# Tillamook Bay Wetlands:

# Management Plan for the Wilson, Fuhrman, and Farris Wetland Acquisition Properties

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## Introduction

In December of 1999, the Tillamook Bay National Estuary Project published the Tillamook Bay Comprehensive Conservation and Management Plan. Among the 63 actions designed to enhance water quality, improve salmonid habitats, reduce excess sedimentation, mitigate the natural and human impacts of flooding, and involve the public are several actions aimed at reconnecting intertidal wetlands and enhancing tidal marsh. The purpose of these actions is to improve estuarine wetland habitat in order to benefit imperiled fish and wildlife species and to improve the overall ecological function of the bay. Toward these ends, the TBNEP established an objective of acquiring and restoring 750 acres of inter-tidal wetland habitat in the Tillamook Bay.

In pursuit of these actions and objectives, the Tillamook Bay National Estuary Project, in collaboration with the Oregon Watershed Enhancement Board (OWEB) and Oregon Wetlands Joint Venture, submitted a proposal to the U.S. Fish and Wildlife Service (USFWS) for grant funding under the Coastal Wetland Planning, Protection, and Restoration Act (CWPRA). The USFWS awarded $750,000 for estuarine wetlands acquisition, which OWEB matched with $250,000 for restoration and enhancement of acquired properties ($25,000 was also provided for project administration). By acquiring and restoring roughly 350 acres, this project represents a significant step toward the CCMP objective of 750 acres.

### Purpose of this Plan:

The purpose of this management plan is to clearly articulate how the properties proposed for acquisition and restoration by the Tillamook County Performance Partnership (TCPP) will be managed to meet the goals and objectives stated in the grant agreements with the Oregon Watershed Enhancement Board (OWEB) and the United States Fish and Wildlife Service (USFWS) and as agreed upon by the relevant local stakeholders. The management plan is designed to provide assurance to the grant funding agencies, all potentially affected parties, as well as the general public, that the acquisition and management of the land parcels will be implemented in a carefully planned manner and in such a way as to address any existing or potential concerns. *This document has been prepared with the explicit intent of incorporating the interests of multiple stakeholder groups into a plan that assures strong community support for the project.*

### Plan Development Process:

In order to accomplish broad-based community support, it was critical that the TCPP establish a forum through which community stakeholders could not only participate in, but in fact, drive the plan development process. In the Spring of 2001, the TCPP hosted the first meeting of the Wetlands Management Plan Development Team. At this meeting, stakeholders ranging from private citizens and business owners to elected officials and agency representatives sat down and identified the stakeholders to be represented on the Team. TCPP staff members, land use/resource agency representatives, and invited guests

were designated to provide technical expertise and staffing support throughout the plan development process.

After a second meeting in which members discussed generally: 1) the goals and scope of the grant, 2) the properties proposed for acquisition, 3) preliminary management ideas and concerns, and 4) other relevant matters, it became clear that the primary obstacle in developing the plan would be to reconcile the interests of those members primarily interested in habitat enhancement with those primarily interested in flood mitigation. To address this, the Team was separated into two subcommittees, one representing flood interests and the other habitat enhancement. Each subcommittee was asked by the TCPP chair, who facilitated the process, to generate a plan, which addressed both flood mitigation and habitat enhancement. At the next team meeting, each subcommittee presented its plan, and the Team as a whole worked to identify areas of agreement and those which required additional discussion.

Subsequent meetings sought to resolve several issues including access to flood mitigation infrastructure, the location of dike breaches, long term maintenance of floodways, and potential for the project to affect off-site flood elevations. *This plan represents the product of these discussions and is a consensus document, agreed to by all of the stakeholders serving on the Wetlands Management Plan Development Team.*

**Organization of this Report:**

The management plan contains discussions of all of the major elements in need of consideration prior to making the substantial commitment of resources necessary to implement and maintain the project. The plan is organized according to the following elements:

Element 1: Goals and Objectives

Element 2: Site Descriptions and Background Information

Element 3: Restoration and Enhancement Activities

Element 4: Ownership and Management: Identification of Responsible Participants

Element 5: Public Access Plan

Element 6: Monitoring and Evaluation

Element 7: Costs and Funding

## Element 1: Goals and Objectives

### Project Goals:

More than 85 percent of the Tillamook Bay area's historic floodplain and lowland wetlands have been lost as a result of human settlement and development (Tillamook Bay National Estuary Project 1999). Loss of these habitats has resulted in significant impacts on salmon, migratory birds, and other fish and wildlife. The purpose of this project is to restore more natural habitats and ecological processes in the upper estuary of Tillamook Bay and the river delta areas of the Wilson and Trask rivers in order to:

- improve habitat for native fish and wildlife,
- improve water quality and reduce sedimentation,
- reduce flood hazards, and
- enhance the overall ecological health of Tillamook Bay.

