Southern Flow Corridor Project
Record of Decision

DR-1733-OR

Tillamook County, Oregon

December 2015

Federal Emergency Management Agency
Department of Homeland Security
Region 10
130 – 228th Street SW
Bothell, WA 98021

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1.0 Summary

The Southern Flow Corridor (SFC) Project Environmental Impact Statement (EIS) evaluated the environmental effects that could occur if activities to reduce flood damage and restore Coastal Coho habitat in the Tillamook Bay estuary are implemented. The SFC project would include floodplain and tidal marsh habitat restoration actions near the confluence of the Wilson and Trask Rivers in the lower Tillamook Valley. Implementation of this project will reduce flooding in the lower Trask, Tillamook, and Wilson river floodplains, including the U.S. Highway 101 (Highway 101) business corridor in Tillamook, Oregon.

The Port of Tillamook Bay (POTB) requested funding for the SFC project from the U.S. Department of Homeland Security's (DHS') Federal Emergency Management Agency (FEMA) Public Assistance (PA) grant program. The project, with Tillamook County as the applicant, would also receive funding from the National Oceanic and Atmospheric Administration (NOAA) Restoration Center, U.S. Fish and Wildlife Service (USFWS), State of Oregon lottery funds, Oregon Watershed Enhancement Board (OWEB), Tillamook County, and other public and private entities. FEMA is the federal lead agency for the National Environmental Policy Act (NEPA) review. Cooperating agencies include the NOAA Restoration Center, USFWS, and the U.S. Army Corps of Engineers (USACE). The NOAA Restoration Center and USFWS are the lead agencies for compliance with the Endangered Species Act (ESA).

The official comment period on the Draft EIS was from May 29, 2015, to July 13, 2015. The Notice of Availability of the Final EIS was published in the *Federal Register* on October 30, 2015. FEMA is documenting its decision on the proposed project in this Record of Decision (ROD).

In accordance with the Council on Environmental Quality's (CEQ's) NEPA implementing regulations in Title 40 Code of Federal Regulations (CFR) 1505.2, and FEMA's NEPA procedures in 44 CFR 10 FEMA is selecting the Proposed Action, which is also the Agency's preferred alternative. The Proposed Action with the required mitigation measures is the environmentally preferable alternative. The No Action Alternative would not restore or preserve habitat and floodplain functions; flooding conditions would not improve under the No Action Alternative, and flood damage is expected to continue or worsen due to increased economic use of flood-prone areas along with climate driven changes in flood processes.

2.0 Addresses and Further information

The Final EIS and ROD are available at http://www.fema.gov/media-library/assets/documents/111967. Additionally, copies will be available at the following locations:

- FEMA Region X office, 130 - 228th Street SW, Bothell, Washington
- Oregon Office of Emergency Management, 3225 State Street, Salem, Oregon
- Port of Tillamook Bay, 4000 Blimp Boulevard, Suite 100, Tillamook, Oregon
- Tillamook County, 201 Laurel Avenue, Tillamook, Oregon

- Tillamook Main Public Library, 1716 Third Street, Tillamook, Oregon

For further information contact: Mark Eberlein, Regional Environmental Officer, Region X, FEMA, 130 - 228th Street SW, Bothell, WA 98021 (425) 487–4735.

3.0 Background

Flooding occurs frequently in the lower portions of the Wilson, Trask, and Tillamook rivers, typically between October and April. High tides combine with storm surges, heavy rainfall, and snowmelt, causing coastal and inland flooding. The storms that produce coastal flooding often bring heavy rain, which causes high river flows at estuaries and the mouths of rivers. These flows are held back by high ocean levels, creating flood hazards in the Tillamook Valley.

The County suffers significant losses because of disruptions to Highway 101, the major north-south arterial along the Pacific Coast, from flooding. Losses in the past have been primarily economic, but the potential for loss of life exists if the main arterial across the valley is closed due to flooding. The lower portions of the rivers overflow their banks frequently because the channel gradients are low in the delta and estuary areas. In addition, channel capacity is inadequate to handle heavy flows during severe rainstorms, particularly when combined with high tides. Flood losses in Tillamook County exceeded $60 million from 1996 through 2000 and included damages to homes, farmland, businesses, and infrastructure (Tillamook County 2014). Additional flood losses have been incurred by the Tillamook community since 2000. In response to these frequent flood events, POTB, Tillamook County, the City of Tillamook, several state and federal agencies, non-profit organizations, and local business interests have been working together to identify solutions to Tillamook Valley's ongoing flood problem.

3.1 NEPA Review Process

In 2000, USACE began a NEPA EIS process to evaluate alternatives for flood damage reduction and ecosystem restoration in the Tillamook Valley. The USACE EIS process was never completed, but early public involvement was focused on many of the same areas and concerns as the current study.

In early 2014, FEMA decided to prepare an EIS. The EIS addressed the potential environmental impacts of the SFC project. The NEPA process included the following milestones as required by 40 CFR 1500 et seq.

- Notice of Intent to prepare an EIS published in the *Federal Register* on May 6, 2014 (pursuant to 40 CFR 1501.7)
- Public scoping period extended from May 15, 2014 to June 13, 2014, and included one public scoping meeting on May 28, 2014
- Notice of Availability of the Draft EIS published in the *Federal Register* on May 29, 2015
- Public comment period on the Draft EIS extended from May 29, 2015 to July 13, 2015, and included one public meeting on June 17, 2015

- Notice of Availability of the Final EIS published in the *Federal Register* on October 30, 2015

FEMA, as the lead agency, prepared the Final EIS pursuant to NEPA, CEQ's procedures in 40 CFR Part 1500, and FEMA's NEPA procedures in 44 CFR 10. The public involvement process associated with the EIS is described in more detail in Section 6, below.

4.0 Purpose and Need

The purpose of the Tillamook Bay SFC project is to reduce life safety risk from floods and reduce flood damages to property and other economic losses from floods while also contributing to the recovery of federally listed Oregon Coast coho and restoring habitat for other native fish and wildlife species.

The need for the project results from the area's history of severe repetitive flooding with widespread damage to property, road closures, and other economic losses. In addition, several fish and wildlife species that historically depended on the wetland, tidal marsh, and aquatic habitats of the estuary, such as Coastal coho and Marbled murrelet, have been federally listed as threatened or endangered.

Future unmitigated flooding in the Tillamook Valley will continue to contribute to potential future life safety risks and physical and economic damages to property and businesses in the floodplains. Continued degradation of important fish and wildlife habitats in the estuary through blockages to fish passage, historical losses of aquatic and wetland habitats, and altered sediment erosion and deposition regimes may lead to listing of additional species under the Endangered Species Act and hamper recovery plans for currently listed species that use the project area.

The project purpose and need is described in detail in the EIS in Section 2, *Purpose and Need*. The objectives for this action are to reduce flood damage in the lower Wilson River floodplain, including portions of Tillamook, Oregon, near the Highway 101 business corridor, and to re-establish a properly functioning and self-sustaining estuarine tidal marsh ecosystem that will provide critical rearing habitat for salmonids and other native fish and wildlife species in the Tillamook Bay estuary.

5.0 Alternatives Considered

The alternatives considered, including the No Action Alternative and alternatives considered but eliminated from further study, are described in detail in the EIS in Section 3, *Alternatives*. The alternatives considered are summarized briefly in this section of the ROD.

