EXECUTIVE SUMMARY

WWF-Canada's Ocean Noise in Canada's Pacific Workshop took place in Vancouver on January 31 and February 1, 2012.

A healthy acoustic environment is a necessary condition for healthy ecosystems and the species that utilize sound, but to date, there has been limited consideration of this issue in decision making and planning for existing and future uses of Canada's oceans. WWF-Canada convened this workshop to begin a dialogue toward better understanding and management of ocean noise on the Pacific Coast. The objectives of the workshop were to:

1. obtain a picture of ocean noise and its sources in the region, including monitoring, research, and science capacity.
2. identify the potential effects of anthropogenic ocean noise and related conservation concerns relevant to this region.
3. identify the kinds of knowledge and information needs that are most useful for advancing management of noise in the region.
4. discuss the short- to medium-term work needed to fill gaps in knowledge and generate products useful for noise management.

Almost 40 participants from a wide range of backgrounds (academia, non-governmental organizations, government agencies, port authorities, and consulting companies) attended the meeting. Although the majority of participants were Canadian, there was some representation from the United States, the U.K., and Australia. On the first day, speakers introduced the topic of anthropogenic noise and its potential impacts on marine life, described current research and monitoring activities in British Columbia, and catalogued current and emergent sources of underwater anthropogenic noise. On day two, a representative from the U.S. National Oceanic and Atmospheric Administration (NOAA) presented noise-mapping initiatives underway in the United States, and a bio-acoustician commissioned by WWF, Christine Erbe of Curtin University in Western Australia, presented work to quantify and map the annual noise contribution of shipping on the B.C. Coast (Figure 1).

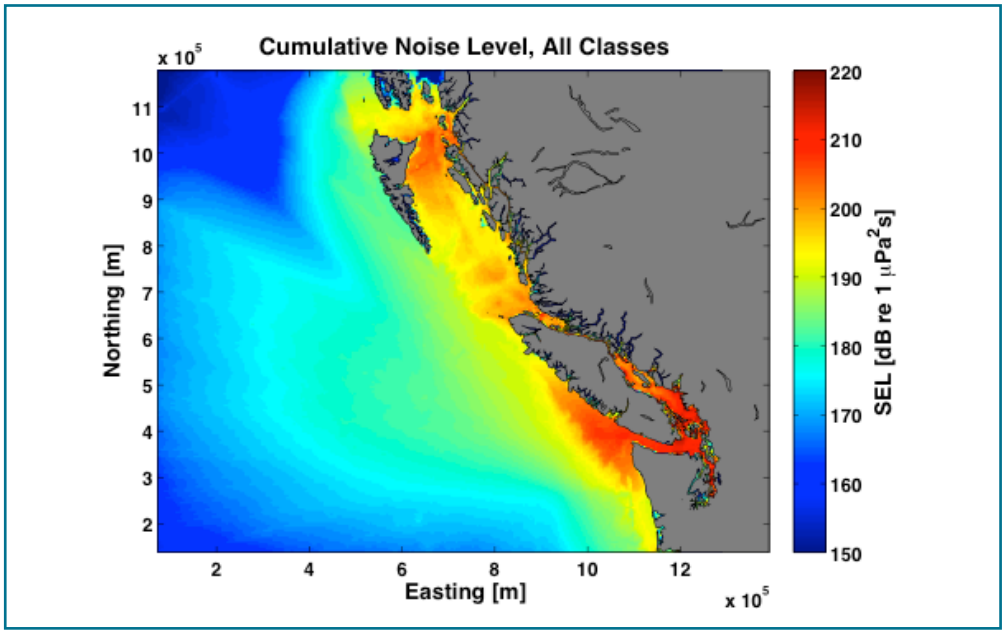

Figure 1: Cumulative annual shipping noise for 2008 on the B.C. Coast (Erbe, MacGillivray, & Williams, 2012).

Sessions on the second day focused on specific case studies of noise and noise management in other areas, and approaches to incorporate noise into future planning in British Columbia. The workshop ended with a roundtable discussion that identified the following short- and long-term actions.