### Project Objective:

The objective of the original grant application to OWEB and USFWS was to acquire at least 300 acres for restoration and protection of estuarine and freshwater wetland habitats in the upper estuary of Tillamook Bay. In the process of narrowing the project scope down to particular land parcels, acquisition and restoration plans have become primarily focused on three parcels under different land ownership: the Wilson, Farris, and Fuhrman properties. Thus, the current project objective is to specifically acquire and restore all three of these land parcels. In addition, there are several other very small land parcels that should logically be included in the project area because of their locations within or adjacent to the Wilson, Farris, and Fuhrman properties. These small parcels could be purchased or traded as agreeable to the property owners.

### Project Need:

The need for the project has been clearly identified in a number of plans developed by federal, state, and local conservation interests. These include the *Comprehensive Conservation and Management Plan* (Tillamook Bay National Estuary Project 1999); the *Oregon Plan for Salmon and Watersheds* (State of Oregon 1997); the *Pacific Coast Joint Venture Strategic Plan* (U.S. Fish and Wildlife Service 1993); and the *Concept Plan for Waterfowl Wintering Habitat Preservation* (U.S. Fish and Wildlife Service 1979), and the Tillamook County Flood Mitigation Plan. Tillamook Bay's coastal wetlands have also been highlighted as a priority for conservation as part of a statewide biodiversity conservation strategy (Oregon Biodiversity Project 1998).

The success of this project is of significant importance to the Tillamook County Performance Partnership with regard to its implementation of the *Tillamook Bay Comprehensive Conservation and Management Plan (CCMP).*

This project specifically addresses the following elements of the CCMP:

- HAB-06 Protect and Enhance Lowland Riparian Areas (Priority Action)
- HAB-07 Protect and Enhance Instream Habitat
- HAB-08 Protect and Enhance Freshwater Wetland Habitat
- HAB-19 Protect and Enhance Tidal Marsh (Priority Action)
- HAB-21 Remove or Modify Ineffective Tide Gates and Floodplain/Lowland Culverts
- HAB-24 Reconnect Sloughs and Rivers to Improve Water Flow (Priority Action)
- HAB-30 Support the Oregon Plan for Salmon and Watersheds (Priority Action)
- WAQ-01 Define, Implement, and Enforce Pollution Prevention and Control Measures on Agricultural Lands (Priority Action)
- FLD-01 Develop a GIS-Based Unsteady State Hydrodynamic Model
- FLD-02 Implement Watershed Drainage Modification Projects

**Expected Results:**

The project is expected to result in protection and restoration of a natural functioning ecosystem on at least 300 acres within the diked former tidelands and forested wetlands in the river delta area at the southern end of Tillamook Bay. These areas will be primarily restored to intertidal habitats consisting of high salt marsh and brackish marsh, as well as forested wetlands. Existing remnant floodplain forests will be permanently protected and managed to maintain their natural values. Targeted breaching and alteration of existing dikes is expected to restore floodplain function and improve routing of flood waters, thus mitigating flood impacts in upstream areas. Construction of new levee structures will protect adjacent land uses from tidal inundation.

**Geographic Scope of the Management Plan:**

The management plan primarily addresses management issues on the Wilson, Fuhrman, and Farris parcels. Structural alterations and other direct management actions taken to restore habitat and floodplain function will be conducted within the property boundaries of these lots. In addition, there are several small additional parcels that have been included with the intent to consolidate ownership within the project area. However, the management plan also addresses off-site considerations such as ecological connectivity with the estuary and nearby rivers, potential flood mitigation benefits for the local community, and protection of the property rights interests of adjacent landowners. Refer to Figure 1 attached to the end of this document for a map of the project area.

## Element 2: Site Descriptions and Background Information

### Historical Summary of Area's Attributes:

Using information gathered from the 1857 General Land Office Original Survey Notes, U.S. Geological Survey Topographic maps, soil survey maps, flood insurance rate maps, and U.S. Army Corps of Engineers 1939 aerial photographs, Phillip Williams and Associates has reconstructed a physical characterization map of the Tillamook Bay valley historical landscape circa 1857. The area currently identified as the Wilson, Farris, and Fuhrman parcels was described in survey notes as "grassy tidal marsh…tide land level, cut up by tide fissures, occasionally overflowed by the tide." Thus, historically, the project area was likely mostly composed of high and low salt marsh interspersed with intertidal sloughs, with dense floodplain forests in the higher elevations. These habitat types are widely recognized for their high biological productivity and critical importance to estuarine-dependent fish and wildlife species.

