Coastal Zone Management Consistency Determination
Repair of the North And South Jetties at Tillamook Bay
Tillamook County, Oregon

Introduction

Tillamook Bay is located on the Oregon Coast about 47 miles south of the confluence of the Columbia River with the Pacific Ocean (Figure 1). It is a tidal estuary approximately six miles long, north to south, and a maximum of three miles wide. The total area of the bay is approximately 12 square miles at high water and has a tidal prism of 48,000 acre-feet. Five major rivers, the Kilchis, Wilson, Trask, Tillamook, and Miami, all flow into Tillamook Bay. The ocean entrance to the bay is located at the northern end and is protected by two jetties (Figure 2).

The north jetty was authorized in 1912 and completed in 1917, with the latest repair occurring at the head in 1991. The structure has experienced deterioration at both the jetty heads, with a loss of 384 feet from the authorized end of the project. The south jetty was authorized in 1965 and built in three stages starting in 1969 and completed in 1979, with no repairs since that time. According to field measurements, taken in 2003, the structure has lost almost 666 feet from the end of the jetty.

The purpose of the jetties was to confine tidal currents to obtain scouring velocities in the bar and entrance channels. The north and south jetties at the entrance to Tillamook Bay have experienced damage to both jetty heads. The erosion of the south jetty head has been more pronounced in the last six or seven years. In addition, erosion of the north shoreline of the north jetty is a major concern in terms of a potential breach at the jetty root or base. The navigation channel at this location has a narrow but deep channel and is an increasing concern.

The erosion of the duneline at the jetty root from winter storms has produced significant concern from local governments and U.S. Coast Guard (USCG). Continued erosion and deterioration of the jetty itself could result in a possible breach of the north jetty root. A USCG watchtower located adjacent to the north jetty could be lost as a result of waves attacking the tower base as well as a possible jetty root breach. The corps has investigated and determined that there are five primary areas of maintenance concern at the Tillamook project: (1) recession of the north jetty head, (2) recession of the south jetty head, (3) erosion at the root of the north jetty and (4) damages to the trunks of both jetties.

The north jetty at Tillamook Bay was constructed between 1913-1917 to a length of 5,400 feet, and extended in 1933 to a total length of 5,700 feet. Since its construction, the north jetty has been repaired in 1946, 1955, 1963 and 1991. The footprint (1917) for the north jetty extends 5,700 feet, 1,800 feet seaward of shoreline, yet stands currently with approximately 384-foot loss at a length of 5,316 feet.

The south jetty at Tillamook Bay was constructed between 1969-1971 to a length of 3,695 feet. While authorization of the south jetty in 1965 approved a length of 8,000 feet, continued construction in 1974 only added 2,830 feet until materials ran out. Finally, in 1974, the south jetty was extended to its authorized length of 8,000 feet, 3,200 feet seaward of shoreline. Since then, erosion has decreased the length of the south jetty to 7,334 feet.

The primary sand dune at the base or root of the Tillamook north jetty has been progressively eroding since 1995 (USACE 2002). This significant erosion follows a number of years of accretion since initial jetty construction. Although the cycles of erosion and accretion are difficult to predict and the current pattern of erosion could reverse, the current situation threatens the structural integrity of this navigation aid. It is prudent to take measures in the near future to protect the jetty and surrounding environs from the results of a catastrophic breach. Such a breach would not only damage the nearshore environment, but could jeopardize the economic value to the community provided by the jetties. The existing dune protects more than 1000 feet of weakened (and reduced crest) jetty, landward of the dune, from direct wave attack and overtopping associated with the present surf zone. If the weakened shoreward area of the jetty were subjected to an active surf zone, the north jetty would be destabilized.

Proposed Action

With funding available this Fiscal Year (Oct 1 to Sept 30), the Portland District plans to construct the north jetty revetment and will prioritize work to cap the north and south jetty heads and repair the trunks of the north and south jetty, subject to future availability of funding. This proposed alternative addresses the areas of greatest concern in terms of structural stability.

The proposed action is to place 100-ft caps at the north and south jetty ends, routine and critical trunk repairs and construction of a 400-foot revetment at the north jetty root. This is the minimum maintenance option that would protect the Federal interest. Although this is the minimum maintenance option, when combined with the capping of the north jetty it improves both the structural stability of the entire jetty and increases the life expectancy between future maintenance and repairs. For this reason, repairing only the north jetty revetment is not considered a stand alone alternative.

This alternative addresses the areas of greatest concern in terms of structural stability. Further analysis based on historical recession rates predict that the north jetty will be 475-feet shorter than its authorized length and the south jetty will be 890-feet shorter than its authorized length by 2006. The south jetty will require a 50-foot long by 50-foot wide pier-type structure made from sheet pile and back-filled with approximately 5,000 cubic yards of material and a dolphin tie off eastward along the shore. The north side will require a 60-foot long by 50-foot wide pier-type structure made from sheet pile and back-filled with approximately 3,500 cubic yards (cy) of fill. The fill material will consist of shot rock (quarry waste). This material will be placed after placement of the sheet pile to

minimize turbidity impacts. Upon completion of the project, the material will be removed prior to the removal of the sheet piles to ensure that no excess material is left at the off-loading site. This north side pier platform is necessary for a 165 ton crane that can reach the off- load pad. The revetment along the north jetty root will be 60-foot wide and depending on funding, the minimum length will be between, 450 feet (250 feet along shoreline) and the maximum length will be 600 feet (400 feet along shoreline), these lengths include wrap-arounds on both ends and cobble fill on the north end. Construction of the revetment will require approximately 5,000 ton of stones and 6,000 cubic yards of sand. The revetment slope will be 1:2.

Coastal Zone Review and Federal Consistency

The Coastal Zone Management Act (CZMA) requires that federal actions be consistent, to the maximum extent practicable with the enforceable policies of the Oregon Coastal Management Program (OCMP). The enforceable policies of the OCMP include: (1) the statewide planning goals, (2) the applicable acknowledged city or county comprehensive plans and land use regulations (those approved by the Land Conservation and Development Commission as being in compliance with the statewide planning goals), and (3) selected state authorities (e.g. those governing removal-fill, water quality, actions in the ocean shore, and fish and wildlife protection).

