Table A-4 – Freshwater Lakes: Current and Future Performance of Shoreline Ecological Functions – March 2013

The following table describes the existing performance of shoreline ecological functions, the ecological functions at risk and the level of alteration along Island County shorelines as described in the Shoreline Inventory and Characterization Report. Regulations from the Island County SMP (Dec. 27, 2012) that protect ecological functions are identified along with programmatic opportunities from the Restoration Plan (Dec. 27, 2012). The future performance is then assessed based on the type and amount of expected development (*foreseeable development*) in the shoreline, the level of protection the proposed SMP regulations provide, and restoration opportunities. Specific opportunities for restoration are outlined in the Restoration Plan. Future performance is ranked "No Cumulative Impacts" and "Potential for Cumulative Impacts" to shoreline ecological functions depending on the expected changes from existing conditions with implementation of the SMP over the next twenty years.

Existing Conditions by Reach *Shoreline Inventory and Characterization Report*	**Current Performance** *Shoreline Alterations Impacting Processes and Functions*	**Foreseeable Development** *See Chapter 3 of report for methodology*	**Ecological Functions at Risk**	**SMP Provisions Addressing Functions at Risk:** Protection (Proposed SMP regulations) Restoration Plan	**Anticipated Future Performance**
Aquatic					
Summary of Conditions: Cranberry Lake is very shallow with abundant macrophyte vegetation and algae (especially during summer algae blooms). The lake was classified as eutrophic (trophic state) by Ecology during the late 1990s (Ecology, 1996). However, the lake area is not listed for impairments on the 2008 Ecology 303(d) list. County wetland inventory shows extensive wetlands both waterward and landward of the shoreline area. Streams feed into Lone Lake, Kristoferson, Dugualla, and Goss Lake, with the Dugualla Creek supporting coastal cutthroat trout and Coho. Lakes with a controlled outflow include Dugualla and Kristoferson lakes. Deer Lake, Goss Lake, and Lone Lake were classified as oligotrophic (trophic state) by Ecology during the late 1990s. Goss Lake is listed on the Ecology 303(d) list for Category 4C water for Invasive Exotic Species (Eurasian water-milfoil). Lone Lake is listed for impairments on the 2008 Ecology 303(d) list as a Category 5 water for dioxin. Kristoferson Creek downstream from Kristoferson Lake is listed on Ecology's 303(d) list as a Category 5 water for dissolved oxygen, pH and fecal coliform. WDFW maps Deer, Dugualla, Goss, and Lone lakes as waterfowl concentrations areas. WDFW species use mapping for Kristoferson Lake includes wood duck habitat and the presence / migration of coastal cutthroat, Coho and fall chum. Salmonid usage extends upstream and along the outflow for both Kristoferson and Lone lakes. Interpretation of aerial photography and the County wetland inventory suggests that significant lacustrine wetland areas exist within Kristoferson Lake and along the northern and eastern shorelines. Based on County wetland inventory there are extensive wetlands both waterward and landward of the Lone Lake shoreline. **Indicators**: See indicators for upland environments below. **Reaches:** All areas waterward of the ordinary high water mark are designated Aquatic.	Cranberry Lake- Construction of dam structure altered lake ecology (removing tidal/ saltwater influence; artificial control of lake level). Adjacent recreational and residential uses, including associated pollution generating impervious surfaces, impact lake water quality.	Potential for new docks based on infill development described in the following sections.	**Water Quality:** Soil erosion/ sediments transport mechanism for phosphorus, petroleum products, nitrogen and other nutrients from fertilizers and pesticides. **Shoreline aquatic vegetation:** Low to moderate risk (varies between parallel shoreline SEDs). The most intact areas have limited development potential due to existing use, ownership, and protections for associated wetland areas (buffers). Development associated with residential and recreational development has potential to further alter shoreline vegetation, although existing conditions are degraded (with opportunity for mitigation / restoration) in many of these areas. **Habitat:** Aquatic habitat degradation susceptible to water quality inputs from contributing basin as well as immediately adjacent residential, recreational, agricultural uses. **Hydrology (Water Quantity):** Low to moderate risk (varies between parallel shoreline SEDs). Primary pathways of degradation include changes to contributing basin (land cover / land use changes) within and outside of shoreline jurisdiction.	