



## POLICY BRIEF

# People don't like loud noises, so why would Oysters?

### SUMMARY

Oyster populations of BC are in a vulnerable position facing a declining population. Underwater noise pollution from infrastructure, ships, and active sonar, hinder oyster species, such as the Olympia Oysters (*Ostrea lurida*) ability to feed, respire, and for protection. If the amount of marine traffic is not regulated or reduced in the Olympia Oysters habitat, we could end up driving these invertebrates to extinction.

This paper examines the impacts of where oysters are being affected, what's at stake for oysters, and discusses multiple potential policy responses to further our efforts.

**This paper is a demand to David Eby, Ocean Wise, Fisheries and Oceans Canada, and Honourable George Heyman.**

### WHERE ARE OLYMPIA OYSTERS BEING AFFECTED?

A 'sensitive habitat' for the Olympia Oyster has been identified in parts of the Strait of Juan de Fuca, parts of the Strait of Georgia, Haida Gwaii, and Howe Sound<sup>2</sup>. With being British Columbia's only native oyster, the Olympia Oyster, the area they live in is termed a 'sensitive habitat' due to constant human

alteration. Sadly, their habitat is within the busiest in Canada. **Around 45,000 vessels pass through these waters each year**, including pleasure craft, commercial vessels, and military vessels<sup>3</sup>.

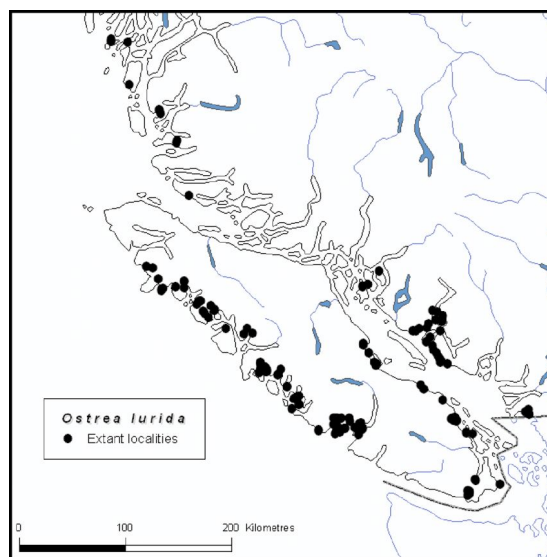


Fig. 1 Known Olympia Oyster locations in British Columbia as of December 2009. Most of these locations are on the West Coast of Vancouver Island and in Howe Sound<sup>2</sup>.

### KEY POINTS

- COSEWIC listed BC's Olympia Oysters as a species of **Special Concern** in November 2000 and May 2011
- Populations are also listed under the Species at Risk Act (SARA)
- Historically, being BC's only native oyster, their populations were relatively stable. Due to **overharvest, habitat degradation, and other anthropogenic impacts**, major declines in the population are believed to be taken between the 1800's and 1930



## WHAT IS AT STAKE FOR THE OLYMPIA OYSTERS?

Underwater noise pollution can negatively impact oysters in many ways. The biggest way is through damaging their hair cells, which they need to detect for food<sup>1</sup>. Oysters have hair cells on the outside of their shells that sense vibration. They use these hairs to detect things like breaking waves and ocean currents giving them cues to feed. They will close their shells when exposed to noises along a range of frequencies<sup>1</sup>. Studies have shown that their hair cells were left with lesions and holes after exposure to loud sounds<sup>1</sup>.

**Oysters are a crucial component of global ocean health. These animals filter and clean the surrounding water and provide habitat, food, and jobs<sup>5,6</sup>.** In some places, oyster reefs can serve as barriers to storms and tides, preventing erosion and protecting productive estuary waters.

## CURRENT STATE OF MANAGEMENT

Olympia Oysters, who are listed as a species of special concern on COSEWIC (Committee on the Status of Endangered Wildlife in Canada) because of their small population size and low reproductive rates. The causes are believed to be due to overharvest and both domestic and industrial pollution<sup>4,8</sup>. **These oysters are protected under the Species at Risk Act**, which means that there are **current restrictions on commercial and recreational harvest, monitor abundance, habitat alteration, and clarifying threats to support protection measures**, which all extend to the habitat of Olympia Oysters<sup>4,8</sup>. Unfortunately, this does not include protection against anthropogenic noise.



## RECOMMENDATIONS

- Policy that allows the Coast Guard to enforce that **medium and large-sized vessels must not enter within 300m away from intertidal and shallow subtidal zones that Olympia Oysters inhabit**. This must be enforced to ensure by the BC Coast Guard to improve the outlook of this species. Protection should be in place until 10% to 50% of ecosystems recovered. Use of Coast Guard for enforcement purposes has been successful in Southeastern USA<sup>7</sup>.
- Port of Vancouver should **increase their shore power capacity to include all ships that park in the Port of Vancouver harbour**, and to permit all configurations regardless of the location of the ships power equipment. By increasing shore power capacity, it prevents ships from having to run their noisy engines to power themselves by connecting to our electricity. This method has been proven a success in anthropogenic noise reduction in Southern California<sup>3</sup>.
- Policy that permits an **increase in the research budget for marine biologists examining the impacts of anthropogenic noise pollution on oyster** and other marine invertebrate populations.
- The Department of Fisheries and Oceans should permit more intertidal and shallow subtidal **zones that Olympia Oysters inhabit to be marine protected areas with strict enforcement** by conservation officers to prevent the establishment of a paper park. Protecting habitats through marine protected areas have been successful on the west coast of Vancouver Island<sup>4,8</sup>.

## MAIN TAKEAWAYS

- **Limit vessels in vicinity of Olympia Oysters**
- **Increase shore power capacity**
- **Establish MPA around Olympia Oysters**

## REFERENCES

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