# Addendum to Appendix O

# Wetlands Technical Report

*Prepared by*

URS Corporation
2700 Gambell Street, Suite 200
Anchorage, Alaska 99503

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## FIGURES

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# 1.0 INTRODUCTION

This addendum reflects comments from resource agencies and changes to the highway alignment for Alternative 2B following the Supplemental Draft EIS public comment period. Changes made by DOT&PF to the highway alignment were done to avoid all palustrine emergent and most estuarine emergent wetlands. The Anlter River crossing was also adjusted resulting in changes to wetland fill quantities and wetland impacts. The construction of the Cascade Point Road also affected the total number of wetland acres that would be impacted by the Juneau Access Improvements Project.

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# 2.0 ALTERNATIVE ANALYSES

## 2.1 Alternative 2B (Preferred): East Lynn Canal Highway to Katzehin with Return Shuttles to Haines and Skagway

Due to small adjustments to the Alternative 2B alignment and incorporation of the newly constructed Cascade Point Road between Echo Cove and Sawmill Cove, there are revisions to the number of acres of impacted wetlands and marine areas from this alternative. Construction of the highway under the revised Alternative 2B alignment would require fill and excavation of 102 acres of wetlands and marine areas within the footprint of the proposed highway and the ferry terminal at Katzehin. This total includes 69.8 acres of palustrine wetlands, primarily forested wetlands, 0.2 acre of estuarine emergent wetlands, and 32 acres of non-vegetated marine areas, consisting primarily of rocky shores.

The following subsections replace Section 4.3 in the 2004 *Wetlands Technical Report* and provide footprint acreage information and impacts to wetland functions and values based on the current Alternative 2B alignment.

### 2.1.1 East Lynn Canal Sub-Region 1 — Berners Bay

#### Footprint Acreage

The highway from Echo Cove to Sawmill Cove would follow the proposed Cascade Point Road, impacting 1.9 acres of wetlands along this alignment for the Juneau Access Improvements Project primarily to widen the Cascade Point Road (Figures 1, 2, and 3). Portions of eleven individual wetlands would be filled to construct a highway from the mouth of Echo Cove to the Slate Creek drainage. Forested wetlands would be impacted the most (7.7 acres, comprised of 3.7 acres of needle-leaved evergreen and 4.0 acres of deciduous forested wetlands). Most of the forested needle-leaved wetlands (PFO4B) occur between Echo Cove and Sawmill Creek (Figures 1 and 2). Deciduous forested wetlands (PFO1A and PFO1A/PSS1A) are adjacent to the Antler and Lace/Berners rivers (680-2 and 735-4; Figures 4 and 5). Loss of a scrub-shrub/forested wetland would constitute 0.7 acre (340-1; Figure 2). Table 4-1 presents the total fill areas for East Lynn Canal Sub-Region 1. Regular maintenance and operation activities that would occur following the completion of the highway would not be expected to result in the fill of additional wetlands.

Bridges and fill for the highway at the head of Berners Bay will not affect any estuarine emergent (salt marsh) habitat or intertidal flats. The October 2003 realignment of the highway through this area reduced the amount of wetland fill by approximately 3.1 acres for emergent wetlands and 2.9 acres for salt marsh. The December 2003 realignment of the bridge and the highway approach to the bridge was shifted farther upriver to avoid impacts to the salt marsh; this eliminated the remainder of the 4.4 acres potentially affected by the October 2003 alignment (735-1; Figures 4 and 5). The August 2005 realignment of Alternative 2B moves the Antler River crossing further upstream to bypass important eulachon spawning habitat and moves the Lace River crossing approximately 700 feet upstream to place greater distances between the highway and vegetated intertidal habitat (Figures 4 and 5).

#### Impacts to Wetland Functions and Values

Impacts to functions and values for each individual wetland on the east side of Lynn Canal are presented in Table 4-4. The proposed highway would act as a partial barrier to the flow of shallow groundwater and surface water. Shallow groundwater blocked by the highway bed

would eventually flow to the surface and be diverted by ditches to culverts under the roadbed. This diversion would adequately maintain water's natural down-gradient flow. Culvert end sections or rock dissipaters would be used to disperse high volume/velocity outfall to protect soils and vegetation below culvert outfalls from erosion of adjacent wetlands. The diversion of water into culverts and roadside ditches could disrupt water flow to some downslope wetlands and alter wetland hydrology; however, the high volume of annual rainfall in this region could reduce the magnitude of any impacts to wetland hydrology. Alteration of hydrology because of the roadbed could result in corresponding changes to the vegetation and, over time, affect wetland functions. The extent of this direct effect would depend on the location, but could potentially extend beyond the right-of-way. These effects could be minimized by adequate design of cross-drainage structures and ditching.

The loss of forested wetlands from fill for the highway would modify the groundwater recharge functions, the groundwater discharge/lateral flow functions, and the surface hydrologic control functions of these wetlands. The remaining portions of these forested wetlands, and the wetlands in unaffected areas outside the highway corridor, would continue to provide these functions. Proper ditches and drainage structures under the highway would minimize effects on the hydrologic functions of these wetlands.

The salt marshes (Figures 4, 5, and 6) at the head of Berners Bay adjacent to the Antler, Lace, and Berners rivers and at the head of Slate Cove provide a wildlife habitat function. The Alternative 2B alignment does not directly impact the salt marsh wetlands; however, the highway alignment has the potential to impact terrestrial wildlife movement between the salt marsh areas and adjacent uplands. A further discussion of potential wildlife corridor impacts is included in the 2004 *Wildlife Technical Report.*

It is important to note that the marine intertidal area adjacent to the shoreline from Sawmill Cove to south of the Antler River area is herring spawning habitat (M. Ingle, personal communication, January 2004). There are no direct marine intertidal impacts occurring along this segment of the shoreline for Alternative 2B. A discussion of potential impacts to herring spawning habitat is presented in the *Essential Fish Habitat Assessment*.

