A3.0 Bald Eagle

Scientific Name: *Haliaeetus leucocephalus*
Species Code: B-BAEA
Status: Yellow-listed (Any indigenous species or subspecies (taxa) which is not at risk in British Columbia, but are of management concern).

Distribution

- **Provincial Range**

Bald Eagles are widely distributed throughout the province. Bald Eagles breed from northwestern Alaska and central Canada south to the southern United States and Baja California.

- **Provincial Context**

Bald Eagles occur throughout the province and are uncommon to fairly common resident along the coast of Vancouver Island, the Queen Charlotte Islands, and the adjacent mainland. Seasonally and locally they are very common to abundant. Coastal BC provides habitat for both breeding and wintering Bald Eagles. Bald Eagles are primarily associated with aquatic habitats including seashores, lakes, rivers, sloughs, and marshes, although they have been found in almost all habitats from sea level to 2,380 m elevation (Campbell *et al.* 1990)

- **Project Area:** Jedediah Island Marine Park (approximately 250 ha)
  Ecoprovince: Georgia Depression
  Ecoregions: Eastern Vancouver Island
  Ecosections: Leeward Island Mountains (LIM)
  Biogeoclimatic Zones: CDFmm
  Elevational Range: Sea-Level to 2 380 m

- **Project Map Scale: 1:5,000**

Ecology and Key Habitat Requirements

- **General**

The Bald Eagle is one of the largest eagles found in British Columbia. This species is widely distributed throughout the province, but is primarily associated with aquatic habitats. Habitat preferences vary with season, however, are basically governed by prey (i.e., predominantly fish) availability and abundance (Campbell *et al.* 1990). For example, summer aggregations of eagles occur along the coast in response to herring and surface-feeding fish. In the fall, bald eagles will take advantage of salmon spawning and forage along rivers and estuaries. Bald Eagles have also been known to take advantage of large mammal carcasses and garbage dumps as a food source.

Bald Eagles typically nest sometime between February and June. Bald Eagles nest primarily in coniferous forests, and nests typically occur within 200 m of the shore. Nests generally have an unobstructed view of the surrounding area. Nests are massive structures, made from branches and twigs up to 9 cm in diameter. Nests are typically located in the crook of a tree, and can be up to 3.6 m in outside diameter. Nest trees have to be large enough to support this kind of nest.

Bald Eagle occurrence in an area is likely governed by the availability and abundance of prey species. Success and occurrence of bald eagles during the breeding season is likely governed by prey abundance and availability of suitable nesting habitat (Blood & Anweiler 1994).

Habitat Use and Life Requisites

The Reproducing life requisite for bald eagles is satisfied by the presence of suitable nesting habitat near (within 200 m) feeding habitat. Reproducing habitat is described in detail below.

- **Reproducing Habitat**

Most Bald Eagles breed and nest where suitable nest trees are available, adjacent to aquatic foraging habitat (e.g., along the coast, near estuaries, broad intertidal zones, island and reef complexes, near seabird colonies and sites with strong tidal currents). Nests are commonly built on one of the tallest, largest diameter at breast height (dbh) tree in the forest stand. As a result, old growth forests provide the most suitable nest sites, but where there are no trees, the birds have nested on cliffs or rock pinnacles. Breeding abundance is highest along the coast, where dense populations are found in the Queen Charlotte Island and Gulf Islands. Bald Eagles breed primarily in coniferous forests, but nests also occur in deciduous and mixed woodlands, near seashores, lakes, large rivers, and marshes, and on islands. Along the coast most nests are within 200m of the shore.

In recent work on Vancouver Island, 81% of the located nests were placed in Douglas-fir (*Pseudotsuga menziesii*) trees, and smaller proportions of the nests were placed in western hemlock (*Tsuga heterophylla*), Sitka spruce (*Picea sitchensis*), black cottonwood (*Populus balsamifera*) and western redcedar (*Thuja plicata*) trees. (Deal & Setterington 1999).

Bald Eagle nests were located in exposed parts of the tallest trees of the surrounding habitat. In the Nimpkish Valley, nests were most likely to be found in tall, veteran old-growth (>250 yr old) Douglas-fir trees, in exposed parts of the canopy that provided visibility to the surrounding areas. Nest sites were often near a section of a river with a slow rate of water flow (wide areas, or gravel bars), at the junction of a main channel and a tributary, near the mouth of a river or creek where it enters a lake; and within 350 m of shoreline (Deal & Setterington 1999).

