



## The Natural Laboratory Podcast Transcript: Fishing for the Humboldt Squid

### Introduction

This is the Natural Laboratory, a podcast exploring science for Bay Area National Parks. I'm Cassandra Brooks.

Today, I am out with scientists and educators off Monterey Bay searching for the Humboldt squid (*Dosidicus gigas*), also known as the Jumbo squid. Or in Mexico, where the fish are caught commercially, they call them "Diablo rojo"—the red devil.

These voracious deep-water predators, which can grow to up to ten feet long and swim 24 kilometers per hour, are new arrivals to the central California coast. Scientists from Stanford University's Hopkins Marine Station are studying the squid, trying to understand why they've moved into the northeast Pacific coast and what affect they might have on the local ecosystem.

I join the Stanford crew for a fishing adventure, along with scientists with the National Marine Fisheries Service, local fishermen and educators with the Monterey Bay National Marine Sanctuary.

### Erik Larsen Interview

*Erik Larsen: So I'm Erik Larsen, captain of the research vessel Fulmar and we just left Monterey heading to a point about four miles southwest of cypress point off of Carmel and we are going to stop the boat and set up for some squid jigging in about 700 meters and see what happens.*

*Today it's a little windy and a little bit of swell, 6 to 7 foot swell, supposed to get to 25 knots of wind, but right now, its not too bad, a little lumpy, of course that's just me talking (he laughs).*

### William Gilly

Cassandra Brooks: I'm standing on the back of the boat with professor William Gilly, who is spearheading the Humboldt squid tagging program as part of Hopkins tagging of pacific predators, program.

We are perched on the side of the boat, holding sturdy fishing rods outfitted with large spiked glow-in-the-dark jigs. We drop the jigs a couple hundred feet down in the water and wait, hoping to trick a squid into biting.

Humboldt squid feed in frenzies, snatching anything they can find in the water, including a variety of different fish species, but occasionally other squid that get in the way.

They seize prey with long tentacles covered with rings of prickly serrated teeth, which they use to bring the prey up to their mouth where they devour it with their large sharp beak.

If the squid are down here and actively feeding, they're sure to latch onto the jig.

Gilly's research team uses satellite tags to record an animal's movements underwater in space and time. Once affixed to a squid, the tag tells the researchers how deep the animals are diving, where they are traveling to and where they prefer to live.

Historically, the Humboldt squid were seldom found further north than Baja California, Mexico.

Then with the 1997/98 El Nino, the squid came en masse and have maintained a fairly regular presence since then.

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## William Gilly Interview

Cassandra Brooks: *So why do you think they are here?*

William Gilly: *Well I guess there is stuff for them to eat (chuckles). It's not clear why they seem to be expanding their presence to more northern latitudes, maybe there are too many in the south and they need growing room. But they seem to be establishing themselves in areas that in recent history have been not subject to their presence. Like, Monterey Bay, and they seem to be getting*

*established off the Olympic Peninsula in Washington, a lot around Vancouver and the Queen Charlotte Islands.*

CB: *Does it seem like they are here to stay?*

WG: *Well they have been here more or less stably since 2002 and unless something changes to make what they are eating go away, I think they will probably be here for a while. That's my guess.*

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## Julie Stewart Interview

Julie Stewart is a graduate student in Gilly's lab who is looking at oceanographic properties that may correlate with the squid's seasonal invasions and migrations.

CB: *So you think it's a combination of climate change and ecosystem changes?*

Julie Stewart: *I think so, there has to be, they have to be able to get here to begin with, so climate change is providing a route, but once they are here, they have to be able to stay here. Physical oceanographic conditions have to be correct and they have to be able to find food, they have to be able to avoid predators and to be able to reproduce. Which is a big thing.*

*The big question is establishment. Is this thing able to establish itself, what is it eating, what is it doing?*

*If these squid are going somewhere else to spawn and each generation is re-invading and re-establishing itself then that's an interesting question, but right now we just don't know.*

CB: *So the satellite tags will actually give you information as to whether they are just migrating here to feed and then returning back south?*

JS: *That's the goal.*

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## Danna Staaf Interview

To find out if the squid are reproducing here in California, Danna Staaf, a graduate student in Gilly's lab, has been searching for squid babies, or what she calls paralarvae.

CB: *So we were just out here doing a plankton trawl.*

Danna Staaf: *That's right. That's one of the main ways we use to look at where the squid babies are and what the squid babies might be eating. It gives you an ecosystem perspective of what's available for them.*

*We are up here in California in cold water which is not where they spawn, at least not where we think they spawn. We know that Humboldt squid spawn in warm waters off Mexico, and Central America and further south than that, but we have not yet found any baby Humboldt squid in California. But we keep looking because as waters get warmer and conditions change, they might well start spawning here. We want to be the first to know. I do think it's too cold for them (its too cold for me!).*

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## Conclusion

We continue fishing for the rest of the day, but didn't find any adult or larvae Humboldt squid.

Gilly and his team aren't sure why there were scarce today, but they'll be out again soon fishing in nearby waters.

This is Cassandra Brooks with the Pacific Coast Science and Learning Center at Point Reyes National Seashore.