Contaminants, including oils, fuels, sediment, and debris can be introduced to the ecosystem during construction activities. These pollutants often settle in wetlands, but can move downstream when re-suspended. The introduction of contaminants and excess sediment loading can be avoided with implementation of Best Management Practices (BMPs). Contaminant concentrations in runoff from the proposed highway would not be expected to exceed Alaska Water Quality Standards (AWQS) or adversely impact the water quality of receiving waters for the long-term. Invasive plant species can also be introduced during construction activities. Alaska Department of Transportation and Public Facilities (DOT&PF) and Federal Highway Administration (FHWA) regulations require construction contractors to utilize specific techniques and procedures to minimize the accidental introduction of foreign plant species carried on construction equipment and to use native or non-invasive plant species for hydro-seeding of exposed embankments. Compliance with these BMPs should minimize the risk of introducing foreign plant species to the highway corridor and thus minimize the chance of causing wildlife habitat loss though this mechanism related to construction activities.

The use of salt treated abrasives (sand and 3-5 percent salt) to improve road conditions could potentially affect roadside vegetation (Stormwater, 2001). High rainfall in this region would minimize any impact from road salt. Most soil and vegetation damage from sand or salt is localized to within 60 feet of the road, with the greatest impacts right next to the pavement (U.S.

Roads, 1997). Salt treated abrasives would be used minimally along the highway route; thus, negligible impacts on adjacent vegetation would be expected.

### 2.1.2 East Lynn Canal Sub-Region 2 — Slate Cove to Sherman Point

#### Footprint Acreage

The July 2005 Alternative 2B alignment includes adjustments between Slate Cove and Sherman Point in an effort to further avoid emergent wetlands. The alignment from Slate Cove to Sherman Point would impact only palustrine wetlands; the alignment does not contact the shoreline. Forested wetlands dominate the land cover in this region. Of the 60.5 acres of potential wetland fill in this sub-region, all would occur in forested wetlands (Table 4-1).

#### Impacts to Wetland Functions and Values

Excavation or fill of wetlands for construction of the highway would intersect the drainage patterns of most of the wetlands in this sub-region. Impacts will include modifying the groundwater recharge functions, the discharge/lateral flow functions, the surface hydrologic control functions, and the sediment retention functions of these wetlands. Expanses of similar habitat in the surrounding areas, and adequate ditching and drainage structures, will moderate losses of any of these functions.

Wildlife habitat for four wetlands in this subsection is rated as a moderate-high value (wetlands 910-2, 955-2, 1185-1, and 1220-1; Figures 6 and 7; Table B-1). The approximate total acreage of these wetlands is 1,343 acres, of which 4 percent (52.4 acres) would be impacted. These wetlands have a moderate-high value because permanent standing fresh or brackish water or permanently flooded emergent marsh is present (emergent wetlands) and the wetlands are adjacent to spruce/hemlock forest or deciduous scrub-shrub (forested and scrub-shrub wetlands), which provides food and water with nearby cover for terrestrial animals such as bear. All other wetlands impacted by Alternative 2B in this sub-region have a moderate-low to low wildlife habitat value (Table B-1 and Appendix D). A further discussion on wildlife habitat impacts is included in the 2004 *Wildlife Technical Report*.

Regional ecological diversity will not likely be substantially affected by the loss of wetlands in this sub-region since these wetlands are very common and widespread throughout the surrounding area. The highway alignment avoids the seasonally flooded emergent/scrub-shrub wetland along this area. Replacement cost is considered high for the forested wetlands.

### 2.1.3 East Lynn Canal Sub-Region 3 — Sherman Point to Katzehin River

#### Footprint Acreage

Construction along this segment would affect 1.2 acres of forested wetlands, occurring just north of Sherman Creek, in the southern portion of this sub-region. Estuarine rocky shores and unconsolidated beaches along this sub-region would be affected by direct fill for the highway. The impact of this activity is discussed in the 2004 *Essential Fish Habitat Assessment*. Fill during construction would affect numerous small areas of marine habitat, for a total amount of 24.0 acres.

#### Impacts to Wetland Functions and Values

The loss of 1.2 acres of forested wetland (1360-1 and 1375-1; Figure 9) near Independence Lake will have minimal effect on groundwater function since the highway would pass through

the lower portion of the wetland. Surface hydrologic control would also likely be modified. Erosion sensitivity of this wetland will be low and not substantially affected by the highway.

The two intertidal marine areas in this sub-region are rated high for fish habitat (1380-1 and 1480-1; Table B-1). Approximately 5.05 acres of 1380-1 and 18.94 acres of 1480-1 would be impacted (Figures 9 and 10). Impacts to fish habitat associated with this fill are discussed in the 2004 *EFH Assessment.*

### 2.1.4 East Lynn Canal Sub-Region 4 — Katzehin River

#### Footprint Acreage

Within this sub-region, no palustrine wetlands occur to any extent within the corridor surveyed for the proposed highway (Table B-1). Only 0.21 acre of estuarine emergent wetland, near the proposed Katzehin Ferry Terminal, would be impacted (2750-1; Figures 10 and 11). Rocky shore and beach bar fill areas along this portion of the highway are relatively small; the total affected area would comprise approximately 5.2 acres. Additionally, fill for the Katzehin Ferry Terminal would require approximately 2.7 acres of rocky shoreline habitat for breakwaters and terminal facilities. Approximately 4.4 acres of subtidal would likely have to be dredged, but this area is not included in the total (see the 2004 *Essential Fish Habitat Assessment*).

#### Impacts to Wetland Functions and Values

Wildlife habitat value for the emergent wetlands is rated as high (wetlands 2750-1; Table B-1). The total impact to this wetland due to fill is approximately 0.21 acre (Figures 10 and 11; sized by aerial photography, and ground elevation surveys). Wildlife habitat is also rated as high for one estuarine beach bar area (2735-2; Table B-1). The estuarine beach bar area is approximately 1.87 acres of which 85 percent (1.59 acres) would be impacted (Table 4-4). These wetlands are rated has having a high wildlife habitat value because Lyngbye's sedge, seaside plantain, seaside arrow-grass, or ditch grass occur, which provides food for migrating waterfowl and terrestrial species such as brown and black bear. A further discussion on wildlife habitat impacts is included in the 2004 *Wildlife Technical Report.*

The salt marshes north of the Katzehin River provide a wildlife habitat function. The Alternative 2B alignment has the potential to impact terrestrial wildlife movement between the salt marsh areas and adjacent uplands (2630-1, 2670-1, 2690-1, and 2735-1; Figures 10 and 11). A further discussion of potential wildlife corridor impacts is included in the 2004 *Wildlife Technical Report.*

The Katzehin Ferry Terminal would impact approximately 3.63 acres of marine intertidal areas with high fish habitat values (2745-T and 2765-1; Table B-1; Figure 11). Impacts to fish habitat associated with this fill are discussed in the 2004 *Essential Fish Habitat Assessment*.