5.1 No Action Alternative

Under this alternative, FEMA and NOAA would not fund any of the proposed flood damage reduction and ecosystem restoration actions, and the project actions would not be implemented. Because the proposed federal funding is a significant portion of the funding needed to implement the SFC project, the No Action Alternative is defined as an alternative where there would be no further work in the project area. The No Action Alternative would not change the existing levee

and wetland conditions present in the study area. However, under the No Action Alternative, the existing conditions would not be maintained in perpetuity.

Under the No Action Alternative, the County would retain ownership of the 392 acres previously purchased. The terms of the grant funding under which the County purchased the property prohibit continued agricultural uses. Therefore, agricultural operations (grazing and hay production) would be phased out on the 392 acres in County ownership over time even though the levees would not be reconfigured. The County would continue to maintain the existing floodgates and levees for a time because they serve to protect houses and farmland adjacent to the County-owned property. However, over time, even this activity would likely be phased out, allowing the levees, tide gates, and flood control structures to deteriorate. It is further assumed active wetland restoration on County lands currently in wetland uses would remain unfunded and wetlands would remain unconnected to tidal influences.

5.2 Southern Flow Corridor - Landowner Preferred Alternative (Proposed Action)

The Southern Flow Corridor – Landowner Preferred Alternative was designed to remove manmade impediments to flood flows to the maximum extent possible in the lower Wilson and Trask rivers floodplain for both flood hazard mitigation and for habitat restoration. The project will accomplish this by removing 6.9 miles of existing levees and modifying 2.8 miles of levees along the edges of the sloughs and rivers that border the project area. Approximately 1.5 miles of new setback levees will be constructed to protect agricultural properties that are not part of the project area from the effect of high tides and to allow riverine floodwaters to pass out to the Bay. An additional 146 acres will be purchased with approximately 21 acres being leased for agricultural uses. A flowage easement would be acquired over approximately 85 acres. Construction would occur primarily in 2016 with some follow up refinement of the new set back levees in 2017.

The Proposed Action will restore 5.5 miles of tidal channel and 522 acres of tidal wetlands. A total of approximately 14 miles of historical tidal channel are expected to reform on the site as the tides are restored to the project area. Once restored to a tidal regime, the resulting range of habitats is expected to include mud flats, aquatic beds, emergent marsh, scrub-shrub wetlands, forested wetlands, and sloughs. The habitat restoration component of the project is targeted at improving conditions for the threatened coho salmon, and other salmonids, including chum and Chinook salmon, and cutthroat trout.

Cleanup of soil contaminated with heavy oil at the Sadri property will be required as part of the Proposed Action. The removal of fill at the Sadri property will result in removal of approximately 20,000 cubic yards of potentially contaminated soil. Approximately 300 cubic yards will need to be disposed of at the Waste Management landfill in Hillsboro, Oregon, because it is contaminated with heavy oil. Based on contaminant levels, the remainder of the contaminated material is suitable for re-use as fill in upland areas on site with additional controls, such as an impermeable liner or cap, to further limit erosion and migration of contaminants into sensitive ecological environments and limit human exposure to the contaminated material. The material to be consolidated on site will be moved to the City-owned property to the east of the Sadri parcel and capped. This area is still within the floodplain, but is out of the floodway.

The County and POTB will develop a maintenance and monitoring plan as a condition of their grants that will include performance standards and adaptive management components for performance of project objectives. Additional monitoring and adaptive management requirements may be imposed through the review and issuance of specific construction permits and approvals. Development of a maintenance and monitoring plan with an adaptive management component will occur in 2017 following completion of construction.

5.3 Hall Slough Alternative

The Hall Slough Alternative would reconnect the upper end of Hall Slough to the Wilson River in order to increase the capacity of Hall Slough to carry some floodwaters out to Tillamook Bay. Approximately 6.3 miles of levees along the channel length would be set back or modified (approximately 3 miles each), and approximately 1.9 miles of the channel would be widened and deepened. This alternative would increase the capacity of Hall Slough to allow it to carry some floodwaters out to Tillamook Bay. This alternative would create approximately 0.4 miles of new channel and restore approximately 90 acres of wetlands. Under this alternative, the existing County lands would be expected to revert to wetlands as agricultural uses are phased out as described under the No Action Alternative. This alternative would require periodic dredging to maintain the channel configuration and maintain the project benefits.

5.4 Southern Flow Corridor - Initial Alternative

The Southern Flow Corridor – Initial Alternative shares a number of characteristics in common with the Proposed Action although it features somewhat different levee, floodgate, and drainage network configurations. This alternative would also function in a similar fashion to the Proposed Action in that it would also remove manmade impediments to flood flows in the lower Wilson River floodplain and restore tidal wetlands and channels. This alternative would remove 8.8 miles of existing levees and modify 0.7 miles. Approximately 1.6 miles of new setback levees would be constructed. An additional 183 acres would be purchased with none of this acreage being leased for agricultural uses. The SFC-Initial Alternative would restore 0.2 miles of tidal channel and 568 acres of tidal wetlands. More than 14 miles of historical tidal channel would be expected to restore naturally as the tides are restored to the project area. Under this alternative, the contaminated materials at the Sadri property would be remediated.

5.5 Other Alternatives Considered and Dismissed from Further Review

5.5.1 Dougherty Slough

The Dougherty Slough alternative would reconnect the slough to its floodplain from Highway 101 downstream to the Trask River. Levees would be removed, and the top 2 feet of soil would be scraped from the banks to reconnect the slough to the floodplain. Riparian vegetation and fencing would be placed adjacent to the slough channel, and some large wood would be placed in the slough for habitat complexity. To achieve more than incidental flood reduction, it would be necessary to increase channel capacity, a measure that would be unlikely to be cost effective. From the data available, it appears this alternative would not reduce flood damages substantially; therefore, it would be unlikely to meet the purpose and need for the project and was not carried forward for further study in the EIS.

5.5.2 Modified Wetland Acquisition with Swale Alternative

The Modified Wetland Acquisition with Swale Alternative would convert only a portion of the existing County-owned land to tidal wetland. The tidal marsh in the northern portion of the project area would be reconnected to the Wilson River by removing the plug and two tide gates in Blind Slough, removing levee fills at several historical sloughs, and creating an overflow from the left bank of Hall Slough. A swale would be constructed downstream of Highway 101 between Dougherty and Hall sloughs to direct floodwaters into the project area and out to the Bay. The swale would be designed to prevent a rise in 100-year flood elevations upstream of the project area.

Flood elevation modeling completed on the alternative indicated that it would provide minimal flood reduction benefits (Levesque 2014). In addition to the small flood reduction benefits, the alternative would be inconsistent with the terms of the grant funding provided to Tillamook County by OWEB, USFWS, and NOAA to purchase the land. These grants include restrictions prohibiting agricultural uses and grazing on lands purchased with the funds and require the properties to be restored to tidal wetlands (NOAA 2003). Therefore, the Modified Wetland Acquisition with Swale Alternative, which includes continued agricultural uses, was deemed to be infeasible. Because the alternative is not implementable, it was eliminated from further consideration.

5.5.3 River and River Mouth Dredging

During scoping for this EIS, several commenters suggested that dredging the rivers and sloughs should be considered as a viable alternative. Multiple potential alternatives involving the dredging of river channels and river mouths to increase floodwater conveyance have been identified and evaluated as a part of previous studies in the project area. Specific projects, including dredging of the Lower Wilson, Trask, and Tillamook Rivers, were analyzed by USACE (USACE 2004). Dredging alternatives were determined to provide less substantial flood level reduction and more localized benefits when compared to channel widening actions. Channel dredging alternatives also do not provide the ecosystem benefits generated by channel widening or restoration actions (Levesque 2013). The shallow waters of the rivers and sloughs provide critical juvenile rearing habitat that would be lost if they are dredged.

