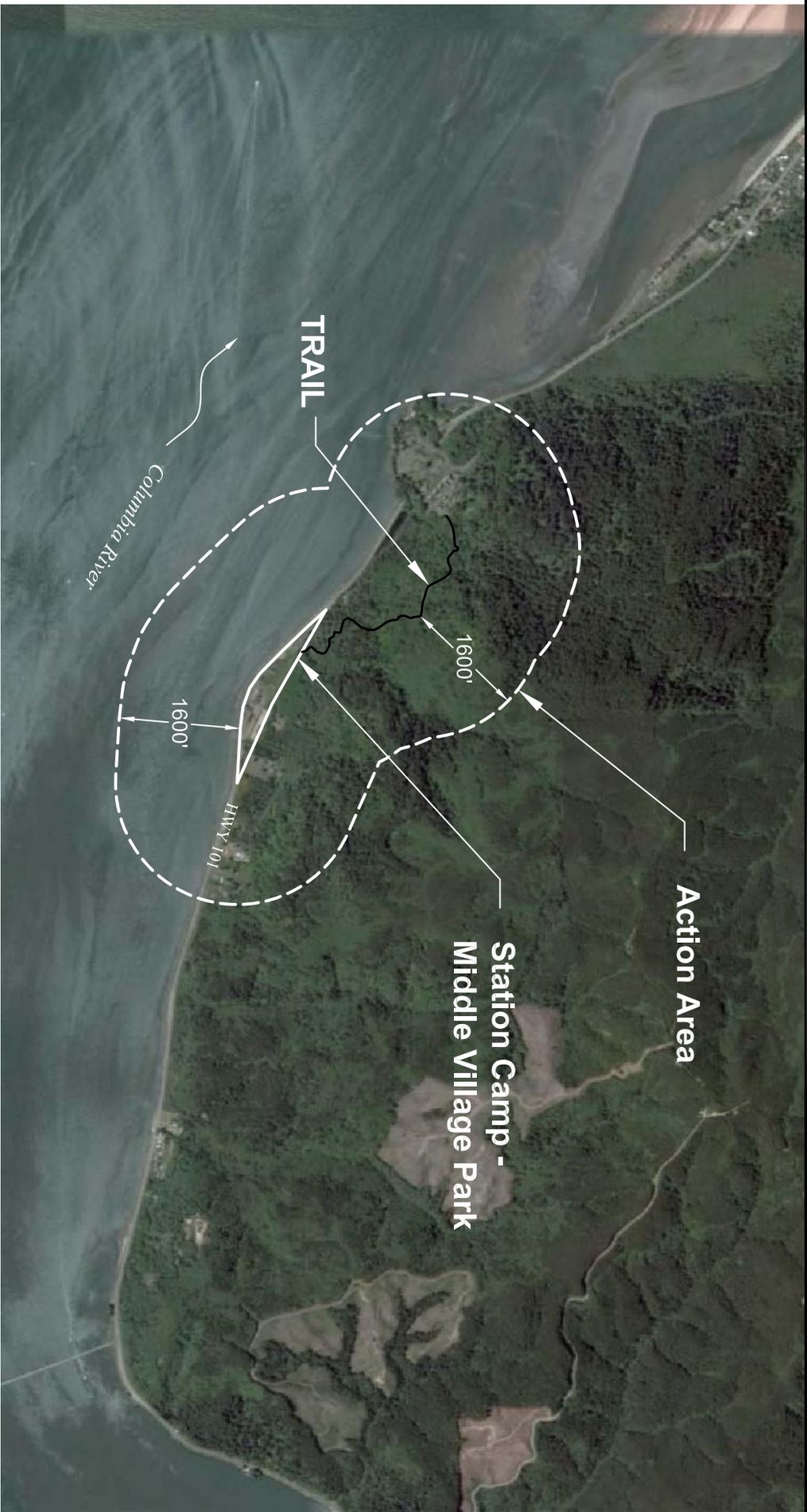
A full discussion of direct, indirect, and beneficial effects to aquatic habitat, are discussed in the section entitled *Action Area*. Existing baseline conditions are also discussed above.