## 2.2 Alternative 3: West Lynn Canal Highway

Alternative 3 would extend the Glacier Highway from Echo Cove to Sawmill Cove along the proposed Cascade Point Road and would impact 1.9 acres of wetlands along the segment where the Juneau Access Improvements Project would widen the Cascade Point Road.

Most of the footprint acreages and all of the discussions of impacts to wetlands functions and values presented in the 2004 *Wetlands Technical Report* for Alternative 3 remain valid. Only the information pertaining to the footprint acreage of the project segment between Echo Cove and the Sawmill Cove Ferry Terminal needs revision. Fill of wetlands and marine areas from Echo Cove to the Sawmill Cove Ferry Terminal would include 1.2 acres of forested wetlands,

0.7 acre of scrub-shrub/forested wetlands, and 1.9 acres of rocky shore intertidal habitat. Additionally, 1.9 acres of subtidal dredging for the ferry terminal would be required.

The new alignment under Alternative 3 would necessitate a total of 38.2 acres of wetland and marine fill. This total would include 26.4 acres of wetlands and 11.6 acres of marine areas. A small amount of vegetated shallows associated with small ponds would also be filled (0.2 acre).

## 2.3 Alternatives 4B and 4D: Marine Alternatives – Berners Bay

These build alternatives would also extend the Glacier Highway from Echo Cove to Sawmill Cove and widen the Cascade Point Road. This would impact 1.9 acres of wetlands along the segment where the Juneau Access Improvements Project would widen the Cascade Point Road. All of the discussions of impacts to wetlands functions and values presented in the 2004 *Wetlands Technical Report* for Alternatives 4B and 4D remain valid. The only modification being that construction of the current alignment would require the filling of approximately 1.2 acres of forested wetlands, 0.7 acre of scrub-shrub/forested wetlands and 1.9 acres of marine fill at the Sawmill Cove Ferry Terminal site. In addition, there would be 0.7 acre of subtidal fill for terminal modification at Auke Bay to accommodate a stern berth.

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# 3.0 COMPENSATORY MITIGATION FOR IMPACTS TO WETLANDS AND OTHER WATERS OF THE UNITED STATES

The preferred alternative, Alternative 2B, would impact approximately 70 acres of wetlands and 32 acres of unvegetated intertidal and subtidal areas. No wetland restoration, enhancement, or creation opportunities have been identified in the watersheds that would be impacted, as there are many similar wetlands in the project area and few have been affected to date. For this reason DOT&PF is proposing a combination of on-site out-of-kind mitigation and in-lieu fee compensation.

The preferred alternative would impact approximately 69.1 acres of palustrine forested wetlands and 0.7 acre of a palustrine scrub/shrub wetland. None of these wetlands are fish habitat, and with the exception of the wetlands on either side of Slate Creek and on the east side of the Lace River, the wetlands that would be impacted do not provide riparian support. All of the wetlands that would be filled function as wildlife habitat, and some are rated as moderate to high for this function. All wetlands in the project area rated high as wildlife habitat would be avoided; however, some of the affected wetlands would potentially become isolated by the proposed highway. This is the case for the estuarine emergent wetlands between the Lace and Antler rivers used by bears. Therefore, DOT&PF proposes to construct a 100-foot-wide wildlife underpass at the location of an identified bear travel corridor near the east bank of the Lace River as on-site out-of-kind compensatory mitigation for impacts to forested and scrub/shrub wetlands. The cost of this underpass is estimated at $440,000. (Six other wildlife underpasses would be constructed to mitigate impacts to wildlife in non-wetland areas.)

The preferred alternative would also impact approximately 0.2 acre of estuarine emergent wetland and 32 acres of unvegetated beach and subtidal habitat. DOT&PF proposes to provide in-lieu fee compensation for these impacts to waters of the U.S., which are also Essential Fish Habitat under the Magnuson-Stevens Fisheries Conservation and Management Act. Based on discussions with resource agencies, DOT&PF proposes to make a payment to the Southeast Alaska Land Trust to be used to acquire property or fund habitat projects to be specified in the Department of Army Section 404 permit.

DOT&PF proposes in-lieu fee payment for impacts to waters of the U.S. as follows:

- Estuarine emergent wetland (approximately 0.2 acre) $60,000/acre
- Non-vegetated intertidal and subtidal areas (approx. 32 acres) $24,000/acre

These per-acre values are based on values used in past DOT&PF projects that involved fee in-lieu payments for impacts to wetlands and waters of the U.S. and increased to account for inflation and ensure a two to one mitigation ratio. Based on the current alignment of the preferred alternative, the in-lieu fee payment for fill in waters of the U.S. would total $780,000.

All palustrine emergent wetlands and all but 0.2 acre of estuarine emergent wetlands have been avoided. Potential wetland impacts have been minimized by alignment changes, extension of bridges and slope steepening. Further minimization is not practicable. Bridging via a pile-supported causeway is estimated to cost $4,400 per lineal foot. The average wetland fill width would be 80 feet, or 544.5 lineal feet per acre. The avoidance cost therefore would be $2.4 million per acre. See the Draft Section 404(b)(1) Analysis in Appendix X for more detail.