Following settlement of the Tillamook Bay area by non-indigenous people, much of the project area was diked with the intent to restrict tidal inundation and potentially put the land into agricultural production. The Wilson, Farris, and Fuhrman properties have been primarily converted into freshwater wetlands as a result of dike and levee construction. The Wilson property is the only one that has been used for productive agricultural use within the last several decades.

### Land Parcel Descriptions of the Wilson, Farris, and Fuhrman Properties:

The following portion of this element discusses each of the three major land parcels included within the scope of this management plan. Summary information about each property's attributes is followed by a narrative discussion of the current physical and biological attributes pertaining to that parcel, as well as a brief explanation of how the property fits into the overall project.

(Note: Exact Acreage of acquisition parcels will not be known until properties are re-surveyed and officially recorded. Listed acreage figures are approximate and based on the most current available information.)

**Parcel Name:** Wilson
**Tax Lot Map:** 1S 10 23 lot 900
**Ownership:** Donald and Nancy Wilson
**Size:** 154 acres
**Estimated Value:** $443,000.00 *(option negotiated by the Trust for Public Lands)*

**Property Description:** This parcel is at the southern extent of the project area and is bordered by the Trask River to the south and the Farris property to the north. The land currently consists primarily of farmed freshwater wetland (categorized as palustrine[1]

[1] Non-tidal wetland dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, and all such tidal wetlands where ocean-derived salinities are below .5 ppt.

emergent by the National Wetlands Inventory) used as pasture. The system of linear manmade drainage ditches that terminate at the floodgates on the western end of the property is currently a predominant landscape feature. The main drainage ditch separates the Wilson and Farris properties. The lower portion of Nolan Slough, an estuarine channel with a great deal of additional restoration potential, is located at the eastern extent of the property. The Wilson Levee system borders the southern and western edges of the parcel adjacent to the Trask River. Several piles of dredge spoils are located on the southern edge of the levee near the Trask River. Ten large floodgate structures were installed in 1999 at the west end of the levee to expedite the drainage of floodwaters. The only building on the property is a large barn. An adjacent landowner currently leases the pasture for grazing.

**Parcel Name:** Farris
**Tax Lot Map:** 1S 10 22 lot 100, 1S 10 23 lot 800,801
**Ownership:** David and Kendra Farris
**Size:** 142 acres
**Estimated Value:** $280,000.00 *(excludes value of house and access road)*

**Property Description:** The Farris property is located in the middle of the project area, with the Wilson property to the south, and the Wilson River and Blind Slough to the north. The bulk of the property is composed of freshwater wetlands (palustrine emergent) with several isolated patches of wooded upland, and has not been used for agricultural purposes for many years. Remnant natural tidal channels are readily apparent at the site, but are partially or wholly blocked from tidal exchange. The parcel shares a common dike with the adjacent Wilson property. The Farris property was at one time owned by The Nature Conservancy (TNC), which retains a conservation easement that prohibits agricultural use and a deed restriction that entitles them to one half of the interest in any mineral production activities. TNC has agreed to transfer the conservation easement to Tillamook County in order to meet the goals of this project. The Farris family, along with the former owners of the parcel, the Hamacheks, retain the right to hunt waterfowl within the Farris wetland area. The property includes a house, which Farris uses for recreation, as well as an access road. Farris wants to retain the house and access road, but is willing to sell conservation and flood easements over the rest of the property in support of restoring wetland habitat for the Tillamook County community. Some invasive plant species are present, most notably Scotch Broom associated with the piles of dredge spoils from the 1972-73 US Army Corps of Engineers dredging project. Manmade ponds are interspersed through parts of the property, and were originally created to enhance waterfowl habitat.

**Parcel Name:** Fuhrman
**Tax Lot Map:** 1S 10 14 lot 400, 1S 10 23 lot 200
**Ownership:** Diamond F. Inc., Rolph and Janet Fuhrman
**Size:** 81 acres
**Estimated Value:** $225,000.00 *(option negotiated by the Trust for Public Lands - excludes value of house and access road)*

**Property Description:** The Fuhrman property is the northernmost parcel involved in the project area, and is bordered by Blind Slough to the south, the Wilson River to the west and north, and Hall Slough to the north and east. Blind slough (apparently a historic

channel of the Wilson River) was diked off from the Wilson River for many years, but has recently been partially restored with the installation of new culverts and tidegates. The majority of the Fuhrman property consists of freshwater wetlands. The upland areas on the parcel consist of several dredge spoils piles adjacent to the Wilson River, and an impressive stand of spruce trees in the northwestern section. The dikes surrounding the parcel appear to be failing in some areas, but tidal exchange continues to be limited. A part-time residence is located near the Wilson River, and is linked via a private drive to the Farris property and Goodspeed Road. The owners are willing to sell the bulk of the property, except for a one-acre homesite and one-acre road right-of-way.