Because dredging would not result in measurable flood reduction benefits beyond the dredged area and would result in adverse habitat impacts, dredging alternatives do not meet the purpose and need and were eliminated from further consideration.

6.0 Agency and Public Involvement

The agency and public involvement process conducted for the EIS is described in detail in the EIS in Section 7, *Agency Coordination, Public Involvement, and Permits.* Agency and public involvement activities are summarized below.

6.1 Cooperating Agencies

Cooperating agencies include the NOAA Restoration Center, USFWS, and USACE. These federal agencies were involved in the EIS process because they have special expertise in or knowledge of environmental issues, they have jurisdiction by law, or they must approve a

portion of the Proposed Action. NOAA Restoration Center is proposing to provide grant funding to support construction of the project and was the federal lead for consultation on Oregon Coast coho and marine mammals. USFWS is proposing to provide grant funding to support land acquisition for the project and was the federal lead for consultation on Marbled murrelets and Bald eagles. USACE will have a significant regulatory role in the review of permit applications for construction and also provided information on previous analyses related to flood damage reduction proposals within the project area. The cooperating agencies assisted with the preparation of the EIS by providing comments, information, and analyses.

6.2 Consultation

6.2.1 Government-to-Government Consultation

FEMA conducted government-to-government consultation with the Confederated Tribes of the Grand Ronde Community of Oregon and the Confederated Tribes of Siletz Indians for the EIS. On February 4, 2014, FEMA initiated contact with the two Native American tribes with a letter describing the Proposed Action. Following the completion of the cultural resources survey report, copies were transmitted to both tribes for their review and comment on March 11, 2015. The Grande Ronde provided feedback to the Oregon State Historic Preservation Officer (SHPO) that an archaeological monitor should be present during work in some portions of the project area.

6.2.2 Section 106 Consultation

FEMA initiated formal Section 106 consultation under the National Historic Preservation Act (NHPA) with the SHPO on February 4, 2014, in accordance with 36 CFR 800. FEMA consulted with the SHPO on the Area of Potential Effect (APE) and site investigation research design for the proposed project. A cultural resources survey of the APE was conducted and concluded there are no historic or cultural resources eligible for listing in the National Register. On June 4, 2015, the SHPO concurred with the finding that the Proposed Action will have no effect on archaeological resources. The consultation further concluded that a qualified archaeological monitor should be present during any groundbreaking activities within a portion of the APE.

6.2.3 Endangered Species Act Consultation

The USFWS and NOAA Restoration Center are the lead agencies for compliance with ESA for this project; USFWS is leading the consultation on Marbled murrelets, and NOAA is leading the consultation on fisheries effects. USFWS prepared a Biological Assessment for Marbled murrelets and consulted internally with their regulatory branch about potential impacts. A biological opinion was issued on June 23, 2015, that relies on the description of the Proposed Action and the mitigation measures described in this EIS. The biological opinion determined that no additional conservation measures or terms and conditions were necessary to minimize incidental take of Marbled murrelets. Mitigation measures are described in Section 10 of this ROD.

In consultation with National Marine Fisheries Service (NMFS), the NOAA Restoration Center determined that the Programmatic Restoration Opinion for Joint Ecosystem Conservation by the Services (PROJECTS) would apply to the Proposed Action (NMFS 2013). On September 23, 2015, NMFS approved the use of PROJECTS for the Proposed Action.

6.3 Public Involvement

6.3.1 Previous Public Involvement

Extensive public outreach and involvement has been conducted as a part of the Tillamook Valley flood protection investigations and actions since 2000. In 2000, USACE began a NEPA EIS process to evaluate alternatives for flood damage reduction and ecosystem restoration in the Tillamook Valley. The USACE EIS process was never completed, but early public involvement was focused on many of the same areas and concerns as the current studies.

Prior public involvement activities also include the extensive outreach conducted as a part of the Oregon Solutions Project initiated in 2007. This outreach included the establishment of a Project Team and Design Committee of 37 governmental agencies, non-profit organizations, and local business interests that met regularly during the identification and evaluation of potential solutions to flooding in Tillamook Valley. The Tillamook Bay Habitat and Estuary Improvement District played an important role in this public involvement effort with its outreach to its member residents and agricultural and commercial interests.

6.3.1 Public Scoping

A notice of intent to prepare an EIS for the Proposed Action was published in the *Federal Register* on May 6, 2014. The notice of intent initiated a public scoping period that concluded on June 13, 2014. FEMA conducted a public scoping meeting on May 28, 2014 to solicit input from the public about the environmental topics to be included in the EIS and the issues to be analyzed in depth. The areas of concern and the types of comments received during scoping are described in a scoping report that was included in both the Draft and Final EIS as Appendix B.

6.3.2 Draft EIS Public Involvement

Notice of the availability of the Draft EIS, the opportunity to provide public comment, and of the public meeting was provided in a number of ways including:

- Notice of Availability published in the *Federal Register* on May 29, 2015.
- Email blast sent to stakeholders, interested persons, and those who participated during scoping (sent May 21, 2015).
- Updates to the project website included notice of the meeting dates, times, and locations as well as a Section 508-compliant version of the Draft EIS and all of its appendices along with all of the materials (fact sheets, exhibit boards) that were used at the public meeting.
- Newspaper display ads announcing the public meetings were run in the Tillamook County Shopper on May 26, 2015, and in the Oregonian and Headlight Herald on May 27, 2015.
- A press release was sent to area news outlets to remind the public about the availability of the Draft EIS and the public open house.

FEMA held a public open house in Tillamook during the comment period for the Draft EIS. An electronic version of the Draft EIS was made available on the project website and hardcopies were available at the FEMA Region X office in Bothell, Washington, the USACE and USFWS

offices in Portland, Oregon, the Oregon Office of Emergency Management in Salem, Oregon, and three locations in Tillamook, Oregon: The Port of Tillamook Bay office, Tillamook County office, and the Tillamook Main Public Library.

Comments received during the public meeting via written materials or presented to a court reporter were entered into the public record and are included in the Final EIS. Twenty seven written or verbal (captured by the court reporter at the public open house) comment submittals were submitted on the Draft EIS. All comments and responses to those comments were included in the Final EIS.

6.3.3 Final EIS Public Involvement

A Notice of Availability of the Final EIS was published in the *Federal Register* on October 30, 2015. An email was sent to stakeholders, interested persons, and those who participated during scoping and in the review of the Draft EIS. FEMA updated the project website to include notice of the availability of the Final EIS, an electronic version of the Final EIS, and a Section 508-compliant version of the EIS and all of its appendices.

Hard copies were made available to the public at the FEMA Region X office, the Oregon Office of Emergency Management office, Port of Tillamook Bay office, Tillamook County office, and the Tillamook Main Public Library.

The Final EIS addressed comments received on the Draft EIS and contained a new appendix related to the public review of the Draft EIS: Appendix L, which provided all comments received during the public comment period, along with responses thereto.

6.3.4 Final EIS Public Review

FEMA received one comment between the release of the Final EIS and this ROD from the Environmental Protection Agency (EPA). EPA noted that the Final EIS was responsive to their comments on the Draft EIS, but they suggested additional mitigation be added to strengthen the project's overall planning processes with respect to monitoring and adaptive management during implementation. A new condition has been added in this ROD to address the importance of performance monitoring and adaptive management to ensure project success (Mitigation Measure #18 in Section 10).