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## TABLES

The section includes updated versions of the following tables that were presented in the 2004 *Wetlands Technical Report.*

| | |
|---|---|
| Table 4-1 | East Lynn Canal – Preferred Alternative 2B<br>Total Impacted Areas (Acres) by Wetland Type and Sub-Region, August 2005 Alignment |
| Table 4-2 | West Lynn Canal – Alternative 3<br>Total Impacted Areas (Acres) by Wetland Type and Sub-Region |
| Table 4-3 | Total Area Wetlands (Acres) and other Waters of the United States Affected by Project Alternatives, August 2005 Alignment |
| Table 4-4 | Impacts to Functions and Values for Individual Wetlands and Estuarine Sites, East Lynn Canal Alignment, August 2005 Alternative 2B (Preferred) Alignment |
| Attachment B-1 | Wetland Functions and Values |

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## Table 4-1
## East Lynn Canal – Preferred Alternative 2B
## Total Impacted Areas (Acres) by Wetland Type and Sub-Region, August 2005 Alignment

| Sub-Region | Classification | Area of Fill Alternative 2B |
|---|---|---|
| East Sub-Region 1 | **Wetlands** | |
| | Palustrine Forested | 7.4 |
| | Palustrine Scrub-Shrub | 0.7 |
| | Sub Total | 8.1 |
| East Sub-Region 2 | **Wetlands** | |
| | Palustrine Forested | 60.5 |
| | Sub Total | 60.5 |
| East Sub-Region 3 | **Wetlands** | |
| | Palustrine Forested | 1.2 |
| | Sub Total | 1.2 |
| | **Marine Areas** | |
| | Rocky Shores | 24.0 |
| | Sub Total | 24.0 |
| East Sub-Region 4 | **Wetlands** | |
| | Estuarine Emergent | 0.2 |
| | Sub Total | 0.2 |
| | **Marine Areas** | |
| | Beach Bar | 1.6 |
| | Rocky Shores | 6.4 |
| | Sub Total | 8 |
| All East Lynn Canal Sub-Regions | **Wetlands** | |
| | Palustrine Forested | 69.1 |
| | Palustrine Scrub-Shrub | 0.7 |
| | Estuarine Emergent | 0.2 |
| | Sub Total | 70.0 |
| | **Marine Areas** | |
| | Beach Bars | 1.6 |
| | Rocky Shores | 30.4 |
| | Sub Total | 32.0 |
| | **Sub-Regions Totals** | |
| | Total Wetlands | 70.0 |
| | Total Marine Areas | 32.0 |
| | Total Acres | 102 |

Note: Acreages do not include riverine areas intersected by the proposed alignments.

## Table 4-2
## West Lynn Canal – Alternative 3
## Total Impacted Areas (Acres) by Wetland Type and Sub-Region

| Sub-Region | Classification | Area of Fill (Acres) |
|---|---|---|
| West Sub-Region 1 | **Wetlands** | |
| | Palustrine Emergent | 1.9 |
| | Palustrine Forested | 18.7 |
| | Estuarine Emergent | 0.4 |
| | Sub Total | 21.0 |
| | **Marine Areas** | |
| | Beach Bars | 0.09 |
| | Rocky Shores | 4.8 |
| | Sub Total | 4.9 |
| West Sub-Region 2 | **Wetlands** | |
| | Palustrine Emergent | 0.4 |
| | Palustrine Forested | 1.1 |
| | Sub Total | 1.5 |
| | **Fresh Water Aquatic Areas** | |
| | Palustrine Aquatic Beds | 0.2 |
| | Sub Total | 0.2 |
| West Sub-Region 3 | **Wetlands** | |
| | Palustrine Forested | 0.9 |
| | Estuarine Emergent | 1.1 |
| | Sub Total | 2.0 |
| | **Marine Areas** | |
| | Beach Bars | 4.8 |
| | Sub Total | 4.8 |
| East Sub-Region 1 | **Wetlands** | |
| | Palustrine Forested | 1.2 |
| | Palustrine Scrub-Shrub | 0.7 |
| | Sub Total | 1.9 |
| | **Marine Areas** | |
| | Rocky Shores | 1.9 |
| | Sub Total | 1.9 |
| All West Lynn Canal Sub-Regions (plus East Sub-Region 1) | **Wetlands** | |
| | Palustrine Emergent | 2.3 |
| | Palustrine Forested | 21.9 |
| | Palustrine Scrub-Shrub | 0.7 |
| | Estuarine Emergent | 1.5 |
| | Sub Total | 26.4 |
| | **Fresh Water Aquatic Areas** | |
| | Palustrine Aquatic Beds | 0.2 |
| | Sub Total | 0.2 |
| | **Marine Areas** | |
| | Beach Bars | 4.9 |
| | Rocky Shores | 6.7 |
| | Sub Total | 11.6 |
| All Sub-Regions (plus East Sub-Region 1) | **Sub-Regions Total** | |
| | Total Wetlands | 26.4 |
| | Total Fresh Water Aquatic Areas | 0.2 |
| | Total Marine Areas | 11.6 |
| | Total Acres | 38.2 |

Note: Acreages do not include riverine areas intersected by the proposed alignments.

## Table 4-3
## Total Area Wetlands (Acres) and other Waters of the United States Affected by Project Alternatives, August 2005 Alignment

| Wetlands and Other Waters of the U.S | Alternative 2B (Preferred) | Alternative 3 | Alternatives 4B and 4D |
|---|---|---|---|
| | East Lynn Canal Highway to Katzehin with Shuttles to Haines and Skagway | West Lynn Canal Highway and Glacier Highway to Sawmill Cove | Glacier Highway to Sawmill Cove |
| **Wetlands** | | | |
| Palustrine Emergent | 0.0 | 2.3 | 0.0 |
| Palustrine Forested | 69.1 | 21.9 | 1.2 |
| Palustrine Scrub-Shrub | 0.7 | 0.7 | 0.7 |
| Estuarine Emergent | 0.2 | 1.5 | 0.0 |
| Sub Total | 70.0 | 26.4 | 1.9 |
| **Fresh Water Aquatic Areas** | | | |
| Aquatic Beds | 0.0 | 0.2 | 0.0 |
| Sub Total | 0.0 | 0.2 | 0.0 |
| **Marine Areas** | | | |
| Beach Bar | 1.6 | 4.9 | 0.0 |
| Rocky Shore Beaches | 30.4 | 6.7 | 1.9 |
| Sub Total | 32 | 11.6 | 1.9 |
| Total Acres | 102 | 38.2 | 3.8 |

Note: Acreages do not include riverine areas intersected by the proposed alignments.