**Acquisition Priority:**

Due to the nature of restoring estuarine wetlands with dike breaching, and the subsequent alteration of hydrologic regimes, it is impractical to approach restoration of the project area without designing a comprehensive strategy that includes all three parcels. Therefore, it is the ultimate goal of the project participants to acquire (outright or under easement) all three parcels before implementing the full restoration plan. This management plan has been written to address the land area containing all three parcels with the assumption that once a strong plan has been adopted, funding for full implementation can be subsequently secured.

**Other Parcels Involved in the Acquisition Process:**

In addition to the three major parcels under consideration for acquisition, there are several small parcels that have been incorporated into the management plan strategy for restoration. Inclusion of these parcels allows for the acquisition and management of a contiguous area of wetland habitat, and maximizes the potential of this project to fulfill habitat enhancement and flood mitigation goals. The potential role of each parcel within the overall project strategy is discussed in the property description for that piece of land.

**Parcel Name:** Allen
**Tax Lot Map:** 1S 10 23 lot 700
**Ownership:** George Allen
**Size:** 8.4 acres
**Estimated Value:** yet to be determined - fair market value

**Property Description:** The Allen property is an area of partially wooded wetlands, and contains the upper remnants of the historic Blind Slough channel. The wetlands and channel habitat present should logically be included within the project area restored to tidal flushing, as they have high habitat value and poor agricultural value. Negotiations are occurring to determine if the landowners are willing to donate, sell, or swap this parcel as part of the restoration project.

**Parcel Name:** Gienger
**Tax Lot Map:** 1S 10 14 lot 100
**Ownership:** Lenhart and Helen Gienger
**Size:** unknown (small)
**Estimated Value:** yet to be determined - fair market value

**Property Description:** This small lot is located wholly within, and contiguous to, the Fuhrman parcel and borders the Wilson River. Acquisition of this parcel may or may not be necessary in order to implement the restoration measures.

**Parcel Name:** Tillamook County Parcel
**Tax Lot Map:** 1S 10 23 lot 300
**Ownership:** Tillamook County
**Size:** 1 acre
**Estimated Value:** not determined
**Property Description:** This small parcel is nestled at the southeast corner of the Fuhrman property and consists mainly of a riparian area for Blind Slough. This parcel falls within the management plan area and will be integrated with the acquisition properties through a lot line adjustment consistent with Oregon's land use planning regulations.

## Element 3: Restoration and Enhancement Activities

### Overall Strategy for Restoration:

The key to restoring the project area to functioning estuarine habitat depends upon re-establishing tidal exchange with the bay as well as hydrologic connectivity between the Wilson and Trask rivers and their floodplains. Restoring tidal inundation is essential to creating the physical and chemical conditions required to re-establish the desired vegetation community and habitat characteristics. Therefore, partially removing the existing levee system surrounding the property is the central aspect of the restoration plan. Levees will be rebuilt in the eastern portions of the Wilson and Farris properties to protect adjacent landowners from tidal flooding. The details of the how the levee system will be altered is specifically discussed in the Structural Modifications section below.

The project area encompassing the Wilson, Farris, and Fuhrman parcels is a complex floodplain (and floodway) area during flooding events. Ensuring the conveyance of floodwaters from upstream areas, through the project area, and out to Tillamook Bay is an issue of critical importance to the safety and welfare of the local community. Mitigating against flood hazards to upstream areas, including the City of Tillamook and the adjacent North Highway 101 business district, is an issue of essential consideration in the development of the management strategy for the project area. Structural alterations to the levee system will be analyzed by engineering and hydrologic experts to ensure that they have a net positive benefit for flood mitigation.

The specific management measures proposed in this plan have been designed in a comprehensive manner that serves to address the needs to:

1. Restore properly functioning estuarine habitat for fish and wildlife, and

2. Ensure the security of the local community through the mitigation of flood hazards.

Fortunately, these dual goals can be complimentary. Restoration of floodplain function and hydrologic connectivity improves habitat quality *and* should allow for reduced flood severity. A detailed hydrological analysis will be completed prior to implementing proposed structural modifications. No modifications to the existing levee system will occur without strong evidence demonstrating that these alterations will not worsen, and hopefully will be beneficial in reducing, flood hazards. The specifics of how the project will be implemented are discussed below. Proposed structural modifications will be discussed first, followed by a description of proposed vegetation management strategies.

**Structural Modifications:**

The Wetlands Management Plan Development Team has resolved that the structural modifications proposed in this section of the plan will be modified slightly, as appropriate, when more detailed and site-specific information becomes available through:

- land surveys,
- hydrologic modeling and analysis, and
- and further consultations with restoration, hydrology, and engineering professionals.