**Protection** ***Allowed uses and modifications:*** Residential Uses: Accessory beach access structures on private lots (CUP) Industrial Uses: (CUP) Boating and Related Facilities: Boat launches, private and public piers, floats and docks, mooring buoys, float plane bases and docks, marinas (except where upland is designated Natural) (CUP) Scientific, educational, historic, or archaeological uses: Water-dependent or –related uses (CUP) Resource Management and Extraction: Aquaculture, in-water, including mechanical or hydraulic harvest of shellfish (CUP) Transportation: Ferry terminals and bridges and culverts (CUP) Utilities: Production facilities, tidal and wave energy production facilities, accessory utilities, and below and above ground transmission (CUP) Recreational Uses: Undeveloped natural reserves/parks, unpaved non-vehicular trails and paths, passive recreation, and a CUP for public parks Shoreline stabilization: Structural (CUP) and non-structural and shoreline restoration/beach enhancement Dredging: Limited to restoration and enhancement only ***Prohibited uses and modifications:*** Residential Uses: Single-family, accessory dwelling units, mobile home parks, multi-family uses, floating homes and houseboats, and accessory structures Commercial Uses: All types Boating & Related Facilities: Marinas (where upland is designated Natural) Scientific, educational, historic, or archaeological uses: Non-water–related uses Resource Management and Extraction: Forest practices and mining Transportation: Parking lots, railroads, new and existing vehicular routes and facilities Recreational Uses: Campgrounds, scenic overlooks, & RV parks (i.e. private uses) Tourist Accommodations: Hotels, motels and inns *Additional standards* ICC 17.05A.090.N: Dock and pier components that may come into contact with the water must consist of non-toxic materials. *Water Quality* 17.05A.100.J: Subdivisions and individual residential structures must be designed to ensure that surface runoff does not pollute adjacent waters or cause soil or beach erosion either during or after the construction phase. *Water Quality, Hydrology* ICC 17.05A.090.A: The use of chemicals to control invasive aquatic weeds is prohibited, except when applied by a licensed pesticide applicator and approved for aquatic use. *Shoreline Vegetation* ICC 17.05A.100.C: Beach access structures that extend waterward of the OHWM are limited to a small pier or pile-supported pedestrian landing platform of 25 sq. ft. or less. *Habitat* ICC 17.05A.110. B 20 For new waterfront subdivisions, planned residential	**No Cumulative Impacts** Future new docks would be constructed consistent with new standards would require mitigation for overwater coverage. No cumulative impacts due to use restrictions and development standards that ensure development and shoreline modification will only occur where appropriate, and in a fashion that impacts to adjacent aquatic areas will be mitigated.

Existing Conditions by Reach *Shoreline Inventory and Characterization Report*	**Current Performance** *Shoreline Alterations Impacting Processes and Functions*	**Foreseeable Development** *See Chapter 3 of report for methodology*	**Ecological Functions at Risk**	**SMP Provisions Addressing Functions at Risk:** Protection (Proposed SMP regulations) Restoration Plan	**Anticipated Future Performance**
				developments, multi-family residences, and inns, only joint use docks and piers may be permitted. *Habitat, vegetation* ICC 17.05A.110. B 9 New piers, docks, and floats on marine waters shall have a maximum width of four feet and a maximum walkway width of four feet. Walkways shall be grated to provide at least a forty-five persent open surface area. *Habitat, Water Quality* ICC 17.05A.110. B 6 a, b New or replaced docks, piers, and floats associated with single-family residences shall not be approved unles a) demonstrate that existing shared, public or community facilities are not adequate or available for use; and b) indicate that a multiple-owner or multiple-user facility has been thoroughly investigated and is not feasible.	