SHORT-TERM ACTIONS (WITHIN SIX MONTHS)

1. Establish the currently known baseline levels of noise from existing data.
2. Generate potential scenarios of expected changes in noise levels from the full range of activities that are proposed and the potential biological effects on marine life.
3. Provide advice on equipment to those establishing new hydrophone networks.
4. Complete a map and database of existing hydrophone systems on the coast.

MEDIUM-TO LONGER-TERM ACTIONS

1. Integrate hydrophone networks through calibrating existing recorders and developing data protocols.
2. Inform placement for future hydrophones to address gaps in coverage of data and biological knowledge.
3. Provide management and policy recommendations for noise mitigation, including protecting acoustically quiet areas and setting marine environmental-quality targets for anthropogenic noise.
4. Provide input into regional marine protected area network planning.

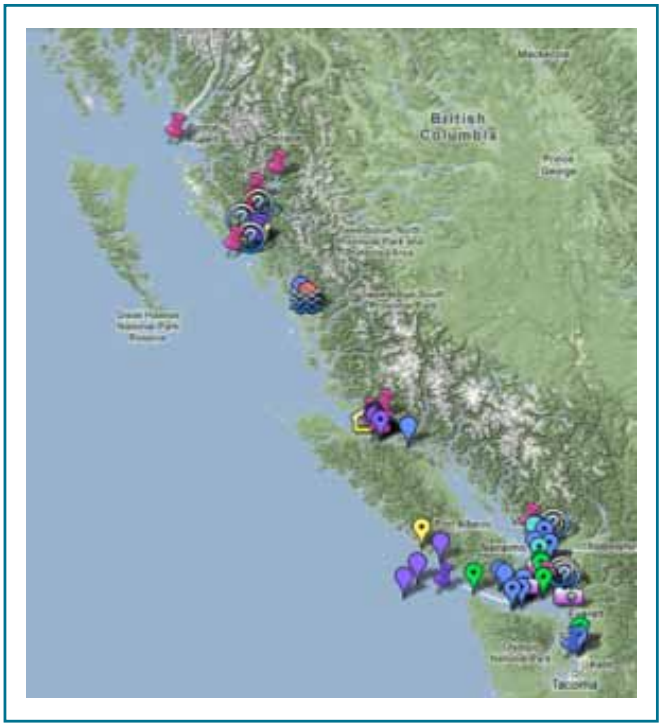

Figure 2: Hydrophone networks and locations on the B.C. Coast, courtesy of www.orcasound.net

A breakout discussion on hydrophone networks helped participants to share their expertise, knowledge of hydrophones, acoustic data collection, and standards. Participants later documented the location of their hydrophones and added them to an existing database and map of hydrophone networks on the Pacific Coast, facilitated by Scott Veirs of Beam Reach Marine Science and Sustainability School (Figure 2).

A second breakout discussion on “hot spots” identified potential new locations where hydrophone networks could broaden our understanding of noise and animals on the B.C. Coast, particularly in biological hot spots. Suggestions included Brooks Peninsula, Dixon Entrance, Hecate Strait, and Money Point on the Central Coast.

The participants appreciated the timely nature of this meeting, given the scope of currently proposed developments on Canada’s Pacific coast and the likelihood of increased levels of anthropogenic noise and potential impacts on marine life. The workshop facilitated connections between people working on this issue, and identified a unique opportunity in the region to advance the consideration and treatment of anthropogenic ocean noise, given its existing hydrophone networks, community of researchers, and progressive ports.

This workshop statement was circulated at the end, which the majority of participants agreed with:

Ocean noise is a growing concern and its impacts must be considered in the management and planning of current and future activities in the marine waters off British Columbia. There is a need to protect quiet areas and reduce anthropogenic noise levels, especially in ecologically important areas.

REFERENCES

Erbe, C., MacGillivray, A., & Williams, R. (2012). Mapping ocean noise: Modeling cumulative acoustic energy from shipping in British Columbia to inform marine spatial planning. (Unpublished report submitted to WWF-Canada). Curtin University, Australia.