**The following structural modifications will be implemented under this management plan:**

1. **Build a new levee at the eastern edge of the wetland restoration area to ensure adjacent properties remain protected from tidal inundation**. Establishing this new levee is essential to the design of the restoration project, and will be completed before any breaching of existing dikes occurs. Land uses and private property rights interests of landowners adjacent to the restoration project will not be affected. This new levee will be designed to the summer high tide elevation, which will keep tide water from inundating non-wetland areas while still allowing maximum conveyance of floodwaters to the bay during periods of riverine flooding. Tidegate culverts will be installed in this dike system in order to convey as much water as possible during flood events. These tidegate structures will be moved from their current location in the Wilson Levee (refer to Structural Modification #2).

   The exact location of this levee will be agreed upon subject to gathering of more detailed information on site elevations and hydrologic modeling. Areas with elevations, soils, and hydrology suitable for restoration as wetland habitat will be managed for this purpose. The new levee structure will be built to the east of the restored wetland areas. The major factors determining where this levee will be placed include the site-specific topography, the results of hydrologic modeling of the area (the levee location should maximize flood mitigation potential), engineering considerations, and cost.

2. **Breach several portions of the Wilson property dike along the southwest region of the parcel to restore tidal exchange.** This will involve the removal of the 10 large-volume tidegate culverts currently installed in the dike (these will be moved to the new levee discussed in #1), and the select removal of dike material down to an elevation that allows full tidal inundation.

3. **Breach select portions of the Wilson River dike along the northwest portion of the Farris property to restore tidal exchange.** Breach locations will correspond with existing channels within the Farris wetlands complex. This will provide hydrologic connectivity between the Wilson River channel and the Farris wetlands. These channels will provide excellent refuge and rearing areas for a variety of estuarine-dependent species as well as for juvenile salmonids. Dike protection to the Farris property will be provided only in the immediate vicinity of the residence and access road, regardless of the acreage ultimately retained by the landowner.

4. **Breach the Fuhrman dike at select locations to allow connections between the Wilson River and existing or remnant channels on the Fuhrman parcel.**

5. **Abandon and remove parts of the current access road to the Fuhrman residence, as well as breach the Fuhrman dike adjacent to the road.** The existing access road is unpaved. The dike is located just to the northeast of the road and should be breached and abandoned. This road/dike should be breached to allow hydrologic connectivity between Hall Slough and Blind Slough.

6. **Build an elevated access road to the Farris and Furhman residences, and provide these residences with protection from tidal indundation.** This elevated road is necessary in order to maintain access to the existing residences, which the owners wish to retain within the project area. The road needs to be built at an elevation high enough to stay above the Wilson River flood elevation at the Hall Slough junction. Large capacity tidegated culverts will be built into the road to allow as much connectivity as possible between channels bisected by the road. The tidegates would be kept open most of the time to allow fish passage and full water exchange, but can be closed during periods of flooding if this would facilitate improved conveyance of floodwaters to the bay. The Fuhrman residence will be connected to the Farris access road via a spur that crosses Blind Slough at the location of the current tidegate/fill area or along the existing access way. As needed, levee structures will be built adjacent to both residence structures to protect from tidal inundation. Given the locations of the houses, building levee structures to protect against severe riverine flooding is probably not practical.

7. **Fully restore hydrologic connectivity of Blind Slough.** This slough has been substantially improved by the recent fish-friendly tidegate installation project completed by the Performance Partnership and Nehalem Marine. However, a bridge crossing would enable a much greater degree of natural tidal exchange, improved fish passage ability, and a much greater capacity for floodwater conveyance.

8. **Utilize on-site materials from previous diking and dredging projects, as feasible, to build new planned levees and elevated roads.** The Wilson, Farris and Fuhrman parcels have existing dredged materials spoils sites. Utilizing this on-site material is the most economically feasible source for planned construction. Removing these materials from their current locations will also help to address the removal of the invasive scotch broom shrubs that have become established on the spoils piles, and will lower elevations to a level more conducive to the establishment of wetland vegetation.

9. **If recommended by restoration and hydrology experts, an intertidal channel could be established on the eastern portion of the Wilson property.** This channel will only be created if it is demonstrated to be important from a habitat standpoint, and if natural tidal channels are not likely to develop on their own in a desired manner.

10. **Enhance Nolan Slough.** This slough has been partially restored by the installation of a fish-friendly tidegate and the associated increase in tidal flushing. However, the habitat value of the slough could be greatly enhanced through the establishment of a healthy riparian zone and an increase in habitat complexity components and cover for fish. Landowners adjacent to Nolan Slough should be asked about the degree of tidal inundation that is acceptable to them. The maximum level of tidal exchange should be provided to enhance the water quality and habitat value of the slough. Restoration and enhancement activities proposed for this slough must first be evaluated for their impact on the conveyance of floodwaters, as this area is a primary floodway during floods.