Natural					
Reach: Cranberry Lake (257 acres) **Summary of Conditions:** Surface inflow into Cranberry Lake is intermittent from two short drainages from the southeast. The lake drains west to the marine shoreline, with the lake level stabilized by a dam structure. Historically, Cranberry Lake was likely tidally influenced. Cranberry Lake is very shallow with abundant macrophyte vegetation and algae (especially during summer algae blooms). The lake was classified as eutrophic (trophic state) by Ecology during the late 1990s (Ecology, 1996). However, the lake area is not listed for impairments on the 2008 Ecology 303(d) list. County wetland inventory shows extensive wetlands both waterward and landward of the shoreline area. A resident Bald Eagle was noted in the late 1990s by Ecology staff and WDFW maps Bald Eagle territory. Waterfowl concentrations are also documented by WDFW. Existing land use within the shoreline area consists of recreational uses and undeveloped park open spaces. No motor boats are allowed on the lake. There is one public pier/dock. **No Net Loss Indicators**: Armoring (% of shoreline): *data not available* Culverts: 2 Coastal Floodplain: 181 ac (71%) Forest Cover: 29 acres (11%) Impervious: 14 acres (5%) Overwater Structures: None mapped WDFW PHS – Priority Bird Species: Bald eagle (4 occurrences) Protected Lands: 152 ac (59%) (Deception Pass State Park) Riparian Vegetation: 94% Road Lengths: 0.6 mi Wetlands: 233 acres (91%)	Construction of the dam structure altered lake ecology (removing tidal/ saltwater influence; artificial control of lake level). Adjacent recreational and residential uses, including associated pollution generating impervious surfaces, impact lake water quality. Existing development within Deception Pass State Park has impacted riparian vegetation and shoreline conditions.	Vacant lands: 1 ac (1%) Subdividable lands: 0 ac (0%) Potential residential units: 2	**Water Quality:** Soil erosion/ sediments transport mechanism for phosphorus, petroleum products, nitrogen and other nutrients from fertilizers and pesticides. **Habitat:** Aquatic habitat degradation susceptible to water quality inputs from contributing basin. Riparian habitat protected, as large majority of associated wetland and riparian areas are protected as public open space. **Shoreline vegetation:** Low risk. Limited development potential due to existing use and protection as public open space; associated wetland areas and required buffers further limit development that could impact shoreline vegetation. **Hydrology (Water Quantity):** Low risk. Limited development potential due to existing use and protection as public open space throughout the majority of Natural designated areas. Associated wetland areas and required buffers further limit development that could impact shoreline vegetation. Primary pathway of degradation would occur through changes to contributing basin (land cover / land use changes) outside of shoreline jurisdiction.	**Protection** ***Allowed uses and modifications:*** Residential Uses: Single-family uses, accessory dwelling units (CUP), accessory structures, accessory beach access structures on private lots (CUP except for public access over private lots), and subdivisions Boating and Related Facilities: Public boat launches, private and public piers, floats, and docks (CUP) Scientific, educational, historic, or archaeological uses: Water-dependent or –related uses Resource Management and Extraction: Low intensity agriculture and forest practices (CUP) Transportation: Parking lots associated with water-dependent uses, existing public vehicular routes and facilities, bridges, and culverts (CUP) Utilities: Production facilities, tidal and wave energy production facilities, accessory utilities, and below and above ground transmission (CUP) Recreational Uses: Undeveloped natural reserves/parks, unpaved non-vehicular trails and paths, passive recreation, and public parks (CUP) Tourist Accommodations: Bed and breakfast inns, country inns (CUP) Shoreline stabilization: Structural (CUP) and non-structural and shoreline restoration/beach enhancement Grading: (CUP except for restoration projects) Dredging: Restoration or enhancement of natural resources only (CUP) Groins and jetties as part of an ecological restoration project (although unlikely to be needed in a lake) ***Prohibited uses and modifications:*** Residential Uses: Mobile home parks and multi-family uses Commercial Uses: Water-oriented and non-water-oriented uses Industrial Uses: Port facilities, water-oriented industry, log storage, and non-water-dependent industry Boating & Related Facilities: Float plane bases, float plane docks, and marinas Scientific, educational, historic, or archaeological uses: Non water-related uses Resource Management and Extraction: Mining and aquaculture on land activities/structures/processing Transportation: Parking lots (except as permitted above), ferry terminals, new public vehicular routes and facilities, and railroads Recreational Uses: Campgrounds, scenic overlooks, & RV parks (i.e.	**No Cumulative Impacts** No cumulative impacts due to low potential for development and critical area protections for wetlands. Protections extending outside of shoreline jurisdiction, including stormwater and surface water standards, will provide protection against cumulative impacts to hydrologic and aquatic habitat functions.