# Table 4-4
## Impacts to Functions and Values for Individual Wetlands and Estuarine Sites, East Lynn Canal Alignment, July 2005 Alternative 2B (Preferred) Alignment

| Habitat Type | Cowardin Class | Wetland Type | Wetland ID | Total Area | Impacted Area | Impacts to Functions and Values Description (Fill for highway construction unless otherwise noted) |
|---|---|---|---|---|---|---|
| | | | | Acres | | |
| **Sub-Region 1 – Echo Cove to Slate Cove** | | | | | | |
| Wetlands | PFO4B | Forested | 115-1 | 2.70 | 0.02 | This small wetland appears to be fed by groundwater Modification of groundwater recharge, groundwater discharge/lateral flow and surface hydrologic control. |
| | PFO4B | Forested | 135-1 | 2.44 | 0.10 | This small wetland appears to be fed by groundwater. Modification of groundwater recharge, groundwater discharge/lateral flow and surface hydrologic control. |
| | PFO4B | Forested | 150-1 | 22.58 | 0.45 | This forested wetland appears to be fed by a groundwater source. Modification of groundwater recharge, groundwater discharge/lateral flow and surface hydrologic control. |
| | PFO4B | Forested | 165-1 | 44.46 | 0.38 | This wetland appears to be fed by groundwater from hillside. Modification of groundwater recharge, groundwater discharge/lateral flow and surface hydrologic control. |
| | PFO4B | Forested | 190-1 | 2.24 | 0.05 | This small wetland appears to be fed by groundwater seep. Modification of groundwater recharge, groundwater discharge/lateral flow and surface hydrologic control. |
| | PFO4B | Forested | 195-1 | 1.88 | 0.03 | Modification of groundwater recharge, groundwater discharge/lateral flow and surface hydrologic control. |
| | PFO4B | Forested | 235-1 | 3.20 | 0.21 | This small wetland appears to be fed by groundwater seep. Modification of groundwater recharge, groundwater discharge/lateral flow and surface hydrologic control. |
| | PFO4B | Forested | 415-1 | 67.91 | 2.51 | Modification of groundwater recharge, groundwater discharge/lateral flow and surface hydrologic control. |
| | PFO1A/PSS1A | Forested/Emergent | 735-4 | 57.01 | 2.19 | Modification of groundwater recharge, groundwater discharge/lateral flow functions and riparian support. |
| | PFO1A | Forested | 680-2 | 80.99 | 1.48 | Modification of groundwater recharge/discharge functions and riparian support. |
| | PSS1B/PFO4B | Scrub-Shrub/Forested | 340-1 | 4.51 | 0.72 | Modification of groundwater recharge, groundwater discharge/lateral flow and surface hydrologic control. |

## Table 4-4 (continued)
## Impacts to Functions and Values for Individual Wetlands and Estuarine Sites, East Lynn Canal Alignment, August 2005 Alternative 2B (Preferred) Alignment

| Habitat Type | Cowardin Class | Wetland Type | Wetland ID | Total Area (Acres) | Impacted Area (Acres) | Impacts to Functions and Values Description (Fill for highway construction unless otherwise noted) |
|---|---|---|---|---|---|---|
| **Sub-Region 2 – Slate Cove to Sherman Point** | | | | | | |
| Wetlands (continued) | PFO4B | Forested | 895-1 | 88.06 | 4.77 | Modification of groundwater recharge/discharge functions, riparian support, and wildlife habitat. |
| | PFO4B | Forested | 910-2 | 6.44 | 0.57 | Modification of groundwater recharge/discharge functions, riparian support, and wildlife habitat. |
| | PFO4B | Forested | 955-2 | 1103.85 | 37.77 | Modification of surface hydrologic control and groundwater recharge functions. Some loss of wildlife habitat functions. |
| | PFO4B/PSS1B | Forested/Scrub-Shrub | 1185-1 | 205.49 | 12.24 | Modification of groundwater recharge/discharge functions, nutrient transport, riparian support, and wildlife habitat. |
| | PFO4B/PSS1B | Forested/Scrub-shrub | 1220-1 | 27.40 | 1.83 | Modification of groundwater recharge/discharge functions and wildlife habitat. |
| | PFO4B | Forested | 1260-1 | 30.07 | 1.78 | Modification of groundwater discharge/recharge functions. |
| | PFO4B | Forested | 1275-1 | 23.41 | 1.49 | Modification of groundwater discharge/recharge functions. |
| **Sub-Region 3 – Sherman Point to Katzehin River** | | | | | | |
| Wetlands | PFO4B | Forested | 1360-1 | 33.74 | 1.08 | Modification of groundwater discharge/recharge functions. |
| | PFO4B | Forested | 1375-1 | 58.76 | 0.12 | Functions not substantially impacted due to small fill area. |
| Marine Areas | E2RS2N/E2US1N | Rocky Shore/ Unconsolidated Shore | 1380-1 | NA | 5.05 | Modification of fish habitat. |
| | E2RS2N | Rocky Shore | 1480-1 | NA | 18.94 | Modification of fish habitat. |
| **Sub-Region 4 – Katzehin River to Skagway** | | | | | | |
| Wetlands | E2EM1N | Estuarine Emergent | 2750-1 | NA | 0.21 | Modification of groundwater recharge/discharge functions, riparian support, and fish and wildlife habitat. |
| Marine Areas | E2BB1P | Beach Bar | 2735-2 | 1.87 | 1.59 | Modification of wildlife habitat. |
| | E2RS2N | Rocky Shore | 2765-1 | NA | 6.37 | Modification of fish/wildlife habitat. |

Notes: The total acreage of a given marine intertidal area is a function of the beach slope and beach length. Because of the continuous nature of these marine types (i.e., rocky shores, beach bars, and unconsolidated shores), and the variability of seaward slope distances, delineation of these marine intertidal boundaries was only conducted in the vicinity of potential impacts.

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## Attachment B-1
## Wetland Functions and Values