Indirect effects to EFH are not anticipated. However, direct effects may occur within EFH due to a minor increase of suspended solids or contaminant releases from construction equipment.

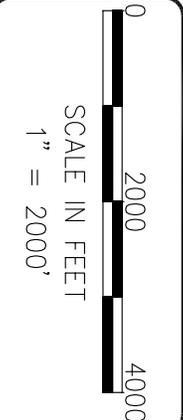
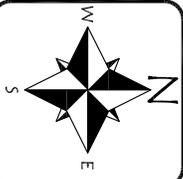
A “**will not adversely affect**” determination is warranted for Pacific salmon, pacific groundfish and coastal pelagic fisheries because:

- There will be no indirect effects to aquatic habitats, because all stormwater will be infiltrated and no restroom facilities will be added.
- Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and stormwater BMPs will reduce suspended-sediment releases or heavy-equipment leaks from the site.
- Increased suspended-solids concentrations or heavy-equipment leaks are only expected during the first-flush rainfall event and will not likely reach the Columbia River.
- Bridge construction and repair on the pedestrian trail will not occur below OHWM.
- The Columbia River estuary is a large waterbody, and a small amount of suspended solids or chemicals that may occur during the project or after the first flush will dissipate quickly.

Based on this information, this project **will not adversely affect EFH for Pacific salmon, Pacific groundfish, or coastal pelagic fisheries.**



**NOTE:** 2007 aerial photo provided by Google Earth™.



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BCB: JKJ  
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PRJ. MGR: KB  
CHK:  
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729.08

**Figure 8**  
**ACTION AREA MAP**  
Station Camp - Middle Village Park  
Washington State Historical Society  
Pacific County, Washington  
Sections 21 & 22, T9N, R10W, W.M.

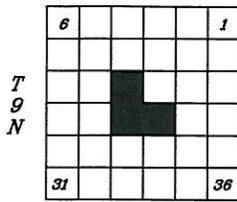
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WASHINGTON