The following discussion explains the content of the enforceable policies of the OCMP and how this project meets the requirements of such policies.

Goal 16 – Estuarine Resources

This goal states: To recognize and protect the unique environmental, economic, and social values of each estuary and associated wetlands; and to protect, maintain, where appropriate develop, and where appropriate restore the long-term environmental, economic, and social values, diversity and benefits of Oregon's estuaries.

The goal also states for temporary uses: alterations necessary for federally authorized navigation projects (e.g., access to dredged material disposal sites by barge or pipeline and staging areas for dredging for jetty maintenance…) A use is consistent with the resource capabilities when "either the impacts of the use on estuarine species, habitats, biological productivity and water quality are not significant or that the resources of the area are able to assimilate the use and activity and their effects and continue to function in a manner to protect significant wildlife habitats, natural biological productivity, and values for scientific research and education.

As described in the attached Environment Assessment (EA), the impacts of the repairs of the North and South Jetties and construction of the revetment on estuarine species, habitats, biological productivity and water quality of the Tillamook estuary are not significant primarily due to the lack of high quality aquatic habitat provided by the jetties.

The rehabilitation work on the jetties, placement of temporary wooden dolphins in the water adjacent to the jetty and the staging area will not have a significant impact on the resources in the area and the disturbed areas will be returned to their normal condition upon completion of the project.

Goal 17 – Coastal Shorelands

This goal states: To conserve, protect, where appropriate, develop and where appropriate restore the resources and benefits of all coastal shorelands, recognizing their value for protection and maintenance of water quality, fish and wildlife habitat, water-dependent uses, economic resources and recreation and aesthetics. The management of these shoreland areas shall be compatible with the characteristics of the adjacent coastal waters; and to reduce the hazard to human life and property, and the adverse effects upon water quality and fish and wildlife habitat, resulting from the use and enjoyment of Oregon's coastal shorelands.

The primary substantive requirement for a jetty is that it be designed to minimize adverse impacts on water currents, erosion, and accretion patterns. Given the accelerated rate of deterioration at the south jetty, the rehabilitation of the jetty will reduce the hazard to human life and property and as described in the EA. The affects to fish and water quality, as a result of the rehabilitation, will be minimal.

Implementation requirement (5) states:

> "Land-use management practices and non-structural solutions to problems of erosion and flooding shall be preferred to structural solutions. Where shown to be necessary, water and erosion control structures, such as jetties, bulkheads, seawalls and similar protective structures: and fill whether located in the waterways or on shorelands above ordinary high water mark, shall be designed to minimize adverse impacts on water currents, erosion, and accretion patterns."

As indicated in the above discussion, the north jetty is in serious danger of a breach if rehabilitation measures are not employed. The design of the rehabilitation project includes a short-term installation of a small revetment to limit ongoing erosion of the shoal; that provides the foundation for the jetty. This small revetment will be designed to protect the area at the root of the jetty from a serious breach. Impacts of such a breach include movement of sediments into the navigation channel and further destabilization of the remainder of the jetty. In a similar situation, the jetty at Coos Bay required substantial emergency repair measures to restore the damage after a breach. In the Tillamook case, funding and the relative level of use of the estuary may make such emergency measures a lower priority and delay repairs. The installation of the revetment will limit the potential for a breach and provide more time to consider long term rehabilitation of the remainder of the jetty, including reconstruction of an effective jetty head.

Although there will be some impact on water currents, and erosion and accretion patterns, the potential for a breach represents a significantly higher risk of impact to the environment. The design of the project will minimize adverse impacts and reduce the risks for catastrophic failure of the jetty.

OPRD Ocean Shore Permit Requirements

Justify the location of a project seaward of the line of vegetation:

The placement of the revetment will stabilize the fore dune area seaward of the line of vegetation and will minimally impact a portion of the existing dune however the entire area adjacent to the revetment will be revegitated upon completion of the project.

Protect public use and avoid obstruction of public recreational use and access:

Construction of the revetment will impact the recreational use of the park for approximately two months. Currently on the beach, sand bags are being used to stop the erosion. Several of the sand bags have either been washed out to sea or have been broken open by heavy surfs and the remains of the bags are strewn along the beach. The revetment will be a stable replacement to the sand bags and will be more aesthetically appealing then the current sand bags.

Show that reasonable modifications which would better protect public rights or reduce public costs are not feasible.

The current erosion control measures in place at Tillamook are not working. The sand bags that were previously placed are washing away and or being destroyed by wave action. The construction of the revetment, repairing the jetty heads and repair of the routine and critical sections of the jetties will provide a more stable environment.

The Corps of Engineers will maintain the revetment and the jetty and current estimates are that the revetment should last for approximately 10-20 years.

Retain scenic attractions of natural and cultural features.

No scenic attractions will be impacted by the construction or repair of the jetties.

Retain or restore vegetation seaward of the vegetation line vital to scenic values.

Any vegetation seaward of the vegetation line that is disturbed by construction of the revetment or repair of the jetties will be replanted upon completion of the project.

Avoid biological impacts.

There will be limited biological impacts associated with the construction of the revetment or the repair of the jetties. The USFW and NOAA have both been consulted. The biological assessments are available on the Corps webpage.

Avoid or minimize obstruction of views from adjacent properties.

Neither the revetment nor jetty repair will cause any views from adjacent properties to be obstructed.

Avoid hazards to public safety.

The staging area for the construction contractor will be fenced and signed to avoid any danger to the public. Upon completion of the construction of the revetment and the jetty repair, signs will be placed, as they currently are for both the north and south jetty, showing that the revetment is for navigational aid and erosion control and it could be dangerous if climbed or played upon.

Avoid or minimize ocean erosion or safety problems for neighboring properties.