| Sub-Regions | Wetland ID | Field Date | Cowardin Class | Estimated Total Wetland Acreage | Impact Area | Groundwater Recharge | Groundwater Discharge/Flow and Lateral Flow | Surface Hydrologic Control | Sediment/ Toxicant Retention | Nutrient Transformation/ Export | Riparian Support | Fish Habitat | Wildlife | Regional Ecological Diversity | Ecological Replacement | Erosion Sensitivity | Notes | Downstream/ Coastal Beneficiary Sites |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | WETLANDS | | | | | | | | | | | | | | | | | |
| Sub-Region 1 | 115-1 | aerial | PFO4B | 2.70 | 0.02 | High to Moderate | High to Moderate | High | Moderate-Low | Moderate | Moderate-Low | Very Low | Moderate-Low | Moderate-High | High | Moderate-Low | | Low |
| | 125-1 | aerial | PFO4B | 1.70 | 0.00 | High to Moderate | High to Moderate | High | Moderate-Low | Moderate | Moderate-Low | Very Low | Moderate-Low | Moderate-High | High | Moderate-Low | | Low |
| | 135-1 | aerial | PFO4B | 2.44 | 0.10 | High to Moderate | High to Moderate | High | Moderate-Low | Moderate | Moderate-Low | Very Low | Moderate-Low | Moderate-High | High | Moderate-Low | | Low |
| | 150-1 | aerial | PFO4B | 22.58 | 0.45 | High to Moderate | High to Moderate | High | Moderate-Low | Moderate | Moderate-Low | Very Low | Moderate-Low | Moderate-High | High | Moderate-Low | | Low |
| | 165-1 | aerial | PFO4B | 44.46 | 0.38 | High to Moderate | High to Moderate | High | Moderate-Low | Moderate | Moderate-High | Very Low | Moderate-Low | Moderate-High | High | Moderate-Low | | Low |
| | 190-1 | aerial | PFO4B | 2.24 | 0.05 | High to Moderate | High to Moderate | High | Moderate-Low | Moderate | Moderate-High | Very Low | Moderate-Low | Moderate-High | High | Moderate-Low | | Low |
| | 195-1 | aerial | PFO4B | 1.88 | 0.03 | High to Moderate | High to Moderate | High | Moderate-Low | Moderate | Moderate-Low | Very Low | Moderate-Low | Moderate-High | High | Moderate-Low | | Low |
| | 200-1 | aerial | PFO4B | 1.28 | 0.00 | High to Moderate | High to Moderate | High | Moderate-Low | Moderate | Moderate-Low | Very Low | Moderate-Low | Moderate-High | High | Moderate-Low | | Low |
| | 235-1 | aerial | PFO4B | 3.20 | 0.21 | High to Moderate | High to Moderate | High | Moderate-Low | Moderate | Moderate-Low | Very Low | Moderate-Low | Moderate-High | High | Moderate-Low | | Low |
| | 265-1 | aerial | PFO4B | 6.11 | 0.00 | High to Moderate | High to Moderate | High | Moderate-Low | Moderate | Moderate-Low | Very Low | Moderate-Low | Moderate-High | High | Moderate-Low | | Low |
| | 340-1 | 7/22/2003 | PSS1B/PFO4B | 4.51 | 0.72 | High to Moderate | High to Moderate | High | Moderate-Low | Moderate | Moderate-Low | Very Low | Low | Moderate-High | Moderate-High | Low | | Low |
| | 330-1 | 7/22/2003 | PFO4B/PSS1B | 1.74 | 0.00 | High to Moderate | High to Moderate | High | Moderate-Low | Moderate | Moderate-Low | Very Low | Low | Moderate-High | Moderate-High | Moderate-Low | | Low |
| | 415-1 | 7/31/2003 | PFO4B | 67.91 | 2.51 | High to Moderate | High to Moderate | High | Low | Moderate | Moderate-Low | Very Low | Low | Moderate-High | High | Moderate-Low | | Low |
| | 800-1 | 7/28/2003 | PFO4B | 26.48 | 0.00 | High to Moderate | Low | Moderate-High | High | Low | Low | Very Low | Low | Moderate-High | High | Moderate-Low | | Low |
| | 800-3 | 7/28/2003 | PFO4B | 12.13 | 0.00 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-Low | Very Low | Moderate-Low | Moderate-High | High | Moderate-Low | | Low |
| | 830-1 | 7/28/2003 | PFO4B | 17.03 | 0.00 | High to Moderate | Low | Moderate-High | High | Low | Low | Very Low | Low | Moderate-High | High | Moderate-Low | | Low |
| | 735-4 | 7/28/2003 | PFO1A/PSS1A | 57.01 | 2.19 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-High | Very Low | Moderate-Low | Moderate-High | High | Low | | Low |
| | 680-2 | 7/28/2003 | PFO1A | 80.99 | 1.48 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-High | Very Low | Moderate-Low | Moderate-High | High | Low | | Low |
| | 735-2 | 7/28/2003 | PEM1S | 31.19 | 0.00 | Low | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-High | Very Low | High | High | Low | Low | | Low |
| | 420-1 | 7/31/2003 | PEM1B/PSS4B | 13.38 | 0.00 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-Low | Very Low | Moderate-High | Moderate-Low | Moderate | Low | | Low |
| | 440-1 | 7/31/2003 | PEM1B/PSS4B | 6.63 | 0.00 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-Low | Very Low | Moderate-High | Moderate-Low | Moderate | Low | | Low |
| | 320-1 | 7/22/2003 | PEM1B/PSS1B | 2.16 | 0.00 | High to Moderate | High to Moderate | Low | Low | Moderate | Moderate-Low | Very Low | Moderate-Low | Moderate-High | Moderate | Moderate-High | | Low |
| | 330-2 | 7/22/2003 | PEM1B/PFO4B | 3.47 | 0.00 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-Low | Very Low | Low | Moderate-High | Moderate-High | Low | | Low |
| | 270-1 | aerial | PEM1B | 0.62 | 0.00 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-Low | Very Low | Moderate-Low | Low | Moderate | Low | | Low |
| | 275-1 | aerial | PEM1B | 1.39 | 0.00 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-Low | Very Low | Moderate-Low | Low | Moderate | Low | | Low |
| | 800-2 | 7/28/2003 | PEM1B | 7.40 | 0.00 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-Low | Very Low | Moderate-High | Low | Moderate | Low | | Low |
| | 800-4 | 7/28/2003 | PEM1B | 1.13 | 0.00 | High to Moderate | Low | High | High | Low | Low | Very Low | Low | Low | Moderate | Low | | Low |
| | 830-2 | 7/28/2003 | PEM1B | 2.54 | 0.00 | High to Moderate | Low | High | High | Low | Low | Very Low | Low | Low | Moderate | Low | | Low |
| | 680-3 | aerial | PSS1S/PFL1S | 23.64 | 0.00 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-High | Very Low | Moderate-Low | Moderate-High | Low | Moderate-High | | Low |
| | 690-2 | aerial | PSS1R | 2.61 | 0.00 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-High | Very Low | Moderate-Low | Moderate-High | Low | Moderate-High | | Low |
| | 735-1 | 7/28/2003 | E2EM1P | 52.31 | 0.00 | High to Moderate | High to Moderate | Low | Moderate-High | Moderate | High | Moderate-Low | High | High | High | Low | | Low |
| | MARINE AREAS | | | | | | | | | | | | | | | | | |
| | 370-T | 7/31/2003 | E2RS2N | 2.78 | See Notes | Low | Low | Low | Low | NA | NA | High | High | High | Low | Low | Sawmill Cove Ferry Terminal | Low |

