



NIK WEST

EDGEwise

Killer whales, humans and a few other species of whale are the only mammals known to have true dialects.

Because resident killer whales stay with their family group all their lives, dialects change very little through generations and can be used to determine kinship among pods. The more similar the dialects, the more related two groups of whales are.

The three resident pods we see off Victoria—known as J, K and L-pods—belong to a dialect “clan” known as J-clan. You need a trained ear to tell pod calls apart. But it’s easier to tell clan calls apart. Test yourself at <http://bit.ly/ycAllv>

Hydrophones connected to the VENUS and NEPTUNE Canada networks—which together make up UVic’s Ocean Networks Canada Observatory—also listen for whales to monitor their movements and behaviour. Info: <http://bit.ly/neptunewhales> or <http://bit.ly/venuswhales>

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Wiretapping for whales

When BC's killer whales "talk," a UVic graduate student listens

Riera

by Valerie Shore

If Amalis Riera sometimes hears a symphony of squeals, whistles and clicks in her sleep, it wouldn’t be surprising.

The University of Victoria graduate student in earth and ocean sciences has spent hundreds of hours in front of a computer, headphones on, listening intently for the telltale voices of killer whales.

What she’s found out could have important conservation implications for these charismatic emblems of the BC coast.

The waters off Vancouver Island are one of the best places in the world to see killer whales, or orcas. Resident killer whales—which travel in large family units called pods and eat salmon—are a special conservation concern, facing threats such as reduced food availability, marine pollution and noise disturbance.

The three pods most often seen off Victoria—known as the southern residents—are listed as endangered in both Canada and the US. There are only 87 whales in this fragile population.

Which is why Riera, guided by UVic ocean acoustics expert Ross Chapman and killer whale acoustics pioneer John Ford with Fisheries and

Oceans Canada in Nanaimo, set out to shed light on a lingering mystery—where do BC’s resident killer whales go when we’re not seeing them, especially in winter?

“Their seasonal movements are very well known off eastern and southern Vancouver Island, but not so much off the west coast of the island,” explains Riera. “We want to know what happens out there year-round. When do killer whales use the area, and who are they?”

The study site was Swiftsure Bank at the mouth of the Strait of Juan de Fuca, an area rich in marine life. For a year, a hydrophone suspended 10 metres over the ocean floor eavesdropped on passing whales.

Killer whales use a variety of repeated squeals and whines to communicate. Some calls are shared within a population, but each pod also has its own set of unique calls, or dialect. Riera trained herself to recognize these calls to determine which pod she was hearing.

“I looked at sound spectrograms—voice pictures—generated by computer from the hydrophone data and when I saw patterns that looked like killer whales I listened to them,” she says. When the calls were clear, she made a positive ID. When they were too faint or ship

noise or storms interfered, she logged them as “unknown killer whales.”

She also devised a system to separate one whale encounter from another, and to assess whether the whales were just passing by or spending quality time there, presumably to feed or socialize.

The results so far? Swiftsure Bank is a hotspot for killer whales—all year round. Southern residents are there every month of the year, especially summer. Even members of the “threatened” northern resident population—16 pods whose summer core area is off northeastern Vancouver Island—are hanging out there, mainly in spring and fall.

“We’re all surprised at how many killer whales are at Swiftsure and how often,” says Riera. “Clearly this area is important to them.”

The new information is significant for the endangered southern residents, since identification of critical habitat—the areas and resources vital for their survival—is part of the recovery plan under Canada’s Species at Risk Act.

“This work supports the expansion of critical habitat for southern residents to Swiftsure Bank,” says Riera. “More studies are needed, but this is an important first step.”



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