Changes in Cormorant Populations in the Strait of Georgia, British Columbia, 1955-2015

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Changes in Cormorant Populations in southern British Columbia, 1955-2015

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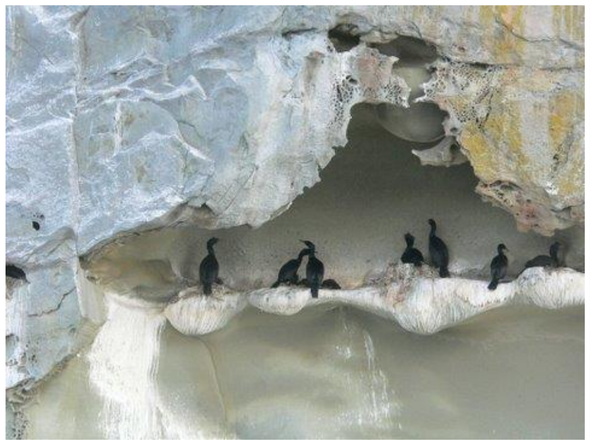
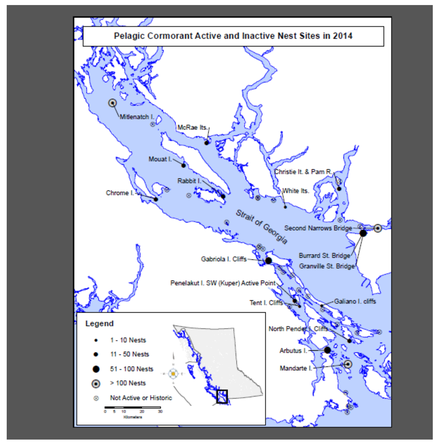
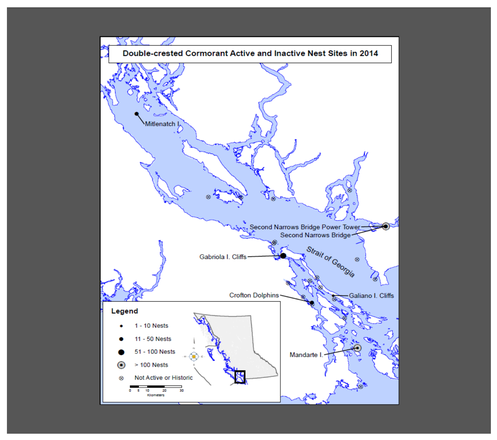
Summary

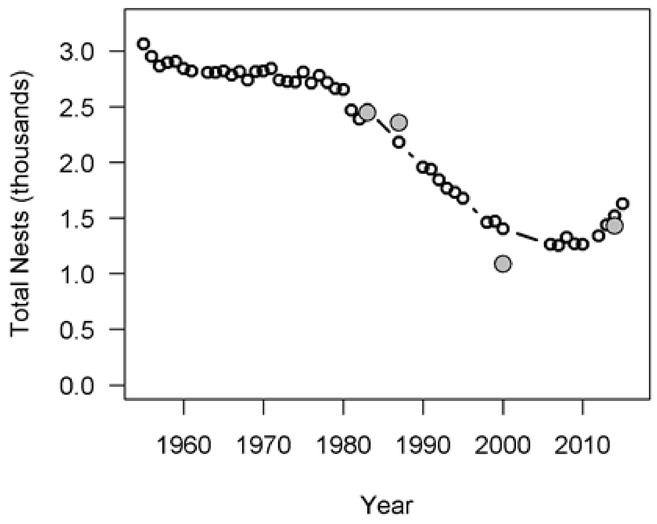
The Strait of Georgia (northern Salish Sea) is one of the fastest urbanizing areas in North America. The Pelagic Cormorant (*Phalacrocorax pelagicus*) and Double-crested Cormorant (*P. auritus*) are fish-eating predators that are important indicators of ecosystem health. We conducted a complete survey of nesting colonies in 2000 and 2014, and partial surveys in the intervening period, as well as compiling data from 1955 – 2015. Temporal trends in nest numbers were estimated using a mixed effects model lme4 package in R. A population model was used to predict values at each location, for each year in a time series, then summed to estimate total nests per year. Our main goals are to better understand how and why cormorant populations are changing and to provide scientific data to inform colony management both in Canada and the USA.