Neighboring properties are already experiencing erosion problems. The placement of the revetment will neither increase or decrease erosion to neighboring properties. They can expect to incur the same amount of erosion that is currently taking place.

Comply with comprehensive plans, statewide planning goals, and other applicable laws and standards (OAR 736-020-0005 through 736-020-0030).

This project complies with the Tillamook comprehensive plan, statewide planning goals and the Oregon Revised Statues 736-020-0005 through 736-020-0030.

Goal 18 - Beaches and Dunes

This goal includes to conserve, protect, where appropriate develop, and where appropriate restore the resources and benefits of coastal beach and dune areas; and to reduce the hazard to human life and property from natural or man-induced actions associated with these areas. Repair of the north and south jetty would not affect goal 18, however, the revetment of the north jetty base will require a permit from the Oregon Department of Parks and Recreation for the stabilization of this area. Implementation Requirement (5) states:

> "Permits for beachfront protective structures shall be issued only where development existed on January 1, 1977. Local comprehensive plans shall identify areas where development existed on January 1, 1977. For the purposes of this requirement and Implementation Requirement 7, 'development' means houses, commercial and industrial buildings, and vacant subdivision lots which are physically improved through construction of streets and provision of utilities to the lot and includes areas where an exception to (2) above has been approved.

The criteria for review of all shore and beachfront protective structures shall provide that:

(a) visual impacts are minimized;
(b) necessary access to the beach is maintained;
(c) negative impacts on adjacent property are minimized; and
(d) long-term or recurring costs to the public are avoided."

The Tillamook County Comprehensive Plan is composed of maps and policies. The county indicates that the plan contains a map of developed areas described above which includes the area of the proposed revetment (beachfront protective structure). The plan text indicates that the only area in public ownership qualified for a beachfront protective structure is the "area within Cape Lookout State Park, where riprap has been placed to protect the day use area." Although this creates a contradiction, the best way to proceed is to assess the applicable goal requirements outlined above and to fully consider whether the project would qualify for an exception to implementation requirement (5) based on the standards for such exceptions as outlined in Statewide Planning Goal 2-Land Use Planning.

Exceptions Standards

(1) "Reasons justify why the state policy embodied in the applicable goals should not apply;"

In this particular situation, the prohibition of a beachfront protective structure could result in the catastrophic failure of the north jetty, eliminating a significant navigation structure that is essential to the role of Tillamook Bay as a shallow draft development estuary under Goal 16 (Estuarine Resources) and the state's estuary classification rule. The construction of the proposed revetment to stabilize the root of the north jetty will prevent the impacts of a jetty failure on resources and uses that are key components of the county estuary plan and the land uses anticipated in the plan. In this particular instance the protection of the jetty is an essential activity, required to maintain a unique navigational feature and to promote the policies embodied in the Tillamook County plan and statewide planning goals.

(2) "Areas which do not require a new exception cannot reasonably accommodate the use;"

The proposed project is the best location for the proposed structure. The only areas that would not require an exception are located further shoreward and would not provide the same level of protection without significantly greater environmental impacts and more limited effectiveness. Because of the design of the current jetty requiring stabilization, the shoreward location would result in increased erosion in the short term before the structure would be effective and would require significant modifications to other areas of the jetty which are not within the funding limitations for the project. Limited funding available at this time would only be sufficient to construct the proposed revetment. Increased costs of a shoreward feature, including stabilizing and extending current weak

points at the jetty root would delay the project, resulting in increased risks of failure before increased funding could be sought. The availability of future funding is not assured. Based on our analysis, there are no areas which do not require an exception which could reasonably accommodate the use.

(3) "The long-term environmental, economic, social and energy consequences resulting from the use of the proposed site with measures designed to reduce adverse impacts are not significantly more adverse than would typically result from the same proposal being located in areas requiring a goal exception other than the proposed site;"

As indicated above, the environmental, economic, social and energy costs associated with a catastrophic jetty failure are more significant than construction of the small revetment designed to limit the potential for such failure. The revetment is designed to protect the stability of the jetty and is not expected to have significant environmental impacts. Our analysis of the resources in the area indicates that there will be some impact on currents, sediment transport and erosion-accretion patterns. The overall impact will be positive in that such impacts are significantly less severe than the results of jetty failure. Some additional erosion may occur to the north based on the changes to currents resulting from the revetment. The area impacted is in public ownership and no impacts on any adjacent development that are more severe than impacts from continued erosion adjacent to the current jetty are anticipated. The benefit from constructing this small revetment is stabilizing the jetty root and reducing the potential for a catastrophic jetty breach. Once the jetty head is reconstructed, the two features will enhance the overall effectiveness of the jetty.

(4) "The proposed uses are compatible with other adjacent uses or will be so rendered through measures designed to reduce adverse impacts."

Adjacent uses to the north include the county park, the ocean shore, beach and dune features, a Coast Guard tower, and a parking area. The navigation channel is located south of the jetty. The revetment will serve to stabilize the jetty and may provide some increased protection for the parking area and the Coast Guard tower. There are no identified compatibility issues with these uses. The revetment is designed as the minimum required to stabilize the jetty. The compatibility of the project with adjacent uses is also discussed in the Goal 19 (Ocean Resources) effects analysis section below.

Conclusion Relative to Goal 18 (Beaches and Dunes)

For purposes of CZM consistency, there are some unique features of this project. First, the Corps is not required to obtain any local or state permits. Federal actions are exempt from local and state permitting by the Coastal Zone Management Act and by LCDC administrative rules, unless required by other federal law (See 15 CFR 930.39(e) and OAR 660-035-0030(5)(b). As outlined in 15, CFR 930.39, "Federal agencies shall still be consistent to the maximum extent practicable with the enforceable policies that are contained in such State permit programs that are part of a management program."

Although the Corps is not seeking a local development permit or a plan amendment containing a goal exception, the proposed action meets both local permit and statewide planning goal requirements for a goal exception as outlined in the above discussion. Therefore this action is consistent to the maximum extent practicable with the enforceable policies of the Oregon Coastal Management Program.