7.0 Significant Issues

Throughout the NEPA process, the public and other agencies assisted FEMA in identifying potential issues to consider in the environmental analysis. The EIS identified that significant and unavoidable adverse impacts will occur with respect to noise, wetlands, water quality, biological resources, and visual quality and aesthetics. Implementation of required best management practices (BMPs) and mitigation measures will reduce potential adverse impacts on most resources to a less than significant level. With implementation of BMPs and mitigation measures, significant adverse impacts will remain only with respect to noise, water quality, biological resources, and visual quality.

7.1 Noise

Because the Tillamook Regional Medical Center (a sensitive receptor) parking lot abuts the project area boundary, noise levels from construction equipment working adjacent to the property boundary will generate an unavoidable adverse impact. However, the medical center buildings will be 350 to 450 feet from the closest noise sources, and predicted noise levels will be lower with increasing distance. Though this potential impact will be significant and unavoidable, it will also be short term and intermittent and primarily affect the parking lot of the medical center.

7.2 Water Quality

Because of the amount of fill material that will be spread across the project area and subject to daily tidal inundation under the Proposed Action, there is a moderate potential for erosion to create adverse impacts on water quality through increased turbidity during the transition period. Turbidity could remain elevated for several years while the existing vegetation transitions to emergent tidal marsh communities.

7.3 Biological Resources

The Proposed Action will result in the removal of vegetation, including several hundred large spruce trees that currently grow on the levees that will be removed. In addition, some areas of forested and scrub-shrub vegetation will be lost as the natural hydrologic and salinity regimes are re-introduced. While the change from freshwater-based vegetation communities to the natural tidal wetland communities typically found in low-lying areas around the bay is not considered a significant adverse impact, there will be an unavoidable loss of freshwater wetland and riparian vegetation. The removal of mature spruce from levees along Hoquarten Slough in the southeastern portion of the project area where a spruce forest might be expected under unmodified conditions will result in moderate, local, adverse impacts on the area and function of this vegetation community. This temporal impact is not considered significant because of the small area affected and the expectation that spruce will be regrow in the same areas where they will be removed.

Although extensive mitigation measures will be implemented to protect fish and wildlife, some individuals inevitably will be harmed during construction. Construction noise and activity will be expected to displace wildlife that currently uses the site. Tree and shrub removal and grading (associated with the removal of old levees and construction of new levees) have the potential to impact nesting birds. With the conversion of existing habitat types to tidally influenced habitats, some terrestrial wildlife species and species dependent on freshwater aquatic habitats may not be able to reuse the project area following construction.

The removal of vegetation, heavy equipment operation, and in-water work all will have the potential to temporarily impact water quality in waters adjoining the project area, which could be detrimental to aquatic organisms in this area. In-water work, such as the filling of ditches and riprap removal below the high tide line, will require work area isolation and removal of fish from the work zone and has the potential for fish handling, which can result in inadvertent mortality of local and migratory fish and other aquatic organisms.

7.4 Visual Quality and Aesthetics

During construction, visual contrast will be unavoidably increased as levees and their associated vegetation is removed. This contrast will be visible from few viewpoints and will decrease over time as tidal wetlands become vegetated and blend with adjacent tidal habitats.

8.0 Decision

Flooding occurs frequently in the lower portions of the Wilson, Trask, and Tillamook rivers, typically between October and April. High tides combine with storm surges, heavy rainfall, and snowmelt, causing coastal and inland flooding. The storms that produce coastal flooding often bring heavy rain, which causes high river flows at estuaries and the mouths of rivers. These flows are held back by high ocean levels, creating flood hazards in the Tillamook Valley. The Proposed Action will meet the purpose and need to mitigate these hazards. FEMA's decision is to allow the authorization of funding for the Proposed Action through FEMA's PA grant program.

In reaching a decision, FEMA considered the extensive environmental analysis documented in the Final EIS, which considered alternatives, fully disclosed the environmental impacts of this project, agency and public comments, and compliance with pertinent federal laws and policies. The mitigation measures identified in this decision (see Section 10 of this ROD) will ensure that adverse impacts are avoided and minimized the maximum extent practicable.

8.1 Environmentally Preferred Alternative

The identification of an environmentally preferred alternative is required by NEPA (40 CFR 1508.2(b)). The environmentally preferred alternative is the alternative that has the least impact on the physical and biological environment and that best protects, preserves, and enhances historic, cultural, and natural resources.

Even though the No Action Alternative would avoid construction-related impacts, it is not the environmentally preferable alternative because it would result in a potential increase in flood damages in or near the project area and would continue to degrade a wide variety of resources such as populations of fish, shellfish, migratory shorebirds, and water quality. The Proposed Action will restore approximately 522 acres of tidal wetlands and associated fish and wildlife habitat. The Proposed Action will have major long-term beneficial effects on wildlife and threatened and endangered species, including the threatened Oregon Coast coho salmon. The Proposed Action is expected to reduce flood duration and depth across large areas of the Tillamook Valley. The summary of potential effects in the Executive Summary of the EIS shows that there would be the potential for greater significant impacts from the No Action Alternative than there would be from the Proposed Action with mitigation. Section 4 of the EIS contains a more detailed evaluation of impacts associated with the various alternatives, including the No Action Alternative.

9.0 Mitigation

Measures to avoid and minimize potential impacts include BMPs and project-specific mitigation measures. The proposed mitigation measures were described in Section 6 of the EIS and are compiled below.

As a condition of grant funding, the subapplicant shall implement all of the BMPs and mitigation measures identified in the Final EIS. There are a number of measures that were required through consultation with the SHPO on cultural resources and with NMFS and USFWS on federally listed species. The BMPs and mitigation measures from all of these sources were published in the Final EIS and are compiled below.

Although implementation of all of these mitigation measures is a condition of the FEMA funding, primary responsibility for ensuring implementation of measures related to fish and wildlife rests with NOAA Restoration Center and USFWS. Specifically, NOAA Restoration Center will oversee appropriate implementation of measures contained in PROJECTS (mitigation measures #1, 3, 4, 5, 11, 12, and 13) and those related to marine mammals (mitigation measure #2). USFWS will oversee implementation of measures related to wildlife as described in mitigation measures #6, 7, 8, and 9.

Potential impacts that could be significant and required mitigation are described below.

1. Coho Salmon – The Proposed Action has the potential to impact aquatic habitats, including critical habitat for coho salmon and designated essential fish habitat (EFH). The following mitigation will be implemented to reduce this potential impact:

    - All project activities must adhere to a variety of design criteria and minimization measures as outlined in PROJECTS guidelines. These guidelines apply to setback or removal of existing berms, dikes, and levees; tide/flood gate removal, replacement, or retrofit; the use and operation of heavy equipment; erosion control; general project design; invasive species control; fish passage and fish capture and removal (salvage); and other project design components.

    - Mitigation measures described under Bullets 3, 4, and 5 that mitigate potential effects on fish and aquatic habitats also will provide mitigation for potential effects on coho and EFH.

2. Harbor Seals and Other Marine Mammals – The Proposed Action has potential to alter behavior of these species. The following mitigation will be implemented to reduce this potential impact.

    - The use of heavy equipment on levees or other over-water structures will be restricted when marine mammals are within 100 yards of the work area. Work being completed on the landward side of the levee may proceed. Before beginning work on the levees, construction crews will be informed by the County that work should be stopped if any marine mammals are observed within 100 yards of the work area. Crews will also be informed on how to identify harbor seals prior to work on the levees.

