

BC's Coast Region: Species & Ecosystems of Conservation Concern

Marbled Murrelet (*Brachyramphus marmoratus*)

Global: G3G4 Provincial: S3B S3N, COSEWIC: T BC List: Blue, Identified Wildlife



Notes on *Brachyramphus marmoratus*: A member of the family Alcidae (auks), no subspecies are recognized in North America. Several species of seabird in a number of genera are referred to as “murrelets” in North America; Marbled Murrelet is one of only two members of the *Brachyramphus* genus for BC. Marbled Murrelets are likely to be found anywhere within 50 km inland of the coast of British Columbia. A few birds venture farther inland, up to 80 km from the coast.

Description

Sexes similar, Length: 25 cm. Marbled Murrelet are a chubby, “robin-sized” seabird (actually a small auk), with short neck and tail. The characteristic profile while swimming is for the tail and black bill to be tipped upwards. During the breeding season (summer), plumage on the back is dark brown with marbled light brown sides and stomach (camouflaging adults on the nest). Winter plumage becomes more distinct with the back darkening to black, and sides, belly, and wing patches becoming white along with a broken white collar. These colouration patterns also help to camouflage the marbled murrelet from predators on the open ocean as well as during underwater foraging. Juveniles have a similar size and body shape as adults but plumage has more extensive marbling that lasts over the winter until sexually mature.

Diet

Marbled Murrelet generally forage on fish but do consume crustaceans and euphausiids. Unlike other seabirds this species is not a communal forager and generally does not flock with other birds, though it may participate in mixed-species feeding flocks when food resources are abundant. In British Columbia, adult diet during the breeding season is primarily Pacific Sand Lance and Pacific Herring; Sand Lance are the species most frequently fed to nestlings. Marbled Murrelet are strong flyers and seasonally migrate to upland and interior lakes to forage on juvenile salmonids and other freshwater species.

Look's Like?

There are several species of murrelet along the Pacific Northwest coast, including Xantus's, Kittlitz's and Marbled Murrelet. Most species are similar in body shape, size, foraging and nesting characteristics. Xantus's Murrelet is more restricted to California and Mexico while Kittlitz's Murrelet occur almost exclusively in Alaska. From a distance Ancient Murrelet could be confused with Marbled Murrelet, especially juveniles as well as juveniles of other seabirds such as auklets and murres.



Ancient Murrelet

Habitat Preferences Seasonal activities influence habitat preferences and can be divided between foraging and nesting. Forage habitat includes saltwater bays, inlets, fjords and open-ocean. Inland freshwater foraging occurs mainly in waters up to 80 m deep and up to 2 km from shore. Foraging dives may be up to 30 m below surface. Nesting stands are within a closed canopy / open understory. Canopy species composition includes yellow cedar, western hemlock, Sitka spruce, Douglas-fir and western red cedar. This species is also known (rarely), to nest on cliffs. Marginal nesting sites such as forest edge areas and second growth forests will be utilized if certain structural conditions are met.

Critical Features Nests are located on large, horizontal tree limbs, usually near the trunk of the tree. Birds usually arrive or depart under the cover of darkness making inventory difficult. They consist of a shallow mossy depression with a thick substrate of moss and lichens. Nest trees range from 20-30m in height; branch diameter 15-74 cm. Nest heights are typically >30 m (range 11-54 m) and nest trees are often larger than the stand average. Small gaps in the canopy are typically found next to nest trees, and vertical complexity of the canopy is higher in stands with nests than in other nearby stands. Density of potential nest platforms (limbs or deformities >15 cm in diameter, including epiphyte cover) has been widely used in BC, and the U.S. to identify suitable nesting habitat, this measure is generally positively correlated with measures of occupancy.



In BC Marbled Murrelet generally nest (inset) in older (>140 years, but >250 years preferred) within 50km from the ocean (some nests have been found up to 100km inland). Forest stands with a well-developed epiphytic moss component are essential.

Seasonal Life Cycle

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
				Courtship Breeding Nesting							
					Chick's in nest						
				Juveniles & adults move to over-wintering areas at sea							

Threats

- ◆ Distribution coincides with areas undergoing significant logging and other anthropogenic disturbance and potential impacts to food resources from climate change (e.g. ocean warming and acidification), and marine industry pollution.
- ◆ Forest harvesting rotation timelines frequently do not allow old-growth characteristics to develop, thus eliminating large areas from providing future nesting habitat. Increased forest fragmentation can reduce nesting success by allowing increased predation of nests by raptors and corvids (jays, ravens, crows).
- ◆ Increased coastal windstorms, possibly linked to climate change may also impact nesting colony habitat.
- ◆ Mortality from fishing gear and oil spills.
- ◆ This species has a naturally low recruitment rate and populations remain stable only if adult survival rates are high.

Conservation & Management Objectives

- ◆ Assess habitat suitability and apply management criteria as setout in the Federal Marbled Murrelet “Conservation Assessment parts A and B and “Accounts and Measures for Managing Identified Wildlife - Accounts V. 2004 Marbled Murrelet *Brachyramphus marmoratus*. Integrate more recent recommendations (2009) as described in “Reports 1-3: of the EBM Working Group Focal Species Project.”