Goal 19 - Ocean Resources

This goal requires that agencies determine the impact of proposed projects or actions. Paragraph 1(c) of Goal 19 states that "agencies ... shall 1. protect and encourage the beneficial uses of ocean resources such as navigation ... provided that such activities do not adversely affect the resources protected in subsection 1., avoid, to the extent possible, adverse effects on or operational conflicts with other ocean uses and activities; and 2. comply with applicable requirements of the Oregon Territorial Sea Plan." According to the provisions of Goal 19 and the Oregon Territorial Sea Plan, decisions to take such an action, such as jetty rehabilitation are to be preceded by "inventory information necessary to understand potential impacts and relationship of the proposed activity to the continental shelf and near shore ocean resources." In addition, there should be a contingency plan and emergency procedures to be followed in the event that the operation results in conditions that threaten to damage the environment.

Types of Effects

The North Jetty Revetment Construction

Material will be trucked through the county park. The staging area for revetment construction would be approximately two acres in size and would be located at the near shore parking lot situated adjacent to where the revetment is to be constructed. A chain link fence will block public access to the staging/construction areas and signs will be posted indicating that no public access is allowed. Equipment will be parked and miscellaneous construction material stored in the staging area. There will be no weighing facility erected and no field office established in the staging area, although a small contractor job shack may be located somewhere within the construction staging area. Approximately six campsites are within the staging/construction area and will need to be closed during construction.

Equipment needed for revetment construction will likely be a small bulldozer, a front-end loader, and an excavator. The equipment will probably work from above and below the beach and also on the revetment itself. The cross-section of the revetment is 60 feet wide and the excavator has an effective reach of 22-26 feet. There will be vegetation disturbance in the area of the revetment including some clearing and grubbing work, although the disturbance will be kept to a minimum. The staging area and any other disturbed areas will be restored to current existing condition upon completion of construction. An NPDES permit will be required for the staging area. It will be the responsibility of the contractor to request and obtain the permit.

Jetty Cap Repair of the North Jetty

The proposed action is to place 100 feet of jetty stone at the end of the north jetty. The contractor will probably establish a barge off-loading platform at a sheltered area along the river channel near the root portion of the north jetty located immediately adjacent to and landward of the ocean shoreline. The contractor will have two options for getting the jetty stone to the site. They can either use a barge off-loading platform or a temporary off-loading platform. The barge off-loading platform would be used to unload barges delivering jetty stones to the project. The barge off-loading platform would consist of piles or dolphins driven into the deep-water channel adjacent to the deteriorated jetty root. Barges would be secured by attachment to the piles/dolphins and by mooring lines that would extend riverward of the barge to the channel bottom. Little or no fill would be required. The dolphins used for the off-loading structure would use natural wood pilings and would be removed at the end of construction. Floats marking the mooring lines will mark the line to prevent marine traffic from hitting the lines. Temporary navigation lights would be installed on the mooring dolphins. The Corps and the Port of Garibaldi would send a notice to Mariners addressing navigational restrictions in the channel.

The off-loading platform will require a 60-foot long by 50-foot wide off loading structure made from sheet pile and back-filled with approximately 3,500 cubic yards of fill. The fill material will consist of shot rock (quarry waste). This material will be placed after placement of the sheet pile to minimize turbidity impacts. Upon completion of the project, the material will be removed prior to the removal of the sheet piles to ensure that no excess material is left at the off-loading site. The north side off-loading platform is necessary for a land based crawler crane that can reach the off-load pad on top of the jetty. These cranes would be used to lift stones from barges to the swale between the jetty and the bank. Construction of the north jetty may require the stone to be temporarily stock piled for up to one year, dependent upon future availability of funding.

The near shore county park parking area would be used for a staging area where equipment would be parked, a stone weighing facility erected, a field office established, and a storage area provided for other miscellaneous construction materials. The contractor may construct a haul road from the staging area to the jetty by blading and smoothing the existing near-beach material and then will construct a haul road along the top of the jetty using quarry waste materials to fill in the large voids between the jetty stones. Stone would be transported from the staging area to the work area at the oceanward end of the jetty by off-road trucks traveling along the haul road. The stone will be placed on the jetty one at a time using a large placement crane. Imported quarry waste material (small crushed rock) for the jetty road will likely be stored within the staging area and later placed onto the jetty using the off-road. A chain link fence will block public access to the construction area and signs will be posted indicating that no public access is allowed. The off-loading facility will be removed and the staging area restored to original condition upon completion of construction. The total impacts to stage, store and construct the north jetty repairs will take approximately 10 months. The first six months would be used to quarry, transport, and stockpile stone. Placement of jetty stone will consist of approximately 800 tons of stone being placed per day. Actual construction of the north jetty cap would take from two to four months.

Jetty Cap Repair of the South Jetty

The proposed action is to place 100 feet of jetty stone at the end of the south jetty. The south jetty will require a 50-foot long by 50-foot wide off-loading structure and will be back-filled with approximately 5,000 cubic yard of material. The barge off-loading platform will be placed at a sheltered area along Tillamook River at the root portion of the jetty a short distance eastward of the shoreline. The barge off-loading facility would be used to unload barges delivering stone to the project site. The barge off-loading platform would consist of a sheet pile wall driven adjacent to the toe of the jetty with embankment material placed between the jetty slope and the wall to provide for a working surface. Dolphin piles may also be installed for anchoring the barge against the wall. The dophins used for the off-loading structure would use natural wood pilings and would be removed at the end of construction. The off-loading facility will be removed and the staging area restored to existing condition upon completion of construction.

The selected area for barge off-loading facility is naturally deep but some minor dredging may be required to provide adequate draft for stone delivery barges. Twenty feet of draft at low tide is needed to keep a loaded barge afloat. The area next to the barge off-loading facility would be used for a staging area where stone would be stored, equipment parked, a stone weighing facility erected, a field office established, and a storage area provided for other miscellaneous construction materials. Some leveling and stripping of the staging area is required.