3. Fish and Other Aquatic Species – The Proposed Action has the potential to harm fish and other aquatic species during in-water construction activities. The following mitigation will be implemented to reduce this potential impact:

    - All in-water work associated with project construction must occur during the Oregon Department of Fish and Wildlife (ODFW) preferred in-water work window (ODFW 2008), including any approved variance to the established window.

    - Adhere to design criteria and impact minimization measures outlined in PROJECTS for protection of eulachon, green sturgeon, EFH, and designated aquatic critical habitat.

    - Mitigation measures described under Bullets 4, 5, and 12 also will be required to mitigate potential effects on fish and aquatic habitats.

    - Work area isolation of waterways from construction activities will include the deployment of silt curtains or other appropriate measures.

4. Fish Passage – The Proposed Action has the potential to block or alter the movement of fish and other aquatic species. The following mitigation will be implemented to reduce this potential impact:

    - In compliance with PROJECTS (NMFS 2013), provide fish passage for any adult or juvenile ESA-listed fish likely to be present in the action area during construction unless passage did not exist before construction, stream isolation and dewatering is required during project implementation, or the stream is naturally impassable at the time of construction. After construction, provide fish passage that meets NMFS' fish passage criteria for any adult or juvenile ESA-listed fish (NMFS 2011) for the life of the action.

    - All activities that include installation or replacement of over water structures, including temporary or permanent bridges, tide gates, culverts, or fishways, require an ODFW approved fish passage plan (ODFW 2014).

    - In accordance with PROJECTS, tide gate designs must also be reviewed and approved by an NMFS fish passage engineer.

5. Fish Salvage – The Proposed Action has the potential to result in harm to fish from stranding. The following mitigation from PROJECTS will be implemented to reduce this potential impact:

    - If practicable, allow listed fish species to migrate out of the work area or remove fish before dewatering; otherwise remove fish from an exclusion area as it is slowly dewatered with methods such as hand or dip-nets, seining, or trapping with minnow traps (or gee-minnow traps).

    - Fish capture will be supervised by a qualified fisheries biologist with experience in work area isolation and competent to ensure the safe handling of fish.

- Conduct fish capture activities during periods of the day with the coolest air and water temperatures possible, normally early in the morning, to minimize stress and injury of species present.
- Monitor the nets frequently enough to ensure they stay secured to the banks and free of organic accumulation.
- Electrofishing will be used during the coolest time of day and only after other means of fish capture are determined to be not feasible or ineffective.
    a. Follow the most recent version of NMFS (2000) electrofishing guidelines.
    b. Do not electrofish when the water appears turbid, e.g., when objects are not visible at depth of 12 inches.
    c. Do not intentionally contact fish with the anode.
    d. Use direct current or pulsed direct current within the following ranges:
        1. If conductivity is less than 100 microsiemens (μs), use 900 to 1100 volts.
        2. If conductivity is between 100 and 300 μs, use 500 to 800 volts.
        3. If conductivity greater than 300 μs, use less than 400 volts.
    e. Begin electrofishing with a minimum pulse width and recommended voltage then gradually increase to the point where fish are immobilized.
    f. Immediately discontinue electrofishing if fish are killed or injured, i.e., dark bands visible on the body, spinal deformations, significant de-scaling, torpid, or inability to maintain upright attitude after sufficient recovery time. Recheck machine settings, water temperature, and conductivity and adjust or postpone procedures as necessary to reduce injuries.
- If buckets are used to transport fish:
    a. Minimize the time fish are in a transport bucket.
    b. Keep buckets in shaded areas or, if no shade is available, covered by a canopy.
    c. Limit the number of fish within a bucket; fish will be of relatively comparable size to minimize predation.
    d. Use aerators or replace the water in the buckets at least every 15 minutes with cold clear water.

e. Release fish in an area upstream with adequate cover and flow refuge; downstream is acceptable provided the release site is below the influence of construction.

f. Be careful to avoid mortality counting errors.

g. Monitor and record fish presence, handling, and injury during all phases of fish capture, and submit a fish salvage report to NMFS within 60 days of capture, documenting date, time of day, fish handling procedures, air and water temperatures, and total numbers of each salmon, steelhead, and eulachon handled and numbers of ESA-listed fish injured or killed.

6. Marbled Murrelet – Construction of the Proposed Action has the potential to disrupt or disturb nesting Marbled murrelets and nest success. Following the ESA Section 7 consultation on potential impacts on Marbled murrelet, the mitigation measures described below and in the biological opinion issued on July 23, 2015 are required (FWS Reference Number O1EOFWOO-2015-F-0227, and TS# 15-561) (USFWS 2015).

- Individual tree removal will not include the loss of occupied or unsurveyed nesting structure during the breeding period. If a tree with nesting structure in an occupied or unsurveyed stand will be removed to achieve tidal wetland habitat restoration goals, it will be done prior to April 1 or after September 15.

- Activities associated with use of heavy equipment to complete the project actions (including site preparation, clearing, levee removal, channel creation, and ditch filling) will be avoided within the disruption distance of known occupied or unsurveyed suitable murrelet habitat or unsurveyed nesting structure from April 1 to June 15. Use of Goodspeed Road within unsurveyed suitable murrelet habitat for equipment transport and haul will be allowed during the period April 1 to June 15, subject to the following restrictions:

    - Road use shall be limited to 2 hours after sunrise to 2 hours before sunset. After June 15, activities in these areas will have no daily timing restriction due to the difficulty of implementing a multi-phase habitat restoration construction project in tidally influenced areas. The June 15 end date for daily timing restrictions will increase the potential for all project phases to be completed in one construction season, which will reduce the overall temporal impact of the project.

- Use of helicopters within the disruption distance of occupied murrelet habitat, unsurveyed suitable murrelet habitat, and unsurveyed murrelet nesting structure during the entire breeding period (April 1–September 15) will not be allowed.

- Activities associated with use of heavy equipment to complete the project actions, including site preparation, clearing, levee removal, channel creation, and ditch filling, will abide by a daily timing restriction between April 1 and June 15. During this period, work will not begin until 2 hours after sunrise and will end 2 hours before sunset.

7. Bald Eagle – The Proposed Action has the potential to disturb nesting Bald eagles.

    - In compliance with the Bald and Golden Eagle Protection Act, the applicants will coordinate with USFWS to obtain the necessary permits and comply with the permit conditions.

8. Migratory Birds – The Proposed Action has the potential to disturb nesting migratory birds. The following mitigation will be implemented to reduce this potential impact:

    - To comply with the Migratory Bird Treaty Act and minimize impacts on migratory birds, all mature tree removal will occur from September 1 to March 1, which is outside of the active nesting season for migratory birds. Project activities that have the potential to disturb or remove woody vegetation or include substantial removal of herbaceous vegetation during grubbing and clearing will also be conducted from September 1 to March 1 to the extent practicable. This is in addition to the avoidance and minimization measures related to vegetation clearing for Bald eagles (Bullet 7) and Marbled murrelets (Bullet 6).

9. Terrestrial Wildlife – The Proposed Action has the potential to harm common terrestrial wildlife during construction. The following mitigation will be implemented to reduce this potential impact:

    - Project-related vehicles will observe a 15 mile-per-hour speed limit in all project areas, except on City or County roads and state and federal highways. Off-road traffic outside of designated project areas will be prohibited.

    - To avoid and/or minimize attracting predators to the site, all food-related trash items, such as wrappers, cans, bottles, and food scraps, will be disposed of in a securely covered container. These containers will be emptied and debris removed from the project site at the end of each working day.