- ◆ Inventory and monitoring standards in BC are based on Resource Information Standards Committee # 13 draft protocols. However more recent survey protocols have been developed by the Pacific Seabird Group Marbled Murrelet Technical Committee and should be investigated where appropriate.

Specific activities should include:

- ◆ Assess the state of extant (current), populations. The species is so secretive that reliable information on overall population trends, chick survival and seasonal food preferences are difficult. Surveys should focus on all fjords, inlets and lakes within at least 50 km of moderate to high suitability core nesting areas.
- ◆ Implement forest management practices in core range areas that retain stands of 100 to 250 year aged trees - the age class for preferred nest trees. Where large areas of old-growth forest are not currently available to meet conservation objectives, maintain as much suitable habitat as possible, supplemented by recruiting appropriate second growth stands for future habitat. Stands of >200 ha are recommended
- ◆ Conserve veteran forest components, especially vertical structure and mature canopy flora (mosses and lichens). Riparian buffers imposed to protect fish habitat are likely insufficient for buffering nesting requirements of this species. Although sites at low elevations generally provide high-quality habitat, in some areas, including the Sunshine Coast, sites at higher elevations provide important habitat used by murrelets.
- ◆ Increase awareness about the sensitivity and value of coastal foreshore and mature forests ecosystems. Encourage resort lodges and foreshore landowners to create conservation covenants to buffer critical nesting sites (existing and potential).
- ◆ Ensure proper maintenance of bilge and/or septic systems, fuel storage facilities and disposal of wastes from water craft and shoreline developments/businesses.

This species is listed under the Federal Species At Risk Act (SARA), is subject to protections and prohibitions under the Federal Migratory Birds Convention Act and BC Wildlife Act and is Identified Wildlife under the BC Forest and Range Practices Act. Habitat for this species may also be governed under provincial and federal regulations including the Fish Protection Act and Federal Fisheries Act as well as Regional and local municipal bylaws.

Content for this Factsheet has been derived from the following sources

- B.C. Conservation Data Centre. 2010. [Internet] [Updated June 2 2010] Conservation Status Report: *Brachyramphus marmoratus*. B.C. MoE.
- Burger, A. E. 2002. [Internet] Conservation assessment of Marbled Murrelets in British Columbia: a review of the biology, populations, habitat associations, and conservation Technical Report Series No. 387. Canadian Wildlife Service, Pacific and Yukon Region, British Columbia.
- Canadian Marbled Murrelet Recovery Team. 2003. [Internet] Marbled Murrelet Conservation Assessment 2003, Part B: Marbled Murrelet Recovery Team Advisory Document on Conservation and Management. Canadian Marbled Murrelet Recovery Team Working Document 1.
- Derocher, A. et al. 2004. [Internet]. Accounts and Measures for Managing Identified Wildlife Accounts V. 2004. Marbled Murrelet *Brachyramphus marmoratus*.
- Horn, H.L. et al. 2009. [Internet]. Parts 1-3 EBM Working Group Focal Species Project. Reports 1-3: of the EBM Working Group Focal Species Project. Integrated Land Management Bureau, Nanaimo, B.C.
- Mack, Diane Evans et al 2003. [Internet] Methods for Surveying Marbled Murrelets in Forests: A Revised Protocol for Land Management and Research. Pacific Seabird Group Marbled Murrelet Technical Committee.
- Manley, I. et al. 1999. [Internet] Nesting Habitat of Marbled Murrelets on the Sunshine Coast. Extension Note EN-002 September 1999 Forest Research, Vancouver Forest Region, BCMOF.
- Mather, M. et al. [Internet] 2010. Marbled Murrelet Nesting Habitat Suitability Model for the British Columbia Coast. BC Journal of Ecosystems and Management 11(1&2):91-102.
- Ministry of Environment, Lands and Parks Resources Inventory Branch. [Internet]. 2001. Inventory Methods for Marbled Murrelets in Marine and Terrestrial Habitats Standards for Components of British Columbia's Biodiversity. No. 10
- Whittaker, Carolyn. [Internet] FORREX Forest Research Extension Partnership. Assessing Habitat Quality for Management of Marbled Murrelet.

Prepared by: Pamela Zevit of Adamah Consultants and Jamie Fenneman for the South Coast Conservation Program (SCCP) in partnership with: International Forest Products (Interfor), Capacity Forestry (CapFor) and the BC Ministry of Environment (BC MoE), E-Flora and E-Fauna the Electronic Atlas of the Flora and Fauna of BC, Species at Risk & Local Government: A Primer for BC. Funding for this factsheet was made possible through the Sustainable Forestry Initiative (SFI): <http://www.sfi-program.org/>

Every effort has been made to ensure content accuracy. Comments or corrections should be directed to the South Coast Conservation Program: info@sccp.ca. Content updated May 2012.

Image Credits: Marbled Murrelet: John Kelson, Ancient Murrelet: John Kendall (Wikipedia), Habitat: John Kelson, Marbled Murrelet on nest: Washington Department of Natural Resources. Only images sourced from "creative commons" sources (e.g. Wikipedia, Flickr, U.S. Government) can be used without permission and for non-commercial purposes only. All other images have been contributed for use by the SCCP and its partners/funders only.