**Vegetation Management:**

As with the proposed structural modifications, management of vegetation on the site will be specific to certain portions of the project area. Different management measures should apply to different areas to meet the objectives and goals of the overall project. When implemented properly, the proposed structural modifications should provide the conditions necessary to naturally establish the desired vegetation communities. However, it is anticipated that active management will be required to control invasive exotic species and to properly manage the area of the Wilson property to be utilized for an agricultural purpose.

**Primary Vegetation Management Principles:**

1. **Remove invasive non-native vegetation, and replace with appropriate native species.** In order to maximize the habitat value of the restored wetland area it is important to limit the spread of undesirable invasive species. Invasives often reduce the overall diversity of plant species in an area and can reduce the complexity of habitat available to support a variety of wildlife species. Non-native grasses, sedges, brush, and berries located in the project area should be evaluated by habitat biologists in order to determine the best means of converting the area to a more desirable plant community. Personnel from the Oregon Department of Fish and Wildlife (ODFW), the Tillamook County Soil and Water Conservation District (TCSWCD), and the Natural Resource Conservation Service (NRCS) should collaborate on the invasive species remediation strategy. Refer to Appendix A.for a list of noxious invasive species.

2. **Allow natural conversion of freshwater wetlands to intertidal wetlands as determined by tidal exchange regime and landscape elevation.** Once the structural alterations have been completed, daily exchange of tide waters and periodic inundation of the floodplain during high river flows will gradually alter the plant communities to species best adapted to the new hydrologic conditions. The breaching of portions of the Wilson and Fuhrman dike systems will cause a shift on the Fuhrman, Farris, and western portion of the Wilson properties from freshwater wetland habitat towards intertidal mudflat and low and high salt marsh habitat. This change in plant community composition will not happen immediately, but will

proceed through several phases. Details of the expected shift in plant community composition, as well as a list of desirable native species are described in Appendix B.

3. **Manage the upland portion of the Wilson property for appropriate agricultural uses and to maintain an unobstructed floodway.** Upland areas on the eastern portion of the Wilson property will be managed for their agricultural value. This land area will be managed to generate revenue to pay for costs associated with the ongoing management of the project area and maintenance of the flood control structures and levees. Most of this area will be managed to maintain an unobstructed pathway for floodwater conveyance during flood events. Management of the agricultural portion of the Wilson property will also take into consideration the utilization of the area by waterfowl and other wildlife species.

4. **Protect existing stands of Spruce forest, and allow for the re-establishment of floodplain forest habitat.** Most areas of native spruce forest in the Tillamook Bay lowlands have been cleared. Floodplain forests play a critical role in providing habitat diversity for native wildlife species, preventing erosion, alleviating sedimentation of the bay, and providing organic material essential to aquatic habitat structure and foodchain dynamics. The deficiency of large woody debris in Tillamook Basin rivers and within Tillamook Bay poses a substantial problem to the recovery of native salmonids, and has been clearly documented by ODFW, the Tillamook Bay National Estuary Project, and a number of watershed assessments completed for the Tillamook Bay Watershed Council. Large wood structure is critical for salmon in providing habitat complexity, food, and cover from predators. Existing trees and naturally recruited large wood occurring at the project site will be protected from removal and undue manipulation.

   Recognizing that under certain circumstances large woody debris jams can obstruct the drainage of floodwaters and pose a threat to public welfare, manipulation of large jams should be allowed if such a threat exists. Manipulation of debris jams needs to be decided on a case by case basis. The determination of a threat to public welfare will be coordinated by the Tillamook County Emergency Management office.

## Element 4: Ownership and Management - Identification of Responsible Participants

The following section discusses the role of stakeholders directly involved in, or impacted by, the management of properties addressed in this plan. This section also outlines a mechanism to resolve disputes among these parties as well as to keep elected county officials informed on the implementation of this plan.

### Management Responsibilities of Participating Stakeholders:

In addition to the numerous technical advisors and interested stakeholders, there are six primary participants involved in implementation of this management plan. Identified below are the participants responsible for ownership and management of acquired properties.

1. Tillamook County. Tillamook County is the sole owner of all land interests acquired under the CWPRA grant. Tillamook County manages this land under the terms of an Inter- Governmental Agreement (IGA) that has been prepared by Tillamook County and agreed upon by all of the parties listed in this section. Consistent with the terms of the acquisition grant, protection of the coastal wetland for fish and wildlife habitat is the primary purpose of the property, and is reflected in the title of the acquired properties. The IGA contains provisions to ensure maintenance of, and access to, flood control structures and levees throughout the project area.