Existing Conditions by Reach *Shoreline Inventory and Characterization Report*	**Current Performance** *Shoreline Alterations Impacting Processes and Functions*	**Foreseeable Development** *See Chapter 3 of report for methodology*	**Ecological Functions at Risk**	**SMP Provisions Addressing Functions at Risk:** Protection (Proposed SMP regulations) Restoration Plan	**Anticipated Future Performance**
				private uses) Tourist Accommodations: Hotels and motels Dredging: (except as permitted above) Dikes Groins and jetties (except as permitted above) ***Shoreline buffers, setbacks, maximum impervious surface and critical areas protection:*** Shoreline Lake Buffer: 130 feet Shoreline Setback: 25 feet Maximum Impervious Surface: 10 percent Critical Area Buffers: Streams (50-150 foot buffer); Wetlands (20-300 foot buffer); Nesting sites and territory (200-1000 foot buffers); Washington Natural Heritage Program Areas (50 foot buffers) ***Additional standards (At risk function addressed in italics)*** ICC 11.03 (Stormwater and Surface Water) *Hydrologic* ICC 17.05A.090A: General Shoreline Development standards limiting alteration of natural drainage features and prohibiting release of solid and liquid waste. *Hydrologic* ICC 17.05A.090D: Native vegetation within shoreline buffers must be maintained or, where lacking, enhanced. As a general guideline, the percentage of buffer to be enhanced should equal the percentage increase in impervious lot coverage on the site. *Shoreline Vegetation* ICC 17.05A.090N: Low impact development techniques must be considered, materials that come into contact with water must be composed of non-toxic materials. *Habitat* **Restoration** No restoration opportunities identified.	
Rural Conservancy					
Reaches: Deer Lake (28 acres) Dugualla Lake (49 acres) Goss Lake (40 acres) Kristoferson Lake (43 acres) Lone Lake (130 acres) **Summary of Conditions:** Streams feed into Lone Lake, Kristoferson, Dugualla, and Goss Lake, with the Dugualla Creek supporting coastal cutthroat trout and Coho. Lakes with a controlled outflow include Dugualla and Kristoferson lakes. Deer Lake, Goss Lake, and Lone Lake were classified as oligotrophic (trophic state) by Ecology during the late 1990s. Goss Lake is listed on the Ecology 303(d) list for Category 4C water for Invasive Exotic Species (Eurasian water-milfoil). Lone Lake is listed for impairments on the 2008 Ecology 303(d) list as a Category 5 water for dioxin. Kristoferson Creek downstream from Kristoferson Lake is listed on Ecology's 303(d) list as a Category 5 water for dissolved oxygen, pH and fecal coliform. WDFW maps Deer, Dugualla, Goss, and Lone lakes as waterfowl concentrations areas. WDFW species use mapping for Kristoferson Lake includes wood duck habitat and the presence / migration of coastal cutthroat, Coho and fall chum. Salmonid usage extends upstream and along the outflow for both Kristoferson and Lone lakes. Interpretation of aerial photography and the County wetland inventory suggests that significant lacustrine wetland areas exist within Kristoferson Lake and along the	Rural Conservancy lakes have been altered by past development, including residential (Goss Lake, portion of Lone Lake, Kristoferson Lake, Deer Lake) and agricultural (Dugualla Lake, majority of Lone Lake and Kristoferson Lake). Residential alteration has included shoreline fill and hardening, proliferation of overwater structures (docks and floats), harmful water quality inputs from anthropogenic sources, and riparian forest loss. Agricultural alteration has included loss of associated wetland habitat, channelization	Vacant lands: 2 ac (1%) Subdividable lands: 60 ac (21%) Potential residential units: 135 Infill potential for private, single-family docks and piers on Goss Lake, Deer Lake, and Lone Lake.	**Water Quality:** Septic tanks, pet wastes and water fowl could impact lake water quality. Soil erosion/ sediments transport mechanism for phosphorus, petroleum products, nitrogen and other nutrients from fertilizers and pesticides. **Habitat:** Proliferation of docks would create new overwater structures, degrading aquatic habitat. Aquatic habitats additionally threatened by water quality degradation – associated with untreated stormwater, illegal dumping, and normal use of chemicals in landscaping and agriculture. **Shoreline vegetation:** Moderate risk. Riparian loss could occur thru potential future subdivision and infill residential development, especially at lakes zoned residential. Continued introduction and competition from invasive vegetation. Residential development would eliminate riparian vegetation,	**Protection** ***Allowed uses and modifications:*** Residential Uses: Single-family uses, accessory dwelling units (CUP), accessory structures, accessory