10. Wetlands – The Proposed Action has the potential to impact wetlands. The Proposed Action will also result in more wetland acreage and improved wetland functions following construction. Therefore, the Proposed Action will be considered to be self-mitigating. Mitigation measures to control erosion and sedimentation (Bullet 12) will be required to prevent degradation of wetlands not directly affected by construction.

11. Vegetation – The Proposed Action will have short-term temporary impacts to vegetation within construction areas. The following mitigation measures will be implemented to reduce this potential impact:

    - Clearing limits will be clearly marked.

    - The removal of existing vegetation will be minimized. The existing pasture and hayfield vegetation along the Trask River will be protected to function as a vegetated filter strip until increased salinity from restoration naturally results in a change in this vegetation.

- To ensure non-native or invasive plants or seeds are not introduced or spread in the project area, wash soil and plant material off all equipment tires and treads before moving from one area to another (or moving to and from the staging area to the work area). Vehicle wash stations will be located at strategic construction site exits determined by the contractor in compliance with federal and state permit conditions.

- Consistent with PROJECTS (NMFS 2013), the following measures will be implemented:

    a. Whenever reasonable, use existing access roads and paths preferentially. Vehicular traffic will be limited to haul roads and existing disturbed areas to the extent possible.

    b. Minimize the number and length of temporary access roads and paths through riparian areas and floodplains.

    c. When it is necessary to remove vegetation, cut at ground level (no grubbing) whenever practicable to meet project purposes.

    d. Do not build temporary access roads or paths where grade, soil, or other features suggest slope instability.

    e. After construction is complete, obliterate all temporary access roads and paths within the wetland restoration area, stabilize the soil, and revegetate the temporary road beds.

    f. Temporary roads and paths within the wetland restoration area will be obliterated by the end of the in-water work window. Decompact road surfaces and drainage areas, pull fill material onto the running surface, and reshape to match the original contours.

    g. These measures will not apply to access roads outside of the wetland restoration area such as existing access routes to the north side of Hoquarten Slough from the east. In these areas, woody material placed on these routes during construction will remain in place.

12. Soil Erosion and Sedimentation – Construction activities associated with the Proposed Action, including levee removal and modification, grading, temporary road development and use, tree removal, clearing and grubbing, and installation of in-water structures, have the potential to discharge sediment or other construction-related pollutants to area waterways. The following mitigation measures will be implemented to reduce this potential impact.

    In compliance with PROJECTS (NMFS 2013), the following measures will be implemented:

    - Use site planning and site erosion control measures commensurate with the scope of the project to prevent erosion and sediment discharge from the project site.

- Before significant earthwork begins, install appropriate, temporary erosion controls downslope to prevent sediment deposition in the riparian area, wetlands, or waterbody.
- During construction, if eroded sediment appears likely to be deposited in the stream during construction, install additional sediment barriers as necessary.
- Temporary erosion control measures may include fiber wattles, silt fences, jute matting, wood fiber mulch and soil binder, or geotextiles and geosynthetic fabric.
- Soil stabilization utilizing wood fiber mulch and tackifier (hydro-applied) may be used to reduce erosion of bare soil if the materials are noxious weed free and nontoxic to aquatic and terrestrial animals, soil microorganisms, and vegetation.
- Remove sediment from erosion controls if it reaches 1/3 of the exposed height of the control.
- Whenever surface water is present, maintain a supply of sediment control materials and an oil-absorbing floating boom at the project site.
- Stabilize all disturbed soils following any break in work unless construction will resume within 4 days.
- Remove temporary erosion controls after construction is complete and the site is fully stabilized.

Additional mitigation measures for erosion control will include:

- Stabilized construction entrances will be installed to minimize transport of soil onto public streets. The number of construction exits will be minimized to the extent practicable. A shaker rack or rumble rack will be used to remove mud from truck tires, especially during wet weather.
- Plastic sheeting or similar measure will be used to cover exposed stockpiles. Construction staging areas will be located where eroded material has a reasonable chance of containment before reaching the stream network. Upon completion of construction, all staging and stockpile areas will be decompacted and revegetated.
- Perimeter levees will be removed in phases to limit unnecessary erosion of soils.
- Berm removal will not occur during high tides.
- Construction will rely on proper sequencing to minimize the amount of in-water work performed.
- For in-water work in ditches on the floodplain, work area isolation dams will be used to prevent flow from ditches entering the main drainage network. Fish will be removed from isolated work areas following the protocols described in Bullet 5. Floating silt curtains may be used in lieu of work area isolation dams in areas without

deep water or high flow velocities; floating silt curtains will be used, where possible, to isolate work areas.

- The duration of in-water work will be minimized to reduce exposure of unstable soil.
- Organic geotextiles, erosion control blankets, or other biodegradable matting will cover newly exposed banks and levees to temporarily reduce erosion, encourage reestablishment of natural vegetative cover, and improve in-channel habitat.
- Soil stabilizing measures will be placed in newly exposed areas where tide gates will be removed to minimize sediment impacts.
- The exposed top surface of levees will be graded towards the interior to prevent direct runoff to the rivers.
- Hydroseeding using appropriate plant species will be used for temporary and permanent seeding of bare surfaces previously occupied by ditches that are filled or levees that are modified or removed.
- Sequencing of work will be planned to prevent tidal flows entering areas until restoration work is completed. Also, sequence and schedule work to reduce the exposure of bare soil to wind erosion.
- Compost and/or brush berms at the clearing limits will be used where sediment transport into nearby waterways is possible. Brush and small trees removed for construction will be reused for this purpose as practicable.
- Brush and small trees removed from parts of the project will be chipped for mulch, and spread over disturbed areas where low water velocities will be expected.
- Slightly convex surfaces will be created over ditches to shed water. If possible, topography will be shaped in ways that encourage the formation of a more natural drainage network.
- Turbidity in waterways during in-water construction activities shall be monitored, and temporary increases will conform to the limits allowed by the Section 401 water quality certification permit.
- Measures described in Bullet 11 will also provide protection against erosion and sedimentation.
- Dry exposed soils will be watered to limit wind erosion of dry surfaces, limiting fine sediment dispersal.
- Implement the dust abatement measures described in Bullet 16.
- Inspect erosion and sediment control measures at the end of each work day.

13. Hazardous Materials – Construction of the Proposed Action has the potential to encounter hazardous materials in soil and/or groundwater or to result in the accidental release of construction-related hazardous materials. The following mitigation will be implemented to reduce this potential impact:

    - A Contaminated Media Management Plan (CMMP) will be implemented during construction within areas of known or suspected contamination, including the Sadri property. Contaminated soil will be managed in compliance with federal and state laws and regulations. The CMMP will describe the proposed measures for protection of human health and the environment during soil excavation and placement for disposal.

    - Site preparation, construction, and capping of areas of contaminated soil to be contained within the project area will be engineered such that the mobility of contaminants in the fill material is controlled. Areas where the leave surface is over-excavated due to grossly-contaminated soil or landfill debris will be backfilled with clean soil and covered with burlap re-vegetation matting.

    - Vehicle and heavy equipment refueling and maintenance will only be permitted in designated disturbed/developed areas where accidental spills can be immediately contained (as described below). All project-related heavy equipment will be maintained regularly to avoid fluid leaks (e.g., gasoline, diesel fuel, hydraulic fluid). All leaking fluid will be stopped or captured in a container until such time the equipment can be immediately moved off site and repaired. Storage of hazardous materials will not occur within 500 feet of any surface waters. A plan will be prepared for immediate containment and cleanup of hazardous material spills within or adjacent to each site.