46° 14' 49" N Latitude  
123° 54' 32" W Longitude  
LOCATION MAP

R 10 W



**NOTE:**  
USGS topographic quadrangle map reproduced using MAPTECH Inc., Terrain Navigator Pro software.

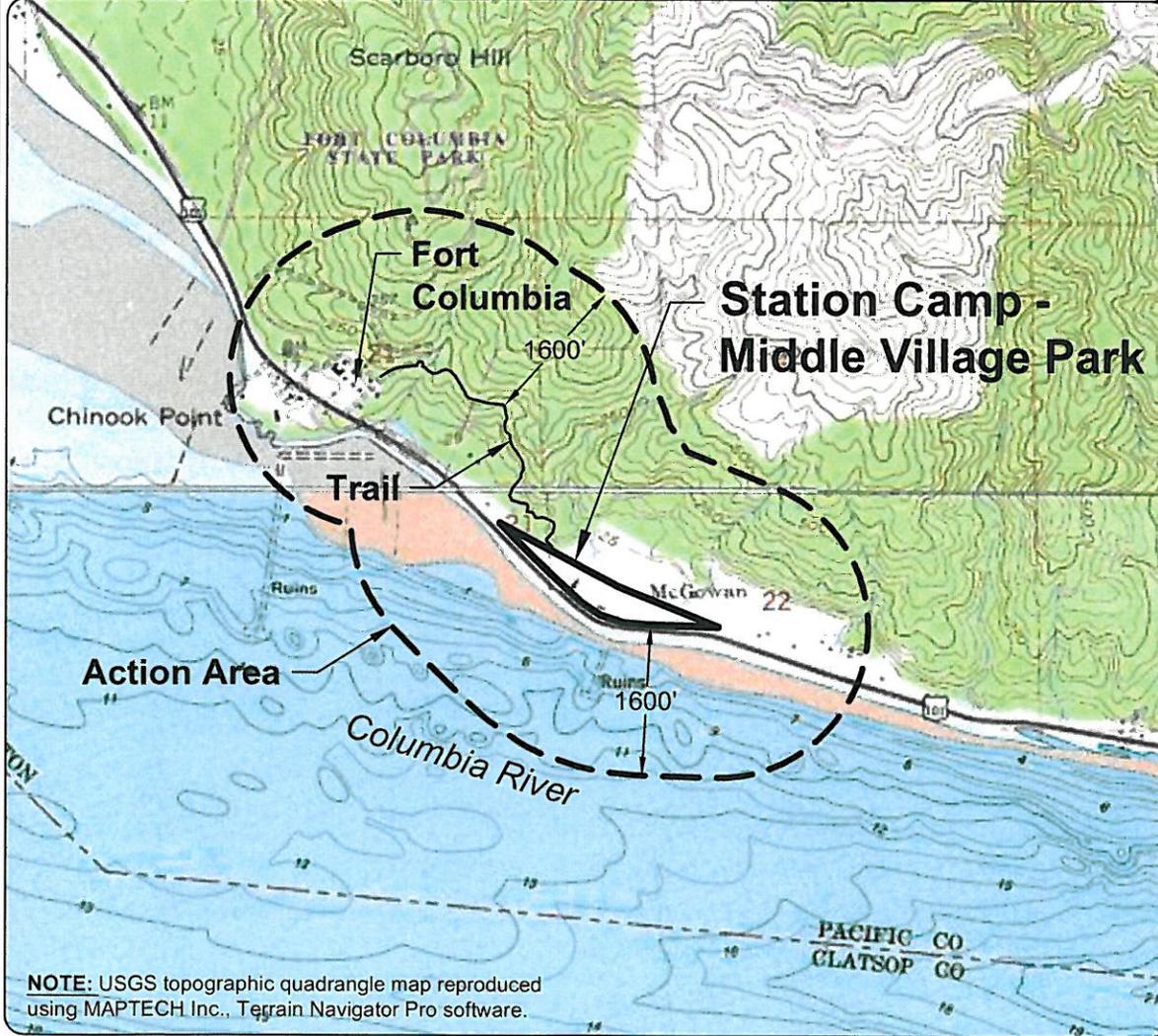
PROJECT VICINITY MAP



**Figure 1**  
**VICINITY AND ACTION AREA MAP**  
Station Camp - Middle Village Park  
Washington State Historical Society  
Pacific County, Washington  
Sections 21 & 22, T9N, R10W, W.M.

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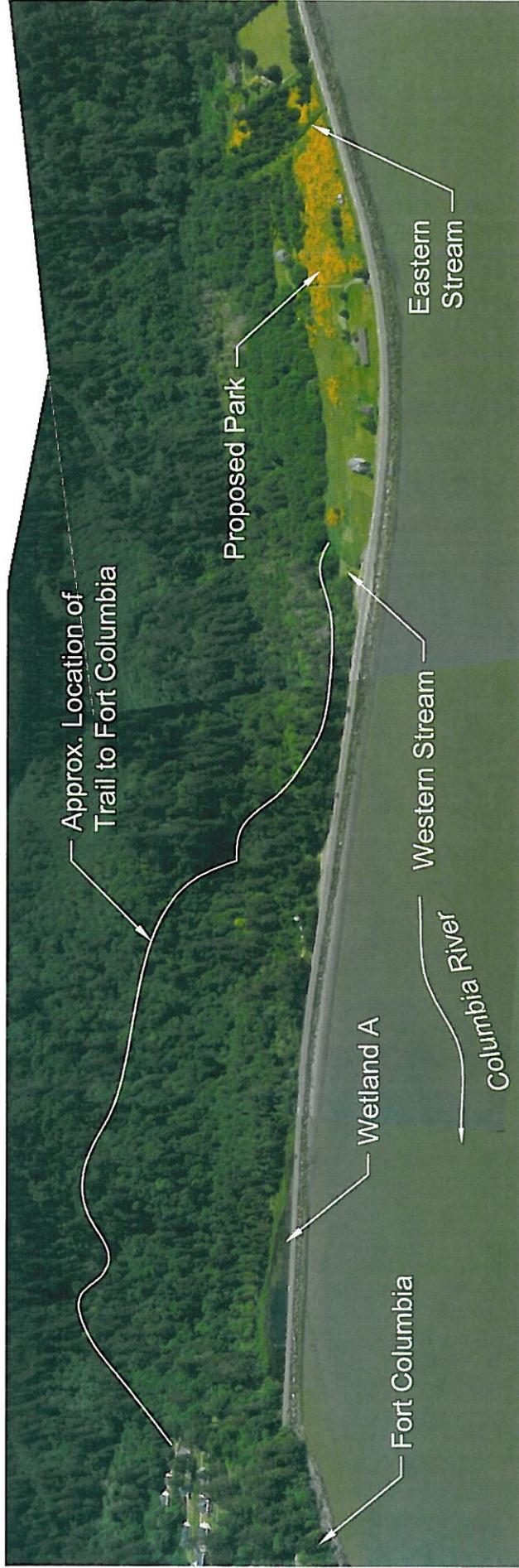