The contractor may construct a haul road from the staging area to the jetty by blading and smoothing the existing near-beach material and then will construct a haul road along the top of the jetty using quarry waste materials to fill in the large voids between the jetty stones. Stone would be transported from the staging area to the work area at the oceanward end of the jetty using off-road trucks traveling along the haul road. The stone will be placed on the jetty one at a time using a large crane. Imported quarry waste material for the jetty road will likely be loaded into off-road trucks and placed onto the jetty operating from the staging area or near shore area. A loader or small dozer would then spread the road materials to cap the road surface completing the haul road construction.

The total impacts to stage, store and construct the north jetty repairs will take approximately 10 months. The first six months would be used to quarry, transport, and stockpile stone at the staging area. Placement of jetty stone will consist of approximately 800 tons of stone being placed per day. Actual construction of the north jetty cap would take from two to four months.

BLM owns part of the adjoining land and signage will need to notify the public of construction activities.

Critical and Routine Trunk Repairs of the North and South Jetty

This proposed action includes critical and routine trunk repairs to the south and north jetty. The amount of jetty stone needed for the routine repairs of the south jetty are approximately 8000 tons and for the critical repair the approximate amount will be 37,000 tons. The south jetty will require a 50-foot long by 50-foot wide off loading structure made from sheet pile and back-filled with approximately 5,000 cubic yard of material and a dolphin tie-off eastward along the shore.

The amount of jetty stone needed for the routine repairs of the north jetty are approximately 30,000 tons and for the critical repair the approximate amount will be 78,000 tons. The north side will require a 60-foot long by 50-foot wide off-loading structure made from sheet pile and back-filled with approximately 3,500 cubic yard of fill. The fill material will consist of shot rock (quarry waste). This material will be placed after placement of the sheet pile to minimize turbidity impacts. Upon completion of the project, the material will be removed prior to the removal of the sheet piles to ensure that no excess material is left at the off-loading site. The contractor will be responsible for proper disposal of the excess material in accordance with local, state and federal laws. The north side off-loading structure is necessary for a land based crawler crane that can reach the off-load pad. The dolphins used for the off-loading structure would use natural wood pilings and would be removed at the end of construction.

All environmental pollution will be prevented, abated, and controlled and environmental degradation arising from construction activities shall be minimized by complying with all applicable Federal, State, and local laws and regulations, as well as specific requirements of the construction contract. Where conflicting or duplicate regulations apply, the most stringent requirement shall govern. The construction contractor will be required to submit for approval an Environmental Protection Plan within 10 days after Notice to Proceed and prior to commencing work.

The work will comply with the following environmental regulations where applicable.

(1) Clean Air Act - 40 CFR 61: National Emission Standards for Hazardous Air Pollutants (NESHAPS).

(2) Solid Waste Disposal Act - 40 CFR 241: Land Disposal - 40 CFR 245: Resource Recovery

(3) Resource Conservation and Recovery Act - 40 CFR 260-272 : Hazardous Waste Management

(4) Comprehensive Environmental Response, Compensation and Liability Act - 40 CFR 300-302: National Oil and Hazardous Substances Contingency Plan for hazardous substance spills and cleanup

(5) Clean Water Act - 40 CFR 110-117, 122: Point source discharges into U.S. waters

(6) Executive Order 12856 - Federal Compliance Order with the Emergency Planning and Community Right-to-Know Act and the Pollution Prevention Act

(7) 49 CFR 100-177, Hazardous materials transportation regulations.

(8) Oregon Mined Land Reclamation Act - ORS 517.750-715.790

There would be no adverse effect on the environment caused by noise from the project or by light or glare that could be seen from any location on shore.

The projected numbers of employees that will be onsite during the construction staging are unknown. The contractor hired by the Corps of Engineers (Corps) will be responsible for hiring his own employees. As part of the contract, a contracting officer representative (COR) from the Corps will be present on a daily bases to inspect the job site and to ensure that the work is proceeding according to the specification outline in the contract. The COR will also be available if in the event of any unanticipated events arise during the construction phase.

Effects on Resources

The environmental impacts associated with the proposed action would be minor because the rehabilitation work is to an existing structure within a limited area within the original footprint and will not impact any significant benthic habitat. Some short-term loss of microhabitat will occur during the construction period but will be replaced by the completion of the proposed action. The north jetty will require approximately 300,000 cy of stone placed over the existing rock to complete this task. The south jetty, which has experienced a significant loss from wave action and erosion, will require approximately 500,000 cy of stone. The proposed activities are expected to have minimal effects on fish and wildlife species of the area. An increase in suspended sediments in the water column is expected during the construction period; however, this impact is expected to stay within acceptable levels for fish and wildlife species of concern.

Disturbed material would primarily be sand, which would settle quickly. Avoidance of the area may occur throughout the construction period as a result of the increased activities and noise. This impact is highly localized and all species would be expected to return following project completion. No significant adverse affects on any listed/candidate threatened or endangered species are anticipated. Construction is expected to occur year-round. Though some work would occur during appropriate in-water work periods determined by fishery agencies to minimize impacts to fish, wildlife and habitat; most of the work would occur outside these periods. The impact to this is expected to be minimal since the jetties do not provide highly valuable habitat.

Aquatic Life Forms

Various aquatic life forms utilize the jetties and surrounding area as habitat or migratory routes. These organisms would temporarily be disturbed by construction activities. New rock would displace existing habitat and would, in time, provide new and additional habitat. Mobile organisms would avoid the area during construction. Non-mobile life forms such as algae, barnacles, etc., would be lost as they are covered by new rock. These, however, are plentiful life forms and the new habitat would be recolonized.

Listed Marine and Terrestrial Wildlife

It has been determined that there would be no effect on humpbacked, blue, Fin, Sei, right and sperm whales, leatherback and loggerhead sea turtle, western snowy plover, Columbian white-tailed deer, and Oregon silverspot butterfly. A determination of "may affect, but is not likely to adversely affect" has been made for Steller sea lion, bald eagle, brown pelican and marbled murrelet.