beach access structures on private lots, and subdivisions Boating and Related Facilities: Public boat launches, private and public piers, floats and docks, float plane docks, and marinas (CUP) Low intensity Agriculture: CUP Aquaculture (On-land): CUP Scientific, educational, historic, or archaeological uses: Water-oriented and non-water-related uses (CUP) Transportation: Ferry terminals, new and existing public vehicular routes and facilities, bridges, and culverts Utilities: All types Recreational Uses: Marine campgrounds, marine trails, undeveloped natural reserves/parks, unpaved non-vehicular trails and paths, passive recreation, and public parks Tourist Accommodations: Hotels, motels, and inns (CUP) Shoreline stabilization: Structural (CUP) and non-structural and shoreline restoration/beach enhancement Dikes, Grading, Dredging: (CUP) For restoration or marina only Groins and jetties for restoration or enhancement of natural resources, as part of an approved marina, or for navigational purposes (CUP) ***Prohibited uses and modifications:*** Residential Uses: Mobile home parks and multi-family uses Commercial Uses: Except tourist accommodations	**No Cumulative Impacts** Effects to riparian vegetation limited by buffer / setback requirements, with riparian conditions and functions likely to improve from existing conditions over time. Minimal allowances for shoreline access and residential docks will be minimized impacts to the greatest extent feasible. Where impacts to existing riparian vegetation, shoreline / bank conditions, and aquatic areas are required, buffer standards and mitigation requirements will result in improved condition in remaining riparian /

Existing Conditions by Reach *Shoreline Inventory and Characterization Report*	**Current Performance** *Shoreline Alterations Impacting Processes and Functions*	**Foreseeable Development** *See Chapter 3 of report for methodology*	**Ecological Functions at Risk**	**SMP Provisions Addressing Functions at Risk:** Protection (Proposed SMP regulations) Restoration Plan	**Anticipated Future Performance**
northern and eastern shorelines. Based on County wetland inventory there are extensive wetlands both waterward and landward of the Lone Lake shoreline. Land use at Deer and Goss lakes is mostly residential; Dugualla Lake is mostly in agricultural land use with some undeveloped open space areas (primarily wetland), and Kristoferson and Lone lakes are in agricultural land use with some residential areas. The riparian condition of Deer Lake consists of approximately two-thirds lawn area and one third alder, willow and rush riparian community (Ecology, 1996). Modifications include cleared sections with residential bulkheads and short residential docks. Although Goss Lake is also in residential use, the vegetation community remains largely intact. Shoreline clearing and modification is most prevalent along the southwest shoreline and residential docks occur throughout much of Goss Lake. Modification to the Dugualla Lake occurs along the eastern and western edges where fill and hardening associated with public roadways occurs. The portions of Kristoferson Lake that are in agricultural use have minimal riparian vegetation. Rural residential developments along the north shoreline of Kristoferson Lake have more intact riparian vegetation. Modifications associated with residential and agricultural development have occurred throughout most of Lone Lake resulting in minimal intact riparian vegetation. **Indicators**: Armoring (% of shoreline): *data not available* Culverts: 5 Coastal Floodplain: 49 ac (20%) Forest Cover: 65 acres (26%) Impervious: 50 acres (20%) Overwater Structures: 39 WDFW PHS – Priority Bird Species: Bald eagle (1 occurrence; Dugualla Lake) Protected Lands: 5 ac (2%) Riparian Vegetation: 72% Road Lengths: 1.6 mi Wetlands: 162 acres (66%)	of tributaries and outflow channels, and riparian clearing. Construction of the dam / pump structure at the outlet of Dugualla Lake has eliminated tidal influence and removed natural anadromous fish access. Downstream channelization and crossings have adversely affected fish passage to Lone and Kristoferson Lakes, two of the coastal stream systems mapped with most extensive salmonid use.		reducing associated habitat. **Hydrology (Water Quantity):** Moderate risk. Substantial potential for additional shoreline residential development along Goss, Deer, and Lone Lake shorelines, as well as throughout the contributing basins (outside of shoreline jurisdiction) of all lakes – conversion of forested land cover to residential has potential to impact freshwater hydrology. Conversion to agricultural use not anticipated. Future channelization of tributary and outlet streams and/or loss of associated wetlands unlikely due to other existing regulations.	