

A4.0 Pelagic Cormorant

Scientific Name: *Phalacrocorax pelagicus*
Species Code: B-PECO
Status: Blue/Yellow-listed

There are two subspecies of Pelagic Cormorant in British Columbia: *P.p.pelagicus* [blue-listed] breeds from the Queen Charlotte Islands northward but is found along the south coast in winter. *P.p.resplendens* [yellow-listed] is found along the south coast and northward for an undetermined distance (Campbell *et al.* 1990). Although it is most likely to be *P.p.resplendens* that breeds in the vicinity of Jedediah Island, no distinction will be made between the two subspecies in the habitat ratings.

Distribution

➤ Provincial Range

The Pelagic Cormorant breeds from Alaska to California and is a common resident along the inner and outer coastal areas of British Columbia. It rarely occurs very far up inlets, and there are no records from freshwater locations. (Campbell *et al.* 1990)

➤ Provincial Context

In British Columbia, Pelagic Cormorant populations are centred on the south coast and 55% occur in the Strait of Georgia (Campbell *et al.*, 1990). These birds are found mostly at sea-level.

➤ **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

➤ Project Map Scale: 1:5,000

Ecology and Key Habitat Requirements

➤ General

The Pelagic Cormorant prefers rocky coasts and forages in bays, harbours, lagoons, surge narrows and coves. It feeds in the littoral benthic zone and its diet is largely comprised of Pacific Sandlance, Pacific Staghorn Sculpin, Shiner Perch, Rockfish and Pacific Salmon (Sullivan, 1998). It is a colonial nester, sometimes nesting with other cormorant species (such as the Double-crested Cormorant), but prefers the highest, steepest, least accessible rocky cliffs facing water.

Habitat Use and Life Requisites

The Reproducing life requisite for Pelagic Cormorant is satisfied by the presence of suitable nesting habitat near coastal waters. Reproducing habitat is described in detail below.

◆ Reproducing Habitat

Pelagic Cormorants are colonial nesters. Unlike larger cormorant species, they are not able to defend nests and young against aerial predators but rely on inaccessibility of cliff-nesting habitat to deter predators (Ehrlich *et al.* 1988).

Pelagic Cormorants use cliffs on forested and grassy, rocky islands and headlands, but colonies may also be located on caves, beached driftlogs and man-made structures such as navigation beacons, bridge pylons, empty ship hulls and abandoned towers. All large colonies are on cliffs.

Nests are positioned on narrow ledges of cliffs, within sea caves or on faces near the top of small rocky islets at elevations ranging between 1.8 and 25 metres above the high tide line. Nests vary in size

depending on the substrate and are constructed of seaweed, grasses and marine debris, although eggs are sometimes laid on bare rock. In the Georgia Strait nests may be used for several successive seasons. Breeding individuals remain in the colony during the day, non-breeding individuals return in the evening (Ehrlich *et al.* 1988).

Eggs are laid from late April to late August and young are hatched from mid-June to mid-October. If the first clutch is destroyed a second clutch may be laid, which probably accounts for the wide range in breeding dates recorded.

Seasons of Use

Spring migration occurs in March and April, while autumn movements take place in September and October. Most movements are related to seasonal changes in fish availability. As noted above, reproduction occurs from late April to mid-October. The period of time that will be considered for rating Reproducing habitat will be May through September.

Table A11. Monthly Life Requisites for Pelagic Cormorant.

LIFE REQUISITE	MONTH	SEASON*
Living	January	Winter
Living	February	Winter
Living	March	Growing
Living	April	Growing
Reproducing	May	Growing
Reproducing	June	Growing
Reproducing	July	Growing
Reproducing	August	Growing
Reproducing	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 pelagic cormorant 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 A12 outlines how each life requisite relates to specific ecosystem attributes. Because cliffs and rocky islets are the most significant habitat feature for Pelagic Cormorant, slope and bedrock type will be the most important ecosystem attributes to be rated. Cliffs must be adjacent to coastal waters.

Table A12. Terrestrial Ecosystem Mapping (TEM) Relationships for each Life Requisite for Pelagic Cormorant

LIFE REQUISITE	TEM ATTRIBUTE
Reproducing Habitat	<ul style="list-style-type: none"> • site: elevation, slope, aspect, • soils/terrain: bedrock type

Ratings

There is an intermediate level of knowledge on the habitat requirements of Pelagic Cormorant in British Columbia and so, a 4-class rating scheme will be used.

➤ Provincial Benchmark

Ecosection: Strait of Georgia
 Biogeoclimatic Zones: CDFmm;
 Location: Mittlenatch Island (25 km SE of Campbell River)

Habitats: Cliffs, rocky islets

The provincial benchmark for Pelagic Cormorant reproducing habitat is Mittlenatch Island because it has the most recent highest densities recorded (T. Sullivan, pers. comm.), about 600 nests in 1982.

➤ **Ratings Assumptions**

1. Based on the reproducing colonies on Mittlenatch Island, the following ratings scheme will represent potential nest densities for pelagic cormorant colonies.

% OF PROVINCIAL BEST	POTENTIAL NEST DENSITIES FOR PELAGIC CORMORANT COLONIES (BEST = 600 NESTS)	RATING	CODE
100 - 76%	400 - 600	High	H
75 - 26%	150-600	Moderate	M
25 - 1%	6 - 30	Low	L
0%	0	Nil	N

2. Cliffs that are not immediately adjacent to and facing coastal waters will be rated nil.
3. Cliffs higher than 10 m will be rated up to high for reproducing habitat.
4. Sheer cliffs with narrow ledges will be rated up to high for reproducing habitat, whereas less steep or terraced cliffs will be rated low to nil for reproducing habitat.
5. Vegetated cliffs will be rated nil to moderate for reproducing habitat.
6. Sea caves with steep high walls (greater than 5 m) and narrow ledges will be rated moderate to high for reproducing habitat