Listed Anadromous Fish

Both juveniles and adults of the listed species will be in the vicinity of the project area during the rehabilitation work. Though it is unlikely that they will occur close enough to the work area to be directly impacted by the construction activities it is likely that they will be disturbed during migration by the construction noise and turbidity generated during rock placement. Vibration and noise (that may cause acoustical pressure) generated by constructing the mooring dolphins, offloading the rock and the placement of jetty stone and larger rock may displace or otherwise harass both adult and juvenile salmon during their migration. The extent of this potential impact cannot be quantified; however, it is expected to be small since the area impacted is small compared to the Tillamook jetty channel area. In addition, the impacts are intermittent, only occurring for short periods of time while the rocks are being transported and placed and the pilings driven. It is likely that salmon can easily avoid the impacts from these activities and the short and long-term effects would be minimal.

Temporary increases in suspended sediment and resultant turbidity from driving piles or the placement of jetty stones and larger rocks may also impact salmon. These increases in suspended sediment will generally be limited to the construction area and will be low and of short duration, as compared to baseline levels. Alteration of bottom habitat by pile driving will not impact salmon since these areas do not provide much of any valuable resting or feeding areas. The Tillamook channel is an active migration corridor and it is not likely that they are feeding to any extent in this area. Based on the above information, it is anticipated that Tillamook jetty rehabilitation will only have a minor impact on salmon.

There will be no impact on kelp, other algae beds, seagrass beds, rock reef areas or other biological habitats other then those stated above since they do not occur in this area.

Marine Use Conflicts

The proposed project will minimally affect the aesthetic enjoyment of the ocean views. Public access to the south jetty and adjacent beach will be closed or restricted during the construction period. Placement of the staging area near the base of the jetty, using county parking lots and adjacent upland beaches for work areas and rock storage areas, will likely cause some inconvenience to park visitors during the construction period.

The proposed project will not affect commercial fishing, navigation lanes, academic or commercial research operations, communication cable, pipeline, waste disposal locations or any operations that have been leased for extraction of sand and gravel, hard minerals,

oil or gas, or any archaeological or historical artifacts. However, not rehabilitating the jetty, which may cause jetty failure, will have a substantial impact on marine use of the area. The major impacts of a jetty failure would be as a result of sediment moving into the navigation channel and blocking navigation travel as well as recreational use of the channel.

Assessing the Effects

Cultural Resources - The proposed project involves rehabilitation of the north and south jetties at entrance to Tillamook Bay, Tillamook, Oregon. The project involves adding rock at the contact point of the north jetty and the beach, filling in an eroded pocket near the landward end of the south jetty, and adding large rock at the seaward ends of both jetties. Access to the seaward ends of both jetties for rock placement will be accomplished by restoring the rubble road surface on the top of the jetties. Both of these structures are older than 30 years. No known prehistoric sites have been documented within the rehabilitation areas (these areas are most likely accreted ground) although records indicate prehistoric sites on both sides of the pre-jetty entrance to Tillamook Bay. Coordination with Oregon State Historic Preservation Office (OSHPO), per Section 106 and 110 of the National Historic Preservation Act will be undertaken. Coordination will involve providing the OSHPO with appropriate background information to indicate that the project will have no effect on significant cultural resources. The Corps will propose that repairing the jetties are a necessary public safety measure and that all work will be restoration in kind.

The jetty itself is historic; however, it is a typical rock jetty and currently not listed in the National Register. Rehabilitation of the jetty would preserve the historic function.

Both juveniles and adults of the listed salmonid species will be in the vicinity of the project area during the rehabilitation work. Though it is unlikely that they will occur close enough to the work area to be directly impacted by the construction activities it is likely that they will be disturbed during migration by the construction noise and turbidity generated during rock placement. Vibration and noise (that may cause acoustical pressure) generated by constructing the mooring dolphins, off-loading the rock and the placement of jetty stone and larger rock may displace or otherwise harass both adult and juvenile salmon during their migration. The extent of this potential impact cannot be quantified; however, it is expected to be small since the area impacted is small compared to the Tillamook channel area. In addition, the impacts are intermittent, only occurring for short periods of time followed by longer periods of no vibration or noise while the piles or rocks are being prepared for the next activity. Consequently, it is likely that salmon can easily avoid the impacts from these activities and the short-and long-term effects would be minimal.

Temporary increases in suspended sediment and resultant turbidity from driving piles or the placement of jetty stones and larger rocks may also impact salmon. These increases in suspended sediment will generally be limited to the construction area and will be low and of short duration, as compared to baseline levels. Alteration of bottom habitat by pile

driving or the jetty stone placement areas will not impact salmon since these areas do not provide much of any valuable resting or feeding areas. The Tillamook navigation channel is an active migration corridor for salmon and it is not likely that they are feeding to any extent in this area. Based on the above it is anticipated that Tillamook jetty rehabilitation will only have a minor impact on salmon. Consequently, the impact to them is expected to be small and of short duration.

Upon award of the contract, the contractor will be responsible for preparing a spill prevention plan in the event an oil or fuel spill from the barges and vehicles utilizing the haul road, or within the designated refueling areas.

The proposed jetty rehabilitation project is consistent with the goals of goal 19. The rehabilitation of the jetty will protect and encourage the beneficial uses of ocean resources such as navigation; avoid, to the extent possible, adverse effects on or operational conflicts with other ocean uses and activities; and complies with applicable requirements of the Oregon Territorial Sea Plan.

Oregon Ocean Resources Management Plan

This is a program to implement Goal 19. This plan, the Ocean Plan, and the Territorial Sea Plan, were established to protect the ocean resources. The proposed action is consistent with this goal. Environmental effects are described in the attached EA. Biological Assessments prepared by the Corps indicate no adverse effect on these species.