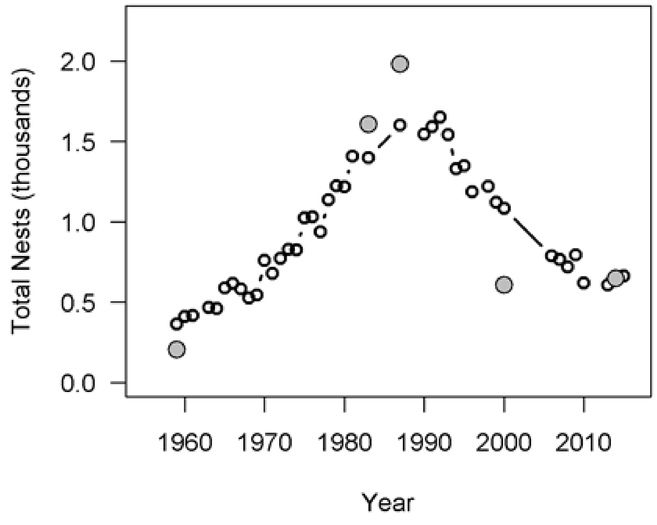


Pelagic Cormorant



The Pelagic Cormorant population was stable (2500-3000 nests) from 1955 to the late 1980s but then declined until about 2000 (1100 nests) and increased slightly by 2014 (1400 nests).

Double-crested Cormorant



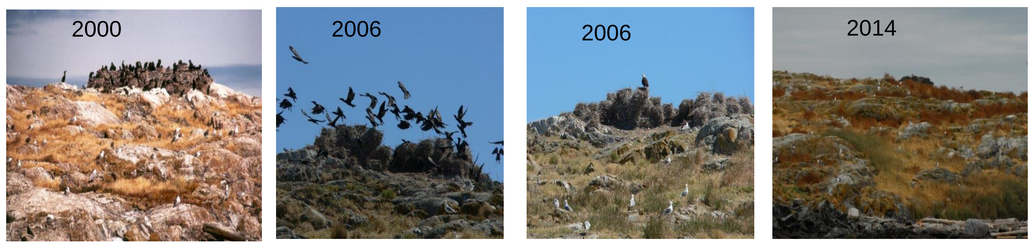
The Double-crested Cormorant population increased from 1955 (200-300 nests) to the late 1980s (2000 nests) then declined to 2000-2014 (~600 nests).

Key Findings:

(1) **Most cormorants are now nesting on a few big colonies:** Mandarte Island (PECO 665 nests, DCCO 322 nests), Vancouver bridges (PECO 290 nests, DCCO 142 nests) and Mitlenatch Island (PECO 225 nests, DCC0 25 nests). These colonies require protection from human disturbance.

(2) **Many colonies in historic locations have disappeared.** Predation and disturbance by Bald Eagles (*Haliaeetus leucocephalus*) appears to be the main factor causing population changes and forcing cormorants to nest in safe locations on artificial habitats (bridges, outfall dolphins) and cliffs, although prey changes also may be involved.

(3) **Human disturbance also has affected some nesting colonies.** Management decisions are needed in relation to risks from oil tanker traffic, to determine bridge management strategies, and to detect major movements of DCCO from Washington and Oregon to British Columbia, related to US management actions. A long-term colony monitoring program is needed.



Time series of DCCO colony loss at Chain Island off Victoria; eagles prevented breeding in 2006.

Safe nesting locations occur on artificial habitats (bridges, outfall dolphins) and cliffs.

Environment Canada

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