(intro)

First, we'd like to share with you some of the great sounds we experience during our work at OrcaLab.

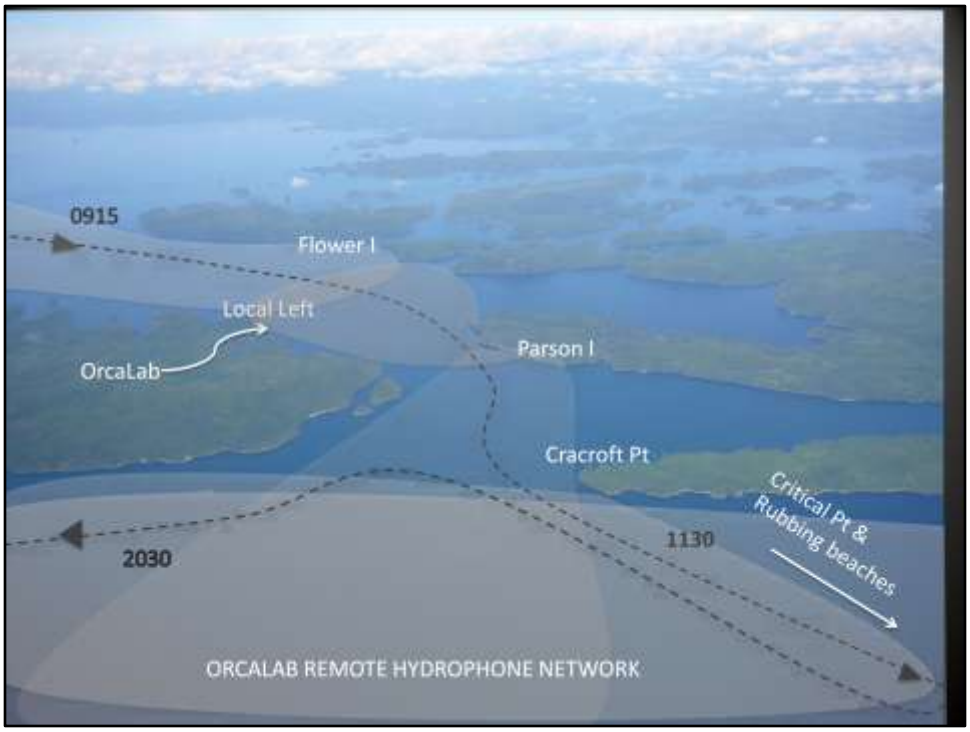
(play pings)

OrcaLab is a field research station on Hanson Island in the Johnstone Strait area of northern Vancouver Island. We operate year round. This is our lab, and this is our main house for living.

This is where OrcaLab is located. We're on the Inside Passage, a busy ocean highway that connects Vancouver and Seattle to Northern BC and Alaska.

Our location is on Blackney Pass, which connects Blackfish Sound to Johnstone Strait. This is one of the main routes travelled by orcas as they move around their “core area”, which has been designated Critical Habitat for the Northern Resident orca community.

Our work is deliberately land based because of our background philosophy, which is that though we are deeply interested in knowing more about orcas, we don’t want to interfere with their lives. In essence, this means that rather than following them around in boats, we listen.



What we listen to is a network of 6 remote hydrophones that monitors underwater acoustics in about 50 square kilometers of the surrounding area.
OrcaLab is located here on Hanson Island.
One hydrophone is at Flower Island, and listens into Blackfish Sound. It's connected to a radio transmitter that broadcasts continuously. We monitor the broadcast in our lab.
In practice, this means that if orcas come into Blackfish Sound from the north, which is usually where they come from, and they're vocal, we can hear them. We then start a recording and track the whales acoustically, from one hydrophone to the next, and the next.

The acoustic fields of the various hydrophones overlap, so we can get a pretty good sense of the whales' movements just from listening. And likewise as their day progresses we follow their subsequent movements around the area.

We often know which families we're listening to, because, as John has explained, orcas use dialects that differ among groups.

During daylight, we also look at the orcas through spotting scopes and binoculars, trying to identify individuals and groups as they pass by.