Oregon Territorial Sea Plan

An outgrowth of the Ocean Plan, this initiates a detailed planning effort for managing ocean resources in Oregon's territorial sea (3-mile band from land). Part 2 of the Territorial Sea Plan contains requirements for resource inventory information, evaluating environmental effects and conducting small-scale environmental disturbances to seek new information. For the proposed action, repair of the end of the jetties, critical and routine trunk repair and the north jetty root would be consistent with Goal 19. Environmental effects are described in the attached EA. Biological Assessments prepared by the Corps indicate no adverse effect on ocean resources.

Tillamook County Comprehensive Plan

Section 3.085 – Beach and Dune Overlay Zone

The purpose of the Beach and Dune Overlay Zone is to regulate development and other activities in a manner that conserves, protects and, where appropriate, restores the natural resources, benefits, and values of coastal beach and dune areas, and reduces the hazard to human life and property from natural events or human-induced actions associated with these areas. The Overlay Zone establishes guidelines and criteria for the

assessment of hazards resulting from beach and dune processes and development activities in beach and dune areas.

Proposals for beachfront protective structures shall demonstrate that: 1. The development is threatened by ocean erosion or flooding; 2. Non-structural solutions can not provide adequate protection; 3. The beachfront protective structure is place as far landward as possible; 4. Adverse impacts to adjoining properties are minimized by angling the north and south ends of the revetment into the bank to prevent flank erosion; 5. Public costs are minimized by placing all excess sand excavated during construction over and seaward of the revetment, by planting beachgrass on the sand-covered revetment, and by annually maintaining the revetment in such condition; 6. Existing public access is preserved; and 7. The following construction standards are met:

a. The revetment includes three components; an armor layer, a filter layer of graded stone (beneath armor layer), and a toe trench (seaward extension of revetment structure);

b. The revetment slope is constructed at a slope that is between 1:1 to 2:1; and

c. The toe trench is constructed and excavated below the winter beach level or to the existing wet sand level during the time of construction;

d. Beachfront protective structures located seaward of the state beach zone line (ORS 390.770) are subject to the review and approval of the State Parks and Recreation Division. Because of some concurrent jurisdiction with the Division of State Land, the Parks Division includes the Division of State Lands in such beach permit reviews;

e. The State Parks and Recreation Division shall notify Tillamook County of emergency requests for beachfront protective structures. Written or verbal approval for emergency requests shall not be given until both the Parks and Recreation Division and the County has been consulted. Beachfront protective structures placed for emergency purposes, shall be subject to the construction standards in Section 3.140 (17).

The north jetty is in serious danger of a breach if rehabilitation measures are not employed. Non-structural options such as sand bags have been used in the past and have failed to stop the erosion along the north jetty.

The design of the rehabilitation project includes a short-term installation of a small revetment to limit ongoing erosion of the shoal; that provides the foundation for the jetty. This small revetment will be designed to protect the area at the root of the jetty from a serious breach. The placement of the revetment is in a place as far landward as reasonable possible and will still have the ability to protect the jetty. Impacts of such a breach include movement of sediments into the navigation channel and further destabilization of the remainder of the jetty.

Adverse impacts to adjoining properties will be minimized. Beach erosion has been ongoing over several years. The revetment was not designed to stop that erosion and the erosion will continue beyond the cobble fill of the revetment. Beach grass will be planted on top of the revetment upon completion of the project. Since the revetment will be considered part of the authorized jetty project, the Corps will maintain the revetment structure.

During construction of the revetment, public access to the beach area will be disrupted for approximately two months. Up to six camp ground sites may have to be closed to allow for the construction staging site. Upon completion of the project, alterations of the dune area caused by the construction will be repaired to its original state.

All of the above construction requirements will be met.

Federal actions are exempt from local and state permitting by the Coastal Zone Management Act and by LCDC administrative rules, unless required by other federal law (See 15 CFR 930.39(e) and OAR 660-035-0030(5)(b). However, constructions of the revetment and the jetty repairs have been coordinated with Oregon State Parks and Recreation, Tillamook County and LCDC.

Estuary Policies

The jetties at Tillamook Bay are located within the Estuary Conservation-2 Zone (EC2). According to Section 3.108(1) of the Comprehensive Plan, one of the purposes of the EC2 Zone is to "provide for long-term use of renewable resources that do not require major alterations of the estuary except for purposes of restoration." Uses permitted within the EC2 Zone, as specified in Section 3.108(2), include a) "maintenance and repair of existing structures of facilities involving a regulated activity", and b) "navigational aids." These uses, as well as piling/dolphin installation, are subject to the procedure of Section 3.120 and the standards in Section 3.140, which are discussed below.

Section 3.120 – Review of Regulated Activities

This section provides an assessment process and criteria for review of State and Federal projects that could potentially alter the integrity of the estuarine ecosystem. Part of this review includes development of an impact assessment. A Federal Environmental Assessment (EA) may be substituted for this impact assessment. Because the impacts of the proposed project are discussed in the EA for the repair of the north jetty (which will be provided to state and local land use agencies), only a summary will be presented in this consistency determination.

Section 3.140 – Estuary Development Standards

Project related activities to which these standards apply include a) fill in estuarine waters, b) navigational structures and navigational aids, and c) piling/dolphin installation.

a. Estuarine Fill. This would include the placement of stone for the capping of the north and south jetties, the temporary placement of stones at the base of the jetties for tie-off structures, and the construction of a revetment at the north jetty root. The standards require that when fill is proposed for the purpose of onsite maintenance of an existing structure, evidence be provided that 1) there are no alternatives to fill to

maintain proper operation of the facility, and 2) fill is confined to the existing facility and is the minimum necessary to fulfill the need.

The purpose of the north jetty (in conjunction with the south jetty) is to stabilize entrance channel location, facilitate maintenance of project depths, and protect traffic entering or leaving the bay from wave attack during periods of northwesterly winds. Sedimentation resulting from the continued loss or failure of the north jetty could jeopardize the structural integrity of the south jetty. To allow the jetties to continue to deteriorate will eventually lead to sediment transport into the estuary, increasing shoaling rates. As more of the jetty is lost, waves will move into the inner harbor adding to the difficulty of maintaining a reliable year round channel. Therefore, the alternative of "no action" is unacceptable.