Industrial Uses: All types Boating & Related Facilities: Float plane bases Resource Management and Extraction: Mining Transportation: Parking lots and railroads Recreational Uses: Campgrounds, scenic overlooks, & RV parks (i.e. private uses) Groins and jetties ***Shoreline buffers, setbacks and critical areas protection:*** Shoreline Lake Buffer: 80 feet Shoreline Setback: 25 feet Maximum Impervious Surface: 10 percent Critical Area Buffers: Streams (50-150 foot buffer); Wetlands (20-300 foot buffer); Nesting sites and territory (200-1000 foot buffers); Washington Natural Heritage Program Areas (50 foot buffers) ***Additional standards (At risk function addressed in italics)*** ICC 11.03 (Stormwater and Surface Water) ICC 17.05A.090A: General Shoreline Development standards limiting alteration of natural drainage features and prohibiting release of solid and liquid waste. *Hydrology* ICC 17.05A.090D: Native vegetation within shoreline buffers must be maintained or, where lacking, must be enhanced. As a general guideline, the percentage of buffer to be enhanced should equal the percentage increase in impervious lot coverage on the site. *Shoreline Vegetation* ICC 17.05A.090K: Native vegetation within shoreline jurisdiction should be retained. If removal is necessary, it should be minimized and mitigated. If non-native is removed, it should be replaced with native vegetation. Tree topping is prohibited. *Shoreline Vegetation* ICC 17.05A.090H: Where buffer enhancement is required, buffer areas must be enhanced with native species, noxious weeds and impervious surfaces must be removed from the enhanced buffer, and 90% vegetative cover achieved within 5 years. *Shoreline Vegetation, Water Quality* ICC 17.05A.090N: Low impact development techniques must be considered, materials that come into contact with water must be composed of non-toxic materials. *Habitat, Water Quality* ICC 17.05A.100D: Private boat launches allowed only when public launches are unavailable within 1 mi. Rail and track systems preferred. Mooring buoys are not allowed in lakes. *Habitat, Water and Sediment Movement* ICC 17.05A.110B: Single-family residential docks, floats and piers approved only if existing shared, public or community facilities are shown to be inadequate and possibility of multi-owner/user has been investigated and is not feasible. Cumulative impacts on water circulation and quality and fish and wildlife must be assessed. New docks, piers and floats must not extend further waterward than the average intrusion of piers, docks and floats on lots abutting the location of the new dock unless an alternative dimension is required to prevent impacts to critical habitat or navigation. The maximum waterward intrusion is 60 feet from the OHWM, or the point where the water depth is eight feet below OHWM, whichever is reached first. New docks, piers and floats must have a maximum width of four feet or five feet for shared docks. Subdivisions must provide only joint-use. Design standards must be met to limit impacts. *Habitat, Water and Sediment Movement* ICC 17.05A.100.J: New residential development and subdivisions must be	shoreline / aquatic areas. Requirement for subdivisions to provide only joint-use docks will limit proliferation, but additional development is likely. Enforcement of critical areas requirements and stormwater and surface water standards inside and outside of shoreline jurisdiction will provide some protection against cumulative impacts to hydrologic functions, but continued clearing and residential and agricultural use outside of shorelines may impact hydrology and water quality. Restoration programs and actions should encourage stewardship in surrounding areas and should prioritize conservation and restoration actions around contributing streams and wetlands.

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				designed and built in a manner that avoids the need for structural shore armoring. *Hydrology; Water and Sediment Movement* ICC 17.05A.100.J 1: All residential use and development managed to avoid damage to shoreline and prevent cumulative impacts. *All* ICC 17.05A.100.J.2: Subdivision subject to maximum density limits. *All* ICC 17.05A.110. A. 1d New development that would require shoreline stabilization which causes significant impacts to adjacent or down-current properties and shoreline areas is prohibited. *Water and Sediment Movement* ICC 17.05A.110.A. 1h Structural shoreline stabilization is prohibited for the purposes of leveling or extending property or creating or preserving residential lawns, yards, or landscaping. *Habitat, Water Quality*, *Water and Sediment Movement* **Restoration** No restoration opportunities identified.	