## Attachment B-1 (continued)
## Wetland Functions and Values

| Sub-Regions | Wetland ID | Field Date | Cowardin Class | Estimated Total Wetland Acreage | Impact Area | Groundwater Recharge | Groundwater Discharge/Flow and Lateral Flow | Surface Hydrologic Control | Sediment/ Toxicant Retention | Nutrient Transformation/ Export | Riparian Support | Fish Habitat | Wildlife | Regional Ecological Diversity | Ecological Replacement | Erosion Sensitivity | Notes | Downstream/ Coastal Beneficiary Sites |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **WETLANDS** | | | | | | | | | | | | | | | | | |
| Sub-Region 2 | 990-1 | aerial | PSS4B/PEM1B | 39.04 | 0.00 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-Low | Very Low | High | Moderate-High | Moderate | Low | | Low |
| | 1015-1 | aerial | PFO4B/PEM1B | 2.80 | 0.00 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-Low | Very Low | Low | Low | Moderate-High | Moderate-Low | | Low |
| | 1020-1 | aerial | PFO4B/PEM1B | 6.04 | 0.00 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-Low | Very Low | Low | Low | Moderate-High | Moderate-Low | | Low |
| | 895-1 | 7/31/2003 | PFO4B | 88.06 | 4.77 | High to Moderate | High to Moderate | Low | Low | Moderate | Moderate-High | Very Low | Moderate-Low | Moderate-High | High | Moderate-Low | | Low |
| | 910-2 | 7/30/2003 | PFO4B | 6.44 | 0.57 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | High | Very Low | Moderate-High | Moderate-High | High | Moderate-Low | | Low |
| | 955-2 | 7/30/2003 | PFO4B | 1103.85 | 37.77 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | High | High | Very Low | Moderate-High | Moderate-High | High | Moderate-Low | | Low |
| | 920-1 | aerial | PEM1B/PSS4B | 0.58 | 0.00 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-Low | Very Low | Moderate-High | Low | Moderate | Low | | Low |
| | 950-1 | 7/30/2003 | PEM1B/PSS4B | 161.23 | 0.00 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-Low | Very Low | High | Moderate-High | Moderate | Low | | Low |
| | 955-1 | 7/30/2003 | PEM1B/PSS4B | 42.84 | 0.00 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-Low | Very Low | High | Moderate-High | Moderate | Low | | Low |
| | 975-1 | aerial | PEM1B/PSS4B | 1.83 | 0.00 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-Low | Very Low | Moderate-High | Low | Moderate | Low | | Low |
| | 1010-1 | aerial | PEM1B/PSS4B | 1.13 | 0.00 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-Low | Very Low | Moderate-High | Low | Moderate | Low | | Low |
| | 1040-1 | aerial | PEM1B/PSS4B | 16.55 | 0.00 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-Low | Very Low | Moderate-High | Low | Moderate | Moderate-High | | Low |
| | 1185-1 | 7/30/2003 | PFO4B/PSS1B | 205.49 | 12.24 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | High | High | Very Low | Moderate-High | Moderate-High | High | Moderate-Low | | Low |
| | 1220-1 | aerial | PFO4B/PSS1B | 27.40 | 1.83 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-Low | Very Low | Moderate-High | Moderate-Low | Moderate-High | Low | | Low |
| | 1070-1 | aerial | PFO4B/PEM1B | 8.45 | 0.00 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-Low | Very Low | Moderate-High | Moderate-Low | Moderate-High | Low | | Low |
| | 1260-1 | 7/26/2003 | PFO4B | 30.07 | 1.78 | High to Moderate | High to Moderate | Low | Low | Moderate | Moderate-Low | Very Low | Moderate-Low | Moderate-Low | High | Moderate-Low | | Low |
| | 1275-1 | aerial | PFO4B | 23.41 | 1.49 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-Low | Very Low | Moderate-Low | Moderate-Low | High | Low | | Low |
| | 1110-1 | aerial | PEM1B/PSS4B | 2.30 | 0.00 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-Low | Very Low | Moderate-High | Low | Moderate | Low | | Low |
| | 1135-1 | aerial | PEM1B/PSS4B | 1.02 | 0.00 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-Low | Very Low | Low | Low | Moderate | Low | | Low |
| | 1150-1 | aerial | PEM1B/PSS4B | 4.63 | 0.00 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-Low | Very Low | Moderate-High | Low | Moderate | Low | | Low |
| | 1260-2 | aerial | PEM1B/PSS4B | 1.35 | 0.00 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-Low | Very Low | Low | Low | Moderate | Moderate-High | | Low |
| | 1125-1 | aerial | PEM1B | 0.43 | 0.00 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-Low | Very Low | Low | Low | Moderate | Low | | Low |
| | 1185-2 | aerial | PEM1B | 1.49 | 0.00 | High to Moderate | High to Moderate | Moderate-Low | Moderate-Low | Moderate | Moderate-Low | Very Low | Low | Low | Moderate | Low | | Low |
| | 900-1 | 7/30/2003 | E2EM1P | 18.05 | 0.00 | High to Moderate | High to Moderate | Low | Moderate-High | High | High | Moderate-Low | High | High | High | Moderate-Low | | Low |
| | **MARINE AREAS** | | | | | | | | | | | | | | | | | |
| | 900-T | 7/30/2003 | E2BB1N | 3.19 | 0.00 | High to Moderate | High to Moderate | Low | Moderate-High | Moderate | Moderate-High | High | High | High | Low | Low | Slate Creek Ferry Terminal | Low |