The amount of fill will be the minimum required to fulfill existing needs. Since extending the south jetty to 8,000 feet in 1979, maintaining authorized channel depths has not been a problem. Sediment infill has not occurred even with the present condition of the north jetty. The current length appears to be adequate for maintaining a stable entrance. However, capping the jetties, routine and critical maintenance and the construction of a revetment are necessary to prevent further deterioration and possible unstable conditions.

Impacts associated with these fill activities should be minor. The jetty repair work is to existing structures within a limited area and does not involve covering sandy habitat. Avoidance of the area by fish and wildlife species may occur throughout the construction period, but all species would be expected to return following project completion. No listed/candidate threatened or endangered species should be adversely affected by the proposed work.

The primary sand dune at the root or base of the Tillamook north jetty has been progressively eroding since 1995. The primary dune serves as a barrier protecting more than 1,000 feet of weakened (and reduced crest) jetty, landward of the dune, from direct wave attack and overtopping associated with the present surf zone. If the weakened shoreward area of the jetty were subjected to an active surf zone, the north jetty would be destabilized.

b. Navigational Structures and Navigational Aids. The outer 425 (north) and 840 (south) feet of the jetty will remain submerged and will be marked with appropriate aid to navigation by the U.S. Coast Guard through October. At that time, seas become too rough to maintain a marker. These aids to navigation will not occupy more estuarine area than is necessary to accomplish the proposed use, and will not interfere with the normal public use of fishery, recreation, or water resources. The Corps of Engineers will issue a notice to mariners informing them of the submerged portions of the north and south jetties. The markings will be replaced in the spring.

c. Piling/Dolphin Installation. Pilings may by installed to provide a temporary tie-off structure should barging be the selected method for transporting jetty stone to the project site. The piling would not occupy more area than necessary to

accomplish the proposed use, and would not unduly interfere with the normal public use of fishery, recreation or water resources. All piling placed for the tie-off structure would be removed upon completion of the jetty rehabilitation.

Statement of Consistency

Based on the above evaluation, we have determined that the repair of the north and south jetties and the north jetty revetment at Tillamook Bay and activities associated with this repair complies with the Tillamook County Comprehensive Plan, applicable provisions of Goals 2 (Land Use Planning) for goal exceptions, Goal 18 (Beaches and Dunes) and Goal 19 (Ocean Resources) and OPRD requirements. Goals 16 and 17 are not directly applicable, however they do apply through the county comprehensive plan and land use regulations. The action is, therefore, consistent to the maximum extent practicable with the enforceable policies of the Oregon Coastal Management Program (OCMP).

Figures

Figure 1

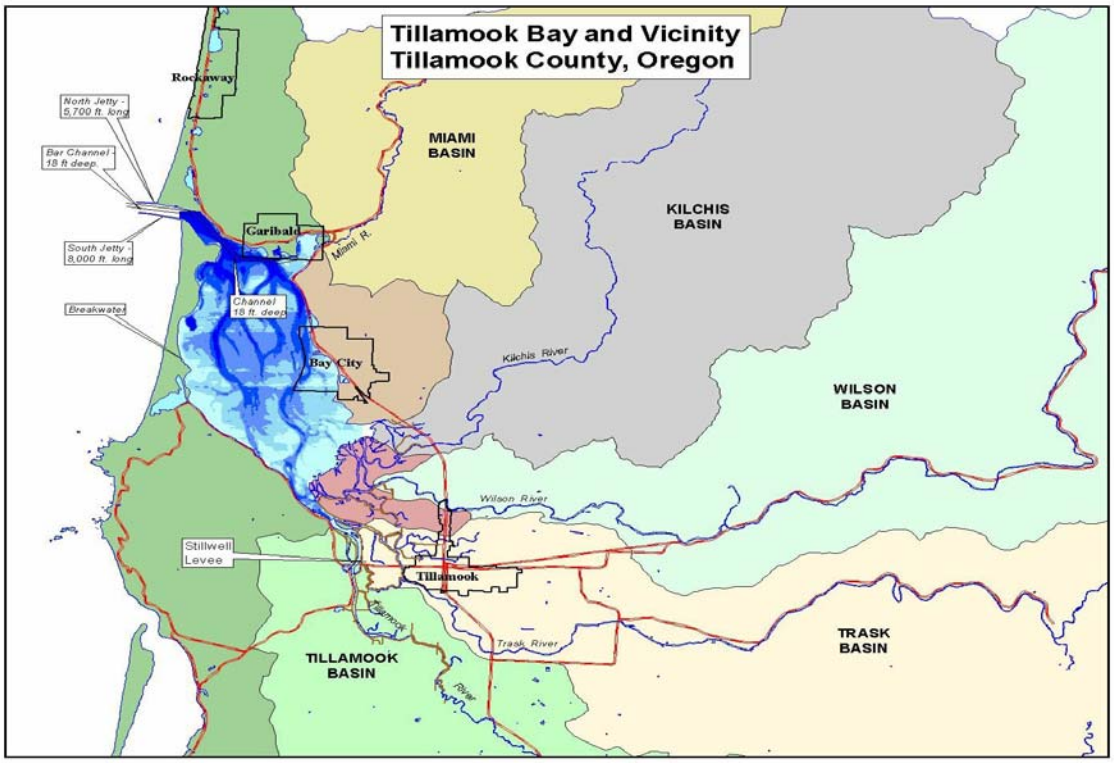
Tillamook Bay and Vicinity
Tillamook County, Oregon
Rockaway
North Jetty - 5,700 ft. long
Bar Channel - 18 ft deep
South Jetty - 8,000 ft. long
Breakwater
Garibald
Channel 18 ft. deep
Miami R.
Bay City
MIAMI BASIN
KILCHIS BASIN
Kilchis River
WILSON BASIN
Wilson River
Stillwell Levee
Tillamook
Trask River
TRASK BASIN
TILLAMOOK BASIN

Figure 2