Shoreline Residential					
Reaches: Cranberry Lake (9 acres) Deer Lake (17 acres) **Summary of Conditions:** Cranberry Lake has two short drainages flowing into the lake and an outflow controlled by a dam structure – all inlets and outlets are located outside of the Shoreline Residential environment. Historically, Cranberry Lake was likely tidally influenced. No streams are mapped flowing to Deer Lake and the outflow is uncontrolled. Both lakes were classified as eutrophic (trophic state) by Ecology during the late 1990s (Ecology, 1996); however, neither are listed for impairments on the 2008 Ecology 303(d) list. WDFW maps both lakes as waterfowl concentration areas. For Cranberry Lake, a resident Bald Eagle was noted in the late 1990s by Ecology staff and WDFW maps Bald Eagle territory. County wetland inventory shows extensive wetlands both waterward and landward of Cranberry Lake's ordinary high water mark. Land use along Deer Lake is generally shoreline residential development, with approximately two-thirds of the riparian area consisting of lawns and one third consisting of an alder, willow and rush riparian community. Largely cleared sections with residential bulkheads are present. Short residential docks are common. Existing land use along Cranberry Lake is residential. No motor boats are allowed on the lake. **Indicators**: Armoring (% of shoreline): *data not available* Culverts: 7 Coastal Floodplain: 0.3 ac (1%) Forest Cover: 5 acres (19%) Impervious: 11 acres (43%) Overwater Structures: 4 WDFW PHS – Priority Bird Species: None mapped Protected Lands: 5 ac (19%) Riparian Vegetation: 41% Road Lengths: .7 mi Wetlands: 13 acres (49%)	Primary alterations are associated with residential use. Alteration has included shoreline fill and hardening, proliferation of overwater structures (docks and floats), harmful water quality inputs from anthropogenic sources, and riparian forest loss. Construction of the dam structure at the outlet of Cranberry Lake radically altered ecology (removing tidal / saltwater influence; artificial control of lake level). Private recreational use associated with residential development (Deer Lake), as well as public recreation, creates ongoing input for invasive aquatic vegetation.	Vacant lands: 0 ac (0%) Subdividable lands: 2 ac (7%) Potential residential units: 10 Infill potential for private, single-family docks and piers on Deer Lake.	**Water Quality:** Septic tanks, pet wastes and water fowl could impact lake water quality. Soil erosion/ sediments transport mechanism for phosphorus, petroleum products, nitrogen and other nutrients from fertilizers and pesticides. **Habitat:** Potential for limited number of new docks (Deer Lake) would create new overwater structures, degrading aquatic habitat. Aquatic habitats additionally threatened by water quality degradation – associated with untreated stormwater, illegal dumping, and normal use of chemicals in residential landscaping. Aquatic habitat degradation susceptible to water quality inputs from contributing basin. **Shoreline vegetation:** Moderate risk for impact to riparian habitat – through redevelopment and encroachment from existing uses. **Hydrology (Water Quantity):** Low risk. Limited potential for new development within shoreline jurisdiction due to existing pattern (relatively few undeveloped lots). Primary risk to hydrologic processes and functions associated with development outside of shoreline jurisdiction.	**Protection** ***Allowed uses and modifications:*** Residential Uses: Single-family and multi-family uses, accessory dwelling units, accessory structures, accessory beach access structures on private lots, and subdivisions Commercial Uses: Water-oriented commercial, non-water-oriented commercial if part of a mixed-use development with a water-dependent use Boating and Related Facilities: Boat launches, private and public piers, floats and docks, float plane bases and docks, and marinas (CUP) Scientific, educational, historic, or archaeological uses: Water-oriented and non-water-related uses (CUP) Resource Management and Extraction: Low intensity agriculture and forest practices Transportation: Parking lots, new and existing vehicular routes and facilities, bridges, and culverts (CUP) Utilities: All types some subject to a CUP Recreational Uses: Marine campgrounds, marine trails, undeveloped natural reserves/parks, unpaved non-vehicular trails and paths, passive recreation, and public parks Tourist Accommodations: Hotels & motels (CUP), and inns Shoreline stabilization: Structural (CUP) and non-structural and shoreline restoration/beach enhancement Dikes (CUP) Grading and Dredging Groins and jetties for restoration or enhancement of natural resources, as part of an approved marina, or for navigational purposes (CUP) ***Prohibited uses and modifications:*** Residential Uses: Mobile home parks Commercial Uses: Non-water-oriented commercial (except tourist accommodations) Industrial Uses: All types Resource Management and Extraction: Aquaculture on land activities/structures/processing