    - A worker health and safety plan (per 29 CFR 1926.35) will be prepared and implemented prior to the start of construction activities. All workers will be required to review and sign the plan prior to starting work. The health and safety plan should, at a minimum, identify the following:

        a. All contaminants that could be encountered during excavation activities

        b. All appropriate worker, public health, and environmental protection equipment and procedures

        c. Emergency response procedures

        d. Most direct route to a hospital

        e. Site safety officer

    - Proposed design criteria established in PROJECTS will be applied for protection of aquatic life from hazardous materials. These include the following general construction measures for preventing the release of contaminants to surface waters.

a. Designate and use staging areas to store hazardous materials or to store, fuel, or service heavy equipment, vehicles, and other power equipment with tanks larger than 5 gallons that are at least 500 feet from any natural waterbody or wetland or on an established paved area such that sediment and other contaminants from the staging area cannot be deposited in the floodplain or stream.

b. Post written procedures for notifying environmental response agencies, including an inventory and description of all hazardous materials present and the storage and handling procedures for their use.

c. Maintain a spill containment kit, with supplies and instructions for cleanup and disposal, adequate for the types and quantity of hazardous materials present.

d. Train workers in spill containment procedures, including the location and use of the spill containment kits.

e. Temporarily contain any waste liquids generated under an impervious cover, such as a tarpaulin, in the staging area until the wastes can be properly transported to, and disposed of, at an approved receiving facility.

f. Before entering wetlands or working within 150 feet of a waterbody, replace all petroleum-based hydraulic fluids with biodegradable products.

g. Inspect all equipment, vehicles, and power tools for fluid leaks before they leave the staging area.

h. Before operation within 150 feet of any waterbody, and as often as necessary during operation, thoroughly clean all equipment, vehicles, and power tools to keep them free of external fluids and grease and to prevent leaks and spills from entering the water.

i. Generators, cranes, or other stationary heavy equipment operated within 150 feet of any waterbody will be maintained and protected as necessary to prevent leaks and spills from entering the water.

14. Cultural Resources – Ground disturbing activities may encounter archaeological materials. In order to avoid potential adverse effects, the following measures will be implemented.

- Excavation of material around the mill sites on the Sadri parcel and around the possible location for an ethnographic Tillamook village have the potential to encounter archaeological objects. An archaeological monitor will be on site during excavation, and if archaeological objects are encountered, the archaeological inadvertent discovery plan will be implemented.

- An inadvertent discovery plan (IDP) will be implemented to avoid or reduce potential impacts to cultural resources during construction. The contractors will be required to have a copy of the IDP on site and be knowledgeable about its provisions.

15. Public Health and Safety – Construction of the Proposed Action has the potential to endanger public health and safety during construction. The following BMPs will be implemented during construction to avoid or reduce potential impacts to public health and safety:

    - Public notification of the location and duration of construction activities, including pedestrian/trail closures and restrictions on boating, fishing, and other recreational use of the project area.

    - Verification with local jurisdictions that construction use of existing roadways will not interfere with existing emergency evacuation plans.

    - Adequate signage regarding the location of construction sites and warning of the presence of construction equipment.

    - Fencing of construction staging areas and of construction areas if dangerous conditions exist when construction is not occurring.

    - Temporary walkways and bike paths where an existing sidewalk or pedestrian/bicycle path/trail will be closed during construction. Appropriate markings, barriers, and signage will be used to create a safe separation between recreational visitors and pedestrians and vehicular traffic.

16. Dust Abatement – Construction of the Proposed Action has the potential to generate nuisance dust. The following mitigation will be implemented to reduce this impact:

    - Employ dust abatement measures commensurate with soil type, equipment use, wind conditions, and the effects of other erosion control measures.

    - Sequence and schedule work to reduce the exposure of bare soil to wind erosion.

    - Maintain spill containment supplies on site whenever dust abatement chemicals are applied.

    - Do not use petroleum-based products.

    - Do not apply dust-abatement chemicals, e.g., magnesium chloride, calcium chloride salts, ligninsulfonate, within 25 feet of a waterbody or in other areas where they may run off into a wetland or waterbody.

    - Do not apply ligninsulfonate at rates exceeding 0.5 gallons per square yard of road surface, assuming a 50:50 solution of ligninsulfonate to water.

17. Recreation – Existing recreational trails will be closed during construction and construction may involve the use of barges or other construction activities in the adjacent waterways.

    - Closure and removal of the Goodspeed Road/Wilson-Trask Wetlands trail will eliminate recreational access and an existing collection of geocache sites utilized by geocaching enthusiasts. Prior to construction closures, public notice will be provided to alert the public about the scheduled start of construction and the timing for the closures.

    - Construction access of the waterways around the project area, such as the use of barges, will be coordinated with the U.S. Coast Guard to address any potential safety issues. Through coordination, the U.S. Coast Guard can provide outreach to potentially affected users through a publication in the Local Notice to Mariners, a broadcast on the radio, or other means.

18. Maintenance and Monitoring

    - The applicant shall develop a maintenance plan outlining annual maintenance activities, periodic maintenance requirements, the responsible entities, and necessary reporting and documentation upon completion of construction. It is important that careful maintenance records be maintained for application for future federal funding associated with any necessary adaptive management approaches.

    - The applicant shall develop a monitoring plan with an adaptive management component within 6 months upon completion of construction. The monitoring plan, at a minimum, will contain the following: performance standards associated with the goals outlined in the Effectiveness Monitoring Plan: Habitat Complexity, Increase Targeted Species Use, Enhance Water Quality, and Flood Attenuation (to demonstrate the degree of success for achieving those goals); responsible entities and potential participants, including the public; frequency of meetings to discuss and evaluate the project progress; and types and frequency of reports. At close out of the grant, the applicant shall provide a current progress report, with regard to implementation of the monitoring plan and adaptive management component that describes the current success rate of the project, including supporting quantifiable and/or qualitative data. A good reference tool recommended by the Environmental Protection Agency to help develop adaptation plans is their document titled, "Being Prepared for Climate Change: A Workbook for Developing Risk-Based Adaptation Plans", which can be found at http://www2.epa.gov/cre.

19. Wave Action – there is a moderate, localized, short-term potential for wind-generated waves to affect specific areas to the south of the project area when winds from the north-northwest occur simultaneously with high water events. The applicant will incorporate into the post-construction monitoring plan a monitoring protocol for the existing dikes and levees within the wind wave area of potential effect identified in the Final EIS. The protocol will include the length of time for the monitoring, the criteria that will trigger

post-event evaluation, and a process for identification of appropriate stakeholders to evaluate impacts and to develop any necessary plan of action.

11.0 Appeal

The Regional Administrator or his designee has the authority to approve this project. The Regional Administrator's decision constitutes the final decision by FEMA and, in accordance with the regulations at 44 CFR 10, is not subject to appeal. Any challenge of this decision, including the authorization of grant funding as directed by this decision, must be brought in federal district court.

12.0 Issued

KENNETH D MURPHY

Digitally signed by KENNETH D MURPHY
DN: c=US, o=U.S. Government, ou=Department of Homeland Security, ou=FEMA, ou=People, cn=KENNETH D MURPHY, 0.9.2342.19200300.100.1.1=0345133225.FEMA
Date: 2015.12.07 14:55:06 -08'00'

Kenneth D. Murphy
Regional Administrator
FEMA, Region X

Date

K S Zeringue

7-DEC-2015

Katherine S. Zeringue
Environmental Officer
Office of Environmental Planning and Historic Preservation
FEMA

Date

13.0 References

Bielski. 2014. Personal communication with William Kerschke, Megan Hilgart, Lauren Senkyr, et al. July 28, 2014.