**NOTE:** USGS topographic quadrangle map reproduced using MAPTECH Inc., Terrain Navigator Pro software.



SCALE IN FEET  
1" = 2000'





**NOTES:**

1. Access to trail route in negotiation.
2. 1997 shoreline aerial photos provided by the Washington State Department of Ecology.



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**N.T.S.**

Figure 3

1997 SHORELINE AERIAL PHOTOGRAPH  
Station Camp - Middle Village Park  
Washington State Historical Society  
Pacific County, Washington  
Sections 21 & 22, Township 9N, Range 10W, W.M.



Photo 1

Looking west from east side of the project site at the church and duplex during Scot's broom removal.  
Duplex on right side of photo is not within the proposed park boundary. Photos taken on May 19, 2010.

NOT TO SCALE

  
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Photoplate 1  
SITE PHOTOS  
Station Camp - Middle Village Park  
Washington State Historical Society  
Pacific County, Washington  
Sections 21 & 22, Township 9N, Range 10W, W.M.



Photo 2  
View to the south along the east ditch.

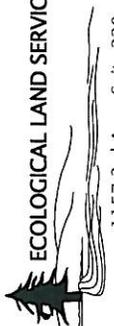


Photo 3  
Looking north at the confluence of the maintained ditch (left side) and the east ditch (right side).

Photoplate 2  
SITE PHOTOS

Station Camp - Middle Village Park  
Washington State Historical Society  
Pacific County, Washington  
Sections 21 & 22, Township 9N, Range 10W, W.M.

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Photo 4  
Looking west along the maintained ditch in Wetland B north of the church.



Photo 5  
Wetland B on the north side of the maintained ditch.

Photoplate 3  
SITE PHOTOS  
Station Camp - Middle Village Park  
Washington State Historical Society  
Pacific County, Washington  
Sections 21 & 22, Township 9N, Range 10W, W.M.

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Photo 6  
View to the north of the west ditch and  
Wetland B from the culvert at the highway.



Photo 7  
Wetland A.

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Photoplate 4  
SITE PHOTOS  
Station Camp - Middle Village Park  
Washington State Historical Society  
Pacific County, Washington  
Sections 21 & 22, Township 9N, Range 10W, W.M.

NOT TO SCALE



Photo 8

Location of eastern Type-N stream crossing on trail to Fort Columbia. The 40-foot bridge will span the existing culvert and will not require work within the OHWM.



Photo 9

Aquatic habitat in the eastern stream along the pedestrian trail to Fort Columbia.

Photoplate 5  
SITE PHOTOS

Station Camp - Middle Village Park  
Washington State Historical Society  
Pacific County, Washington  
Sections 21 & 22, Township 9N, Range 10W, W.M.

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Photos 10 & 11  
Representative habitat along the pedestrian trail. Most of the overstory consists of alder, with some big leaf maple, interspersed with young conifers.



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Photoplate 6  
SITE PHOTOS  
Station Camp - Middle Village Park  
Washington State Historical Society  
Pacific County, Washington  
Sections 21 & 22, Township 9N, Range 10W, W.M.