and mining Transportation: Ferry terminals and railroads Recreational Uses: Campgrounds, scenic overlooks, & RV parks (i.e. private uses) Groins and jetties (except as permitted above) Dolphins	**No Cumulative Impacts** Effects to riparian vegetation limited by buffer / setback requirements, with riparian conditions and functions likely to improve from existing conditions if redevelopment occurs. Minimal allowances for shoreline access and residential docks will be minimized impacts to the greatest extent feasible. Where impacts to existing riparian vegetation, shoreline / bank conditions, and aquatic areas are required, buffer standards and mitigation requirements will result in improved condition in remaining riparian / shoreline / aquatic areas. Requirement for subdivisions to provide only joint-use docks will limit proliferation, but additional development is likely. Enforcement of critical areas requirements and stormwater and surface

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				Shoreline buffers, setbacks and critical areas protection: Shoreline Lake Buffer: 30 feet Shoreline Setback: 45 feet Maximum Impervious Surface: 30 percent Critical Area Buffers: Streams (50-150 foot buffer); Wetlands (20-300 foot buffer); Nesting sites and territory (200-1000 foot buffers); Washington Natural Heritage Program Areas (50 foot buffers) *Additional standards* ***(At risk function addressed in italics)*** ICC 11.03 (Stormwater and Surface Water) ICC 17.05A.090A: General Shoreline Development standards limiting alteration of natural drainage features and prohibiting release of solid and liquid waste. *Hydrology* ICC 17.05.A.090D: Native vegetation within shoreline buffers must be maintained or, where lacking, must be enhanced. As a general guideline, the percentage of buffer to be enhanced should equal the percentage increase in impervious lot coverage on the site. *Shoreline Vegetation* ICC 17.05A.090K: Native vegetation within shoreline jurisdiction should be retained. If removal is necessary, it should be minimized and mitigated. If non-native is removed, it should be replaced with native vegetation. Tree topping is prohibited. *Shoreline Vegetation* ICC 17.05A.090H: Where buffer enhancement is required, buffer areas must be enhanced with native species, noxious weeds and impervious surfaces must be removed from the enhanced buffer, and 90% vegetative cover achieved within 5 years. *Water quality, Shoreline Vegetation, Habitat* ICC 17.05A.090N: Low impact development techniques must be considered, materials that come into contact with water must be composed of non-toxic materials. *Habitat* ICC 17.05A.100D: Private boat launches allowed only when public launches are unavailable within 1 mi. Rail and track systems preferred. Mooring buoys are not allowed in lakes. *Habitat* ICC 17.05A.100.J: Subdivisions and individual residential structures must be designed to ensure that surface runoff does not pollute adjacent waters or cause soil or beach erosion either during or after the construction phase. *Water and Sediment Movement, Water Quality* 17.05A.110. A.1d: New development that would require shoreline stabilization which causes significant impacts to adjacent or down-current properties and shoreline areas is prohibited. *Water and Sediment Movement* 17.05A.110.A. 1h: Structural shoreline stabilization is prohibited for the purposes of leveling or extending property or creating or preserving residential lawns, yards, or landscaping. *Habitat, Water Quality*, *Water and Sediment Movement* ICC 17.05A.110. B: Single-family residential docks, floats and piers approved only if existing shared, public or community facilities are shown to be inadequate and possibility of multi-owner/user has been investigated and is not feasible. Cumulative impacts on water circulation and quality and fish and wildlife must be assessed. New docks, piers and floats must not extend further waterward than the average intrusion of piers, docks and floats on lots abutting the location of the new dock unless an alternative dimension is required to prevent impacts to critical habitat or navigation. The maximum waterward intrusion is 60 feet from the OHWM, or the point where the water depth is eight feet below OHWM, whichever is reached first. New docks, piers and floats must have a maximum width of four feet	water standards inside and outside of shoreline jurisdiction will provide some protection against cumulative impacts to hydrologic functions, but continued clearing and residential and agricultural use outside of shorelines may impact hydrology and water quality. Restoration programs and actions should encourage stewardship in surrounding areas and should prioritize conservation and restoration actions around contributing streams and wetlands.

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				or five feet for shared docks. Subdivisions must provide only joint-use. Design standards must be met to limit impacts. *Habitat* **Restoration** No restoration opportunities identified.	