Because the orcas' primary sense is acoustic, It doesn't matter to them whether it's day or night time. Consequently, much of our listening and recording is done during the night, and many of our best acoustic experiences happen then, when there less boat noise.

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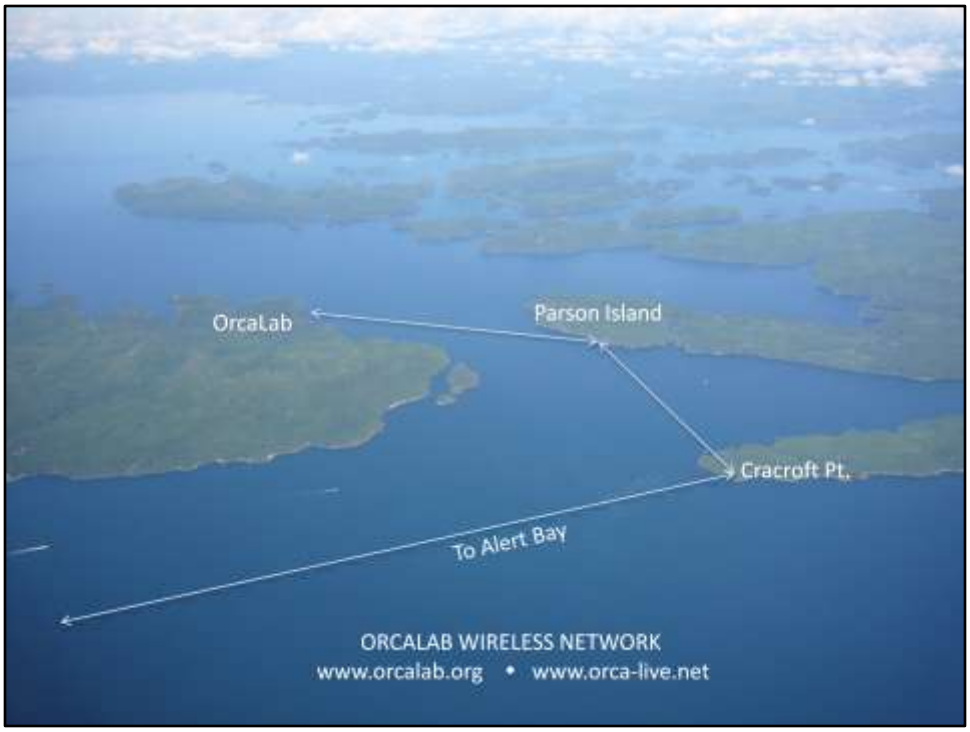
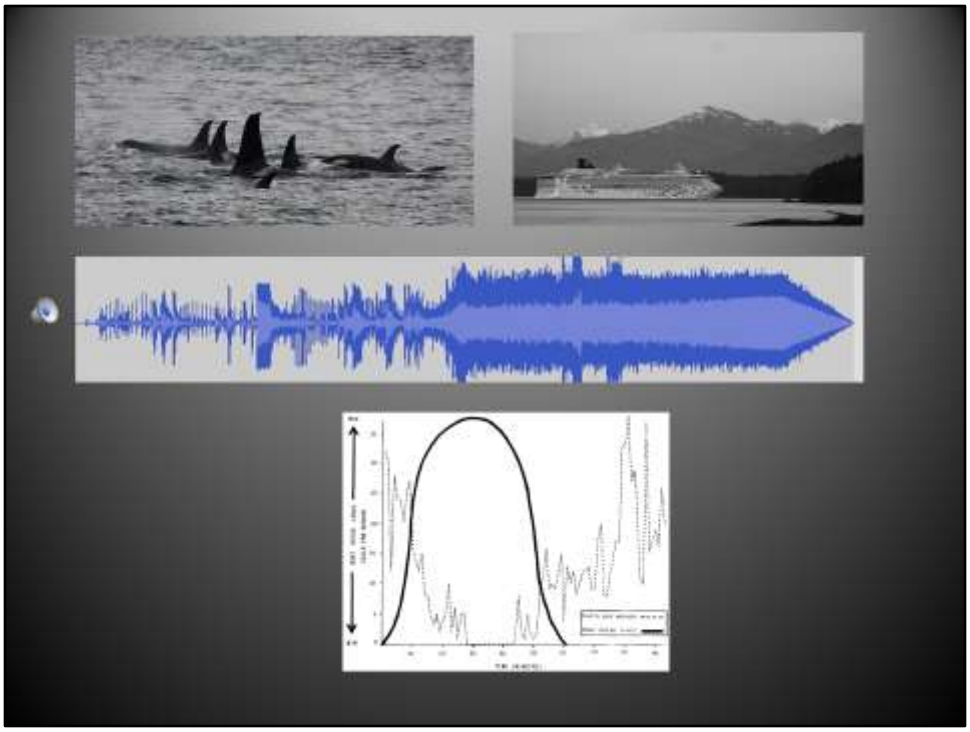