2. Oregon Department of Fish and Wildlife. As defined in the IGA with Tillamook County, the Oregon Department of Fish and Wildlife is responsible for habitat management of the non-agricultural portions of the Wilson, Fuhrman, and Farris properties. In this capacity, ODFW is responsible for ensuring that restoration and enhancement activities discussed in Element 3 of this plan are implemented to maximize the goals of the acquisition grant, in accordance with the terms of this plan. These goals include:

    - improving habitat for native fish and wildlife,
    - improving water quality, and
    - enhancing the overall ecological health of Tillamook Bay.

3. Tillamook Bay Habitat & Estuary Improvement District. The District is committed to helping ensure that flood mitigation structures are properly maintained and that floodway easements are protected and enforced. Ongoing maintenance of flood protection/mitigation structures will be funded through a combination of: 1) proceeds derived from acquired lands managed as pasture, 2) support from the City of Tillamook, and 3) support from local flood mitigation groups. Flood easements protecting the interests of North 101 business district owners will be included as a provision of the IGA. Local flood control groups will have access to flood control structures and levees and will work cooperatively with property managers to ensure proper maintenance of these structures.

4. Tillamook County Soil & Water Conservation District. SWCD manages that portion of the Wilson property designated for agricultural use as specified under the terms of the IGA. Revenue generated through agricultural use will be used to reimburse SWCD administrative costs and to support the maintenance of flood mitigation infrastructure and other management options discussed in this plan. Proceeds are managed in accordance with the terms and conditions of the IGA.

5. Tillamook County Performance Partnership. The TCPP is responsible for project administration that supports the restoration activities occurring within the scope of the grant. Specific duties include: project tracking, progress reporting to funding agencies, coordinating contracted services and managing payment for properties acquired and restoration work completed, and other tasks required to close the grant upon project completion. In addition, TCPP will continue to seek appropriate funding to ensure full implementation of this management plan.

6. City of Tillamook. The City of Tillamook, while not directly responsible for management of the project property, is an important stakeholder in ensuring the management plan is properly implemented. As recognized by the IGA, a representative of the City will serve on a project advisory committee. The City of Tillamook representative will help make budgetary recommendations to the City and County governments pertaining to management plan implementation.

**Assurance of Implementation:**

As owner of the properties discussed in this plan, Tillamook County is ultimately responsible for ensuring plan implementation. Accordingly, one representative of each of the parties discussed above will appear before the County Board of Commissioners to provide a semi-annual oral progress report. Reporting as a group, these individuals will highlight successful implementation activities, barriers to implementation, and future courses of action. In addition, this group will make recommendations to County and local government budget committees during the annual budgeting process to ensure the appropriate management of the project maintenance fund. Written progress reports required by granting agencies and pertaining to the project will also be provided to the Board of Commissioners.

**Dispute Resolution:**

Successful implementation of this plan requires ongoing collaboration among all of the parties involved. Throughout the plan development process these parties have demonstrated that they can work effectively together, and consequently few disputes are anticipated. However, should events arise that create a management impasse, the six representatives chosen to report to the Commissioners will convene to resolve the dispute. The group may elect to use a unanimously chosen facilitator. Proposed resolutions must be based on the course that best meets the goals and objectives established in Element 1 and complies with the terms of the property deeds, flood easements, and grant conditions. Final resolution of any dispute will be by majority rule, upon which a recommendation will be provided to the County Commissioners.

## Element 5: Public Access and Education Plan

### Emphasis of Public Access Plan:

Public ownership of restored and transitioning wetland ecosystems provides a unique opportunity for citizens to learn about the value of wetlands to the natural and developed environments. Under this concept, this plan endorses public access to the acquired properties through the development of several interpretive areas. These areas will manage access through the property while providing unique educational and recreational experiences to the general public. Signage, kiosks, overlooks, limited walkways, and other educational infrastructure will highlight the following:

- Overview of estuarine function
- Overview of wetland function
- History of site from a land use perspective showing potential for restoration
- Wetland transition/species succession
- Habitat types present
- Plant and animal species present and habitat needs
- Riparian function
- Flood management infrastructure and relationship to wetland function

### Access Provisions:

At this point in the project's development, it is premature to identify the specific design plans for these areas. However, to insure the goals of this plan are not compromised by (albeit minor) development, the wetlands management committee recommends that future planning should be governed by the following guidelines:

- The design of public access points and interpretive areas should be planned to maximize effective community education while minimize impact on this plan's broader goals of ecosystem restoration and flood hazard mitigation. Proposed development must not impact flood mitigation or habitat enhancement efforts.
- Public access restricted to foot traffic only, beyond a controlled entry point.
- Navigable waters within the properties are governed by the state. This plan recommends that the county address any problems due to powerboat/jetski access only when and if they arise. If needed, remedies should be sought through application to the Marine Board for special restrictions on waterways adjacent to the properties addressed in this plan.
- Parking and sanitation should be provided by the county as necessary and appropriate.
- Tillamook County will not be responsible for restricting access to the retained private properties within the project area.
- Hunting by the public will be permitted according to the prohibitions stated below.