Seasons of Use
Table A8 summarizes the life requisites required for each month of the year, although for this project a habitat rating for only reproducing habitat will be provided.

Table A8. Monthly Life Requisites for Bald Eagle.

LIFE REQUISITE	MONTH	SEASON*
Living	January	Winter
Reproducing	February	Winter
Reproducing	March	Growing
Reproducing	April	Growing
Reproducing	May	Growing
Reproducing	June	Growing
Living	July	Growing
Living	August	Growing
Living	September	Growing
Living	October	Growing
Living	November	Winter
Living	December	Winter

*Seasons defined for Coast and Mountains Ecoprovinces per the Chart of Seasons by Ecoprovince (RIC 1998, Appendix B).

A single rating, for the reproducing season will be assigned to bald eagle habitat because reproducing habitat is likely most limiting for this region.

A rating will be assigned for security/thermal (ST) habitat, which is equivalent to the nesting/reproducing life requisite.

Habitat Use and Ecosystem Attributes
Table A9 outlines how each life requisite relates to specific ecosystem attributes (e.g., site series/ecosystem unit, plant species, canopy closure, age structure, slope, aspect, terrain characteristics)

Table A9. Terrestrial Ecosystem Mapping (TEM) Relationships for each Life Requisite for Bald Eagle.

LIFE REQUISITE	TEM ATTRIBUTE
Reproducing Habitat (Security/Thermal)	• site: structural stage • vegetation: % cover by layer, coarse woody debris (CWD) (dbh, decay class, abundance) • mensuration: tree species, dbh, height, wildlife tree characteristics

Ratings

Although the Standards recommend a 4-class rating scheme, a 6-class rating scheme will be used for bald eagle habitat. This ratings scheme will be used because the 1:5 000 mapping scale should allow habitat to be discriminated into 6 classes.

➢ **Provincial Benchmark**

Ecosection: Nanaimo Lowland (NAL)
Biogeoclimatic Zone: CWH
Habitats: The best coastal nesting habitats usually have one or more of the following features: high shoreline length per unit area due to many islands, channels or inlets; a broad intertidal zone and/or many offshore reefs exposed at low tide; presence of estuaries or mudflats; proximity to strong tidal currents; regularly used herring spawning habitats nearby and seabird or Great Blue Heron nesting colonies in the vicinity. In BC tree size, form and location are more important than tree species. Nest trees are usually dominant or co-dominant specimens (in size) in the stand in which they occur, have developed sturdy branches and a fairly open branch structure, and are located at or near shorelines. The Coastal Western Hemlock (CWH) Zone in the Coast and Mountains Ecoprovince contains by far the most extensive and important nesting habitat. The Coastal Douglas-fir (CDF) and CWH zones of the Georgia Depression are also important, but less extensive

➢ **Ratings Assumptions**

1. Units with large Douglas-fir trees (≥ 60 cm dbh), and within 200 m of water will receive a class 1 rating for reproducing habitat. Abundance and diameter of suitable nest trees will govern ratings less than class 1.
2. Units with large diameter trees, other than Douglas fir, will also receive a class 2 or better reproducing habitat rating. For example, on the coast, 95% of 511 nests were located in living or dead coniferous trees, including Sitka spruce (74%), Douglas-fir (19%), western redcedar, western hemlock, and lodgepole pine. Deciduous trees (n=26) included black cottonwood (24 nests), red alder and willow (Campbell *et al.*, 1990).
3. Units without large diameter trees will generally be rated low (≥5), and abundance of large diameter, usable nest trees will govern ratings better than class 5.
4. Units greater than 200 m from feeding habitat (i.e., open water) will be rated less than class 2 reproducing habitat. Distance from water will govern habitat ratings poorer than class 2.

Table A10 summarizes the habitat requirements for Bald Eagle in the study area for the seasons and life requisites being modeled.

Table A10. Summary of habitat requirements for Bald Eagle in the study area.

SEASON	LIFE REQUISITE	STRUCTURAL STAGE	REQUIREMENTS
Growing Season	Reproducing	2-3, 5-7	Mature and old-growth coniferous forests Mixed conifer/deciduous mature forest. Shrub cover >50% and canopy closure >66%.