As we're listening and recording, we're relaying what we're hearing in our lab to the world via the internet. Getting our data out is challenging because of our remote location. After experimenting with a costly satellite connection, we developed a wireless network that consists of 5 microwave radios on 4 islands. We connect to the internet via a service provider in Alert Bay, which is 18km distant from the hub of our network at Cracroft Point. We've been streaming live audio for the past 12 years, and consider this to be an important part of our educational outreach.

As you can imagine, listening 24 hours a day around the year and over the years, we've accumulated a huge number of recordings, more than 20,000 hours altogether.

Fortunately, a few years ago, George Tzanetakis came to the University of Victoria, and became interested in archiving our acoustic data. Soon after, Steven Ness joined him as a graduate student, and together they've been working at building the archive, which is appropriately named Orchive. It's a huge project, but we're well into the job of making digital copies of our historic recordings. Some of them are already accessible via the Orchive web site, and eventually everything we've recorded over more than 40 years will be available to researchers and others. George and Steven are developing tools that may ultimately prove useful to a deeper understanding of orca acoustics. They welcome volunteers willing to assist them.



There is an ugly and unwelcome side to the underwater soundscape. It reflects the noisy intrusion of propeller driven vessels of all kinds as they move through the waters of the Inside Passage. We can detect their approach on our hydrophones from kilometers away, and know the orcas are aware much sooner than we. So often, lulled by the beautiful acoustic creations of whales, we are jarred awake.

The orcas are clearly disturbed by boat noise. Typically, calls drop off when a heavy source of noise approaches, stopping altogether when the vessel is closest, then picking up again after it passes. For us, the after boat noise experience has a ragged edge to it, so we imagine the orcas have a difficult time getting back to the groove they were in before the vessel intruded.

One of the most persistent and worrisome sources of boat noise in Johnstone Strait comes from tugs towing log booms. They are very slow moving, and their engine noise fills the Strait hour upon hour - a typical log tow takes around 8 hours to traverse the 5 km between Kaikash Creek and Robson Bight. Moving further east, they progressively occupy the acoustic space of the orcas' Critical Habitat. Surely, this is an issue that can be addressed.

On any given day, all these vessels can be sources of noise for whales. This is how our brains feel after a season of listening to boat noise.

Fortunately, that's not the end of our story. Recently, we've been privileged to witness the return of humpback whales to our area, after a long absence. The waters of the Inside Passage had been the northern home and refuge of humpbacks for centuries, probably millennia, a place for feasting and frolicking, until the era of commercial whaling came along and drove them almost to extinction. The last British Columbia whaling station, at Coal Harbour on the north west coast of Vancouver Island closed in 1967 because no whales could be found in nearby waters. In a last ditch attempt to keep things going, the whalers went around the top of Vancouver Island and into the inlets of the Broughton Archipelego near Blackfish Sound, where they found and killed 13 humpbacks… every last one of them. A long period of silence followed, 15 years in all, and then on Easter Sunday in 1982, a lone humpback was sighted heading east past Alert Bay. In the years that followed, more and more humpbacks returned to these waters, until today they can be seen pretty much any day from May through November. As they've settled in, they've begun to sing, adding their haunting voices to the marvelous mix that is the soundscape of Blackfish Sound and Johnstone Strait.

The reality the whales face is an increasingly noisy world; the challenge we face is finding ways to make it more livable for them. There are solutions.