Levesque, P. 2013. A History of the Oregon Solutions Southern Flow Corridor Project – Landowner Preferred Alternative: A Review of the Alternatives and a Summary of Public Involvement. Tillamook County and Oregon Solutions. November 2013. 63 pp.

Levesque, P. 2014. Personal communication with William Kerschke, Mark Eberlein, Barry Gall, and others. April 5, 2014.

National Marine Fisheries Service (NMFS). 2000. Guidelines for electrofishing waters containing salmonids listed under the Endangered Species Act. National Marine Fisheries Service. Portland, Oregon and Santa Rosa, California. Available at: http://www.westcoast.fisheries.noaa.gov/publications/reference_documents/esa_refs/section4d/electro2000.pdf.

_____. 2011. Anadromous salmonid passage facility design. NMFS, Northwest Region, Portland, Oregon. Available at: http://www.westcoast.fisheries.noaa.gov/publications/hydropower/fish_passage_design_criteria.pdf.

_____. 2013. Programmatic Restoration Opinion for Joint Ecosystem Conservation by the Services (PROJECTS) by the U.S. Fish and Wildlife Service Using the Partners for Fish and Wildlife, Fisheries, Coastal, and Recovery Programs and NOAA Restoration Center Using the Damage Assessment, Remediation and Restoration Program (DARRP), and Community-Based Restoration Program (CRP) in the States of Oregon, Washington, and Idaho. National Marine Fisheries Service, Northwest Region, Portland, Oregon. NMFS No: NWR-2013-10221. December 3, 2013.

National Oceanic and Atmospheric Administration (NOAA). 2003. *NOAA Award Number NA03NOS4190117*. NOAA Grants Management Division. September 15, 2003.

Oregon Department of Fish and Wildlife (ODFW). 2008. Oregon Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources. Available at: http://www.dfw.state.or.us/lands/inwater/Oregon_Guidelines_for_Timing_of_%20InWater_work2008.pdf.

_____. 2014. ODFW Fish Passage Requirements. Accessed on August 1, 2014. Available at: http://www.dfw.state.or.us/fish/passage/.

Tillamook County. 2014. Tillamook County Department of Community Development. Flooding in Tillamook County. Accessed on December 18, 2014. Available at: http://www.co.tillamook.or.us/gov/comdev/planning/flood.htm.

U.S. Army Corps of Engineers (USACE). 2004. Hydraulic Model Development for the Tillamook Bay and Estuary Study. Final Report. March 2004. Prepared by WEST Consultants, Inc.

U.S. Fish and Wildlife Service (USFWS). 2014. NWI Map. National Wetland Inventory Wetlands Mapper. Accessed on September 2, 2014. Available At: http://www.fws.gov/wetlands/Data/Mapper.html.

_____. 2015. Biological Opinion Regarding the Effects of Habitat Modification and Disruption on the Marbled Murrelet (*Brachyramphus marmoratus*) from the Southern Flow Corridor Tidal Wetland Restoration Project Tillamook, Oregon (FWS Reference Number O1EOFWOO-2015-F-0227, and TS# 15-561). Prepared by the Oregon Fish and Wildlife Office, U.S. Fish and Wildlife Service, Portland, Oregon. July 2015.

14.0 Acronyms

APE	Area of Potential Effect
BMP	best management practice
CMMP	Contaminated Media Management Plan
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
DHS	Department of Homeland Security
EFH	essential fish habitat
EIS	environmental impact statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
IDP	inadvertent discovery plan
µs	microsiemens
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration

ODFW	Oregon Department of Fish and Wildlife
OWEB	Oregon Watershed Enhancement Board
PA	Public Assistance
POTB	Port of Tillamook Bay
PROJECTS	Programmatic Restoration Opinion for Joint Ecosystem Conservation by the Services
ROD	Record of Decision
SFC	Southern Flow Corridor
SHPO	State Historic Preservation Officer
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

Attachment:

- Comment letter from EPA on the Final EIS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

OFFICE OF
ECOSYSTEMS, TRIBAL AND
PUBLIC AFFAIRS

November 27, 2015

Federal Emergency Management Agency
c/o Mark Eberlein, Regional Environmental Officer
130 – 228th Street SW
Bothell, Washington 98021

Dear Mr. Eberlein:

We have reviewed the Federal Emergency Management Agency's October 2015 Final Environmental Impact Statement (FEIS) for the Southern Flow Corridor Project, Tillamook County, Oregon (EPA Region 10 Project Number: 14-0023-FEM).

We support this project primarily because restoring 522 acres of tidal wetlands and associated fish and wildlife habitat would have major, long-term beneficial effects on wildlife and threatened and endangered species, including the threatened Coastal Coho salmon. Also, as previously stated, we believe that emphasis on achieving both flood risk reduction and environmental benefits is consistent with federal agencies', including FEMA's, responsibilities to the Tillamook Bay Comprehensive Management Plan; which the EPA has approved under the Federal Clean Water Act.

In our comments on the Draft EIS, we recommended additional adaptive management information because of the nature and number of physical, social and economic factors relating to project success.

The FEIS's new section 3.4.2.2. Maintenance, Monitoring, and Adaptive Management is responsive to our recommendation for additional adaptive management information. Section 3.4.2.2 is responsive to our interest in likely topics and/or concepts for key performance standards because it identifies vegetation as a critical component for evaluating success. Section 3.4.2.2 is responsive to our interest in potential management responses because it states that parameters performing outside of a range would trigger "...a discussion between project partners...", and a potential management response would be "...control of invasive species..."[1] Section 3.4.2.2 is responsive to our interest in responsible parties because it identifies Tillamook County and the Port of Tillamook Bay as the primary responsible parties for implementation.

Moving forward, we understand that Tillamook County and the Port of Tillamook Bay would develop a maintenance and monitoring plan as a condition of their grants that will include performance standards and adaptive management components. To continue to help strengthen this project's overall planning process - including environmental review, grants, construction permits and approvals - we recommend that the Record of Decision include - to the extent possible - additional details on performance standards and management responses. Currently, for example, neither the FEIS nor the 2014 *Southern Flow*

[1] FEIS, p. 3-22

Corridor Project Effectiveness Monitoring Plan identifies quantitative performance standards for vegetation - a critical component for evaluating success. With regard to management responses, no timeline for project partner discussions or decisions is presented.

We would also like to take this opportunity to recommend a useful tool for identifying and managing risks associated with climate change, the EPA's August 2014 *Being Prepared for Climate Change: A Workbook for Developing Risk-Based Adaptation Plans*. This workbook, and other resources on the EPA's Climate Ready Estuaries website (http://www2.epa.gov/cre), could be referenced in the Record of Decision as guidance for conducting a risk-based climate change vulnerability assessments and developing action plans. The workbook is an ideal tool for organizations that manage places, watersheds or coastal environments.

Thank you for this opportunity to comment and if you have any questions please contact me at (206) 553-1601or by electronic mail at littleton.christine@epa.gov, or you may contact Erik Peterson of my staff at (206) 553-6382 or by electronic mail at peterson.erik@epa.gov.

Sincerely,

Christine B. Littleton, Manager
Environmental Review and Sediment Management Unit