## Attachment B-1 (continued)
## Wetland Functions and Values

| Sub-Regions | Wetland ID | Field Date | Cowardin Class | Estimated Total Wetland Acreage | Impact Area | Groundwater Recharge | Groundwater Discharge/Flow and Lateral Flow | Surface Hydrologic Control | Sediment/ Toxicant Retention | Nutrient Transformation/ Export | Riparian Support | Fish Habitat | Wildlife | Regional Ecological Diversity | Ecological Replacement | Erosion Sensitivity | Notes | Downstream/ Coastal Beneficiary Sites |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sub-Region 3 | **WETLANDS** | | | | | | | | | | | | | | | | | |
| | 1360-1 | aerial | PFO4B | 33.74 | 1.08 | High to Moderate | High to Moderate | Low | Low | Moderate | Moderate-Low | Very Low | Moderate-Low | Moderate-Low | High | High | | Low |
| | 1375-1 | aerial | PFO4B | 58.76 | 0.12 | High to Moderate | High to Moderate | Low | Low | Moderate | Moderate-Low | Very Low | Moderate-Low | Moderate-Low | High | High | | Low |
| | 2590-1 | aerial | E2EM1N | 16.25 | 0.00 | High to Moderate | High to Moderate | Low | Moderate-High | Moderate | High | High | High | High | High | Low | | Low |
| | **MARINE AREAS** | | | | | | | | | | | | | | | | | |
| | 1300-1 | aerial | E2RS2N/E2US | NA | 0.00 | Low | Low | Low | Low | NA | NA | High | Moderate-Low | High | Low | Low | | Low |
| | 1380-1 | aerial | E2RS2N/E2US | NA | 5.05 | Low | Low | Low | Low | NA | NA | High | Moderate-Low | High | Low | Low | | Low |
| | 1480-1 | aerial | E2RS2N | NA | 18.94 | Low | Low | Low | Low | NA | NA | High | Moderate-Low | High | Low | Low | | Low |
| Sub-Region 4 | **WETLANDS** | | | | | | | | | | | | | | | | | |
| | 3565-1 | aerial | PSS4B | 0.15 | 0.00 | High to Moderate | Low | High | High | Low | Low | Very Low | Low | Low | Moderate | Low | | Low |
| | 3560-1 | aerial | PEM1B | 0.17 | 0.00 | High to Moderate | Low | High | High | Low | Low | Very Low | Low | Low | Moderate | Low | | Low |
| | 2670-1 | aerial | E2EM1P | 46.11 | 0.00 | High to Moderate | High to Moderate | Low | Moderate-High | High | High | Moderate-Low | High | High | High | Low | | Low |
| | 2690-1 | aerial | E2EM1P | 14.37 | 0.00 | High to Moderate | High to Moderate | Low | Moderate-High | High | High | Moderate-Low | High | High | High | Low | | Low |
| | 2630-1 | 7/27/2003 | E2EM1N | 39.04 | 0.00 | High to Moderate | High to Moderate | Low | Moderate-High | High | High | High | High | High | High | Low | | Low |
| | 2735-1 | 7/27/2003 | E2EM1N | 135.04 | 0.00 | High to Moderate | High to Moderate | Low | Moderate-High | Moderate | High | High | High | High | High | Low | | Low |
| | 2750-1 | aerial | E2EM1N | 0.21 | 0.21 | High to Moderate | High to Moderate | Low | Moderate-High | Moderate | High | High | High | High | High | Low | | Low |
| | **MARINE AREAS** | | | | | | | | | | | | | | | | | |
| | 2745-T | aerial | E2RS2N | NA | 0.0 | Low | Low | Low | Low | NA | NA | High | Moderate-Low | High | Low | Low | | Low |
| | 2765-1 | aerial | E2RS2N | NA | 6.37 | Low | Low | Low | Low | NA | NA | High | Moderate-Low | High | Low | Low | | Low |
| | 2800-1 | aerial | E2RS2N | NA | 0.00 | Low | Low | Low | Low | NA | NA | High | Moderate-Low | High | Low | Low | | Low |
| | 2985-1 | aerial | E2RS2N | NA | 0.00 | Low | Low | Low | Low | NA | NA | High | Moderate-Low | High | Low | Low | | Low |
| | 3000-1 | aerial | E2RS2N | NA | 0.00 | Low | Low | Low | Low | NA | NA | High | Moderate-Low | High | Low | Low | | Low |
| | 3300-1 | aerial | E2RS2N | NA | 0.00 | Low | Low | Low | Low | NA | NA | High | Moderate-Low | High | Low | Low | | Low |
| | 3580-1 | aerial | E2RS2N | NA | 0.00 | Low | Low | Low | Low | NA | NA | High | Moderate-Low | High | Low | Low | | High |
| | 2735-2 | 7/27/2003 | E2BB1P | 1.87 | 1.59 | High to Moderate | High to Moderate | Low | Moderate-High | Moderate | Moderate-High | Moderate-Low | High | High | Low | Low | | Low |
| | **AQUATIC BEDS (VEGETATED SHALLOWS)/ OPEN WATER** | | | | | | | | | | | | | | | | | |
| | 3615-1 | 7/27/2003 | POWH | 2.22 | 0.00 | High to Moderate | High to Moderate | Low | Moderate-High | High | Moderate-High | Moderate-Low | High | Moderate-Low | Low | Low | | High |
| | 3615-2 | 7/27/2003 | POWH | 0.42 | 0.00 | Low | High to Moderate | Low | Moderate-High | High | Moderate-High | Moderate-High | Low | Low | Low | Low | | Low |
| | 3615-3 | aerial | POWH | 0.03 | 0.00 | Low | High to Moderate | Low | Moderate-High | High | Moderate-High | Moderate-High | Low | Low | Low | Low | | Low |

Notes: E2RS2N, E2US1N, and E2BB1N/P provide minimal hydrologic functions.
Sawmill Cove Ferry Terminal (370-T; E2RS2N): Impacted acreage by Alternatives 3, 4B and 4D = 1.9 acres
July 2003 Station Number+T = ferry terminal location.
See Section 3.0 of *Appendix O Technical Report* for a description of Cowardin Classification and the NWI coding system.
Katzehin Ferry Terminal required subtidal fill of 2.74 acres for breakwater
NA - The total acreage of a given marine intertidal area is a function of the beach slope and beach length. Because of the continuous nature of these marine types (i.e., rocky shores, beach bars, and unconsolidated shores), and the variability of seaward slope distances, delineation of these marine intertidal boundaries was only conducted in the vicinity of potential impacts

Very High, High, or High to Moderate
Moderate-High
Moderate
Moderate-Low
Low or Very Low