**Prohibited Activities:**

The Wetlands Advisory Committee views the following activities as incompatible with the goals of the plan and recommends that they be prohibited by the county.

- Use of motorized vehicles except on dedicated access roads and in designated parking areas. Recreational off-road vehicles are expressly prohibited.
- Camping.
- Horseback riding.
- No discharge of firearms, except shotguns during authorized waterfowl season.

## Element 6: Monitoring and Evaluation

Monitoring the outcome of this project is essential in order to:

1. gauge the effectiveness of the restoration approach,
2. assess the adequacy and appropriateness of ongoing management efforts, and modify as needed,
3. gain meaningful insight into the ecological significance of the restoration effort, and
4. help advance the evolving science of estuarine wetland restoration.

The initial OWEB grant secured for this restoration project specifies minimum monitoring requirements for the first three years following project implementation, as described in Exhibit D of the grant award contract. Specifically, the contract states that in addition to conducting on-site photo-monitoring, the following information must be discussed in an annual monitoring report to OWEB:

1. A description of any restoration or maintenance performed.
2. An accounting of any costs associated with maintenance and monitoring.
3. An assessment of whether the project continues to meet the goals specified in the grant agreement.
4. A summary of any public awareness or educational activities related to the project, including identification of any tours or presentations and copies of newspaper or other media coverage about the project.

As administrator of the OWEB grant, the TCPP is responsible for ensuring that these requirements are responsibly fulfilled.

The size and innovative nature of this wetland restoration project warrant special attention from a monitoring standpoint. The results of the work conducted in Tillamook Bay will be of great interest to other coastal communities interested in restoring and protecting their estuarine resources. Careful documentation of the lessons learned during the course of the project will facilitate the dissemination of information to others working in the field of estuarine habitat restoration. Thus, in addition to the monitoring activities required by the OWEB grant, additional efforts will be made to conduct a more scientifically rigorous investigation of the restoration site.

The development of a high quality monitoring strategy is an aspect of this restoration project that requires considerable scientific expertise in the realm of coastal wetland ecology and wildlife biology. Proposals for appropriate monitoring research will be developed upon extensive consultation and collaboration with experts in these fields. The Tillamook County Performance Partnership will take the leadership role in facilitating this process and in working to secure funds to support the desired research plan.

An appropriate research plan should include some or all of the following elements:

- Documentation of the changes in the vegetation community over time with respect to species composition, distribution, and abundance.
- Documentation of major water quality parameters such as temperature, salinity, turbidity, dissolved oxygen, bacteria counts, etc.
- Documentation of changes in habitat type, quality, and function over time.
- Documentation of changes in fish and wildlife use of the restored area.
- Case Study of the compatibility of ecosystem restoration and flood mitigation projects through a holistic planning approach.

## Element 7: Costs and Funding

### Acquisition Costs:

Recognizing that the costs of property acquisition fluctuates depending on real estate negotiations, the approximate cost of acquiring all properties as currently proposed totals about 1 million dollars.

### Restoration Costs:

Estimated costs for restoration and enhancement activities are difficult to predict and are highly variable depending on how much alteration of the site is required, how the site responds to restoration activities, and unforeseen expenses related to specific restoration techniques that may be necessary. It is anticipated that the initial OWEB grant of $250,000.00 may not be enough to complete all of the restoration actions required by this management plan. However, given the ecological significance of this restoration effort, additional funds for restoration should not be difficult to acquire through existing grant programs. These programs include the following:

- National Fish and Wildlife Foundation Five Star Challenge Grant Program
- USFW North American Wetlands Conservation Act Standard Grant Program
- USFW North American Wetlands Conservation Act Small Grant Program
- USFW Coastal Wetlands Conservation Grant Program
- USDA NRCS Wetlands Reserve Program (restoration cost share)
- EPA Wetland Program Development Grant Program
- NOAA/NMFS CRP Individual Habitat Restoration Project Grant Program
- Fish America Foundation Grant Program
- Oregon Watershed Enhancement Board Grant Program

### Maintenance Costs:

Costs of maintaining the restored wetland area will primarily be associated with ensuring the proper functioning and integrity of flood protection structures (levees, culverts, and tidegates) and possibly for ongoing management of noxious invasive vegetation. Maintenance of flood protection/mitigation structures will be funded through a combination of:
1) proceeds derived from acquired lands managed for agricultural use,
2) support from the City of Tillamook,
3) support from local businesses and flood mitigation groups, and
4) potential grant funding.