

DIO

His name is Dio. Friends sometimes call him Ronnie James.

“Why is that?” I ask my host, Deborah Giles, research scientist with University of Washington’s (UW) Center for Conservation Biology. “Black Sabbath,” Giles replies, her matter-of-fact tone reminding me I know nothing about heavy metal—though as I peek at the scrappy little cattle dog peering back at me from within his crate, I can intuitively see how he’d evoke a metalhead persona.

Dio emits a high-pitched whine, as if in deference to the singer after whom he was named. I later learn that Ronnie James, the man, was known for his high falsetto. But Dio the dog’s talent lies more in his nose than his vocal chords. Since the 1990s, scat detection dogs like Dio have been helping scientists bridge the olfaction gap between humans and canines. These energetic, eager-to-please mutts—often rescued from shelters—use their remarkable sense of smell to find wildlife feces, which in turn speak tomes about animal health and genetics.

“We can get a huge amount of information about all of the major threats to orcas, and we do it noninvasively, which is even better,” says Giles, who has been working with UW’s Conservation Canines (CK9) program since 2009. The program is led by Dr. Samuel Wasser, the Center’s director and scientific pioneer of the scat detection dog method. Dog-detected orca scats have enabled Wasser’s lab to evaluate the effects of inadequate prey, vessel traffic, and toxic contaminants on the Southern Resident population.

This late August afternoon, I'm accompanying Giles, Dio, and CK9 handlers Collette Yee and Mairi Poisson on a training session off San Juan Island. Yee is lead handler on the orca project, while Poisson is being prepped as a back-up for the future.

Scat detection at sea takes teamwork and patience. With Giles at the helm, Dio stands perched like a sentinel on the bow of Wasser's 21-foot Grady-White—Poisson stationed directly beside him. Yee is situated nearby to help interpret Dio's behavior. Giles slowly trolls transect lines perpendicular to the breeze and waits for the boat to enter the "scent cone" emanating from the scat sample—a small plastic bowl containing liquidy whale poop and dropped over the side during an earlier drive-by. Handlers must scrutinize the dog's body language from head to tail to search for subtle cues indicating he might be onto a scent. If Dio's actions becomes more animated, Poisson will direct Giles to steer into the wind so they can make their way toward the source. All three women will keep watching Dio carefully, reading his hot or cold movements to adjust their course as needed.

Yee explains what she looks for in Dio's behavior: elevated nose, tongue licking at the air, a certain *je-ne-sais-quoi* expression on his face. Sometimes he gets excited about the waves lapping at the boat or a gull flying overhead; you've got to know your dog, says Yee. And since Dio doesn't have a tail, she reminds us, you can only discern a wiggle.

CK9 teams have been invaluable to the urgent pursuit of knowledge about the orcas' plight. Between 2007 and 2014, they collected 348 scat samples from 79 Southern Residents—samples that have since unlocked invaluable information about the reproductive woes of females. Analyses of hormones contained in the scats revealed a 69% pregnancy failure rate.

Recent images of J35 carrying her deceased calf around Puget Sound for 17 days have brought these frightening statistics to life—and a mother’s grief is a potent portal. With all the world watching, J35 would not let us forget that her loss is a harbinger of things to come unless we figure out a way to restore vital chinook to her family’s diet.

Back on the water, Dio senses change in the air. He casts his twitching nose skyward and begins to pace as we enter the scent cone. Poisson signals Giles, who’s already turning into the wind. Dio leans over the edge of the bow, nose now pointing ahead like the needle of a compass, elbows resting against the fiberglass hull as he anticipates his reward. Minutes later, Poisson reaches into the Sound and picks up the little blue bowl. She hands the bowl to Giles, who swiftly passes it in front of the wiggling Dio while the team bellows “Good bu-oy! Good bu-oy!” A happy, once-homeless cattle dog plays with a bright green plastic ball, and at least for the moment, our hearts sing like there’s no tomorrow.

Paula MacKay