Status of the endangered Northern Abalone, *Haliotis kamtschatkana*, on the Pacific coast of Canada

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Northern Abalone are present from Alaska to Baja California. Observed throughout the BC coastline in exposed and semi-exposed coastal waters. Prefer complex rocky substrates. Typically found in water depth less than 10 m. Observed in the presence of macroalgae (e.g. *Nereocystis leutkeana*, *Macrocystis pyrifera*), kelps, and articulated and encrusting coralline algae.
Northern abalone fishery

- Abalone were an important food source for First Nations.
- Non-First Nation harvest of abalone was limited to hand picking from the intertidal zone.
- Majority of commercial harvest occurred in Northern BC.
- Peak Landings were 481 metric tons in 1977.
- Fishery closed in 1990 but density of Northern abalone continued to decline.
- Northern Abalone listed as endangered in 2011 under SARA.
Northern Abalone Index Sites and Monitoring

- Two Index area surveys established on East Coast of Haida Gwaii and Central Coast in 1978.
- Additional index areas added over time to cover most of the BC coast.
- At each survey site, 1m$^2$ quadrat is used to count and measure abalone in 16 quadrats.
- All emergent abalone are counted and measured in each quadrat.
The long-term recovery goal (over the next 30 years – to 2037) is to increase densities of Northern abalone to levels where the population becomes self-sustainable within five bio-geographic zones.

Recovery Targets
(Set in 2007)

**Areas without Sea Otters**
- Annual estimated mortality rate for mature (≥ 70 mm SL) abalone is reduced to <0.20
- Mean densities of mature (≥ 70 mm SL) abalone are increased to >0.32 per m².
- The proportion of quadrats (m²) with abalone is increased to > 40%.

**West Coast Vancouver Island**
- Mean total density estimate does not decline below 0.09 Northern Abalone per m².

**Haida Gwaii and Central Coast**
- Mean density of large adult (> 100 mm SL) abalone does not decline below 0.1 per m² at surveyed index sites.
- Percentage of surveyed index sites with large adult (> 100 mm SL) abalone does not decrease below 40%.

**Queen Charlotte & Johnstone Straits**
- Mean total density estimate in Queen Charlotte Strait does not decline below 0.06 abalone per m².
- Mean total density estimate in Johnstone Strait does not decline below 0.02 abalone per m².
Publications

identifying variables for standardization of the Northern Abalone (Haliotis kamtschatkana) Index Site Surveys time series (1978-2018) based on survey methodology and environmental variability

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The COSEWIC review of SFO information on Northern Abalone (Haliotis kamtschatkana) along the Pacific Coast of Canada


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Population Trends in Northern BC
East and West Coast Haida Gwaii, Central Coast

Figures: Pre-COSEWIC review of DFO information on Northern Abalone along the Pacific Coast of Canada (Obradovich et al. 2021)
Population Trends in Northern BC
East and West Coast Haida Gwaii, Central Coast

Figures: OD values taken from Pre-COSEWIC review of DFO information on Northern Abalone along the Pacific Coast of Canada (Obradovich et al. 2021)
Population Trends in Southern BC
Queen Charlotte Strait and West Coast Vancouver Island

- Density of abalone is much lower in Southern BC compared to Northern BC
- Minimum density target for Queen Charlotte Strait is 0.06 abalone/m²
- Minimum density target for West Coast Vancouver Island is 0.09 abalone/m²

Figures: Pre-COSEWIC review of DFO information on Northern Abalone along the Pacific Coast of Canada (Obradovich et al. 2021)
What might be affecting Northern Abalone recovery?

Sea Star Wasting Disease
- Competition for food and space with sea urchins

Sea Otter Predation
- Sea otters were re-introduced to the WCVI in 1969.
- Are a predator of Northern abalone.
- Unclear whether current abalone conservation targets are achievable in the presence of sea otters.
What might be affecting Northern Abalone recovery?

Illegal Harvest

• “Poaching is the most serious thread and continues to reduce population abundance” (SARA Registry).

• Difficult to quantify the amount of on-going poaching.

Recruitment Failure

• In Southern BC, densities are well below 0.15-0.30 abalone/m² – the threshold for evaluating conservation concerns for the species.
Summary

- Recent large increase in juvenile densities but only slight increase in adult densities in Northern BC.
- In Southern BC, densities remain low.
- COSEWIC re-assessing the status of Northern abalone in 2023.
- Obradovich et al. provides a comprehensive update on the status of Northern abalone in Canada
References


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