

## Ocean Gazing: Episode 52

### *A rockfish reserve*

<intro music>

**Ari:** This is Ocean Gazing, where we follow the stories of the sea. I'm Ari Daniel Shapiro. On January 1, 2012, Oregon will establish its first marine reserve. It's a few miles south of the rural coastal community of Port Orford.

**Miles:** Its going to be great for the environment, the fish, but its going to hurt my pocket book... I still have mixed feelings after all this time.

**Ari:** Jeff Miles is a commercial fisherman, and he's fished the site of the future reserve. As the area moves towards gaining protected status, an unlikely partnership is emerging.

Producer Jason Albert has our story. Stay tuned.

**Albert:** You'd think Tom Calvanese is an artist -- he sports tortoise shell glasses and a soul patch. But he's a biologist -- a graduate student at Oregon State, and he studies rockfish. Which belong to the genus *Sebastes*.

**Calvanese:** Which is Greek for magnificent, and to me they are pretty magnificent.

**Albert:** Take the China rockfish: it's jet black, mottled with yellow, and topped with menacing spines. And they're one of nearly forty rockfish species along the Oregon coast... Besides being stunning to look at, rockfish are big money. They're a delicacy in markets reaching from Seattle to San Francisco. So it's important to know where these fish spend their time, and how healthy their habitats are. Finding these fish is essential for the fishery. And that's where Calvanese comes in.

<fade up music; sustain, and then: motoring out to Redfish Rocks>

**Albert:** On a rare clear day in Port Orford, Oregon a team of researchers motor out on the Fishing Vessel *Top Gun*. Today's objective: catch, catalogue, and tag rockfish. Tom Calvanese organizes his field notes and points to what's beneath the surface.

**Calvanese:** There's actually an acoustic array set up to look at fish movement patterns in relationship to reserve boundaries.

**Albert:** Calvanese's array tracks fish that he's tagged. Each tagged fish transmits a unique ID. The acoustic array then detects and records the location of the tagged fish.

**Calvanese:** We need to understand more about how fish use space, where they go, how much time they spend there, what type of habitats they're likely to be found in. So we are starting to do more place-based management and that means we've got to collect spatial data, so that's where movement studies come in.

**Albert:** Calvanese wants to understand how much space a thriving rockfish population needs. And a marine reserve – where fishing is not allowed – is a good place to answer this question. It's where we're headed today, to the site of a future reserve called Redfish Rocks, a two and a half square mile reserve off the southern coast of Oregon. The waters here are teeming with fish. But once the reserve's established, fishing will be off limits.

Jeff Miles is a commercial fisherman, and he captains the *Top Gun* for Calvanese.

**Miles:** You know it's a very unique area in here because you get all the species ...the Chinas, coppers, quills, lingcod, canaries, yellow eye, halibut. God, you name it, we've caught it all here.

**Albert:** Miles stations the vessel near a towering rock.

And it sounds like you were one of the folks first involved with figuring out where they would possibly put a marine reserve...is that true?

**Miles:** Yeah...I was there at the beginning.

**Albert:** What was that like?

**Miles:** Scary.

**Albert:** Why is that?

**Miles:** Ughh. It's really difficult the thought of a marine reserve...to have your fishing grounds taken away. You know and my first instinct was just to run and hide from it. The biggest thing is...people don't want to lose their ability to make money.

**Albert:** Many commercial fishermen rely on these fishing grounds. And for those that do, Miles says the eventual ban on fishing, once the reserve is established, will amount to a 10 to 15% loss of income.

**Miles:** How many people are going to voluntarily take 10% out of their paycheck. Not very many.

**Albert:** In his 35 years on the water, Miles has seen overfishing deplete rockfish populations near Port Orford. Rockfish don't reproduce every year, so once their numbers drop; they have a hard time coming back. So Miles and others in the fishing community turned to scientists like Calvanese for help.

The *Top Gun's* crew sets an anchor and baits fishing lines. Their goal is to catch and tag fish. The boat dips and rolls from the Pacific's swell.

<spinning rods, catching fish, hollering, boat rolling.>

**Crew:** Ooh, ooh, I got one, I got one. / That, that's a Cabazon. / Hey, we got another China. / Grab her pole. / Brianna got a China. Woohoo!

**Albert:** Calvanese writes down the catch by species, sex, and length in his notebook.

**Calvanese:** That's a male kelp greenling ... 27 centimeters.

**Albert:** He creates a makeshift operating room in the boat's stern. It's stocked with scalpels, suturing tools, and a homemade cradle for fish surgery.

**Surgery audio:** Can you grab me that wash bottle right there? Umm, start time. OK, we ready... Yup. You got a good hold on 'em, right?

**Albert:** A China rockfish is on its back. It's tense and taut. A damp cloth covers its bulging eyes. Water streams over the China's gills and flows over the back of its throat. All of this is intended to hypnotize the fish. And sure enough, the fish is limp within seconds.

**Assistant:** I think its getting there. Its anal fin went down a little bit.

**Calvanese:** It's starting to relax.

**Albert:** Gently pressuring the belly, Calvanese makes an incision...

**Calvanese:** Off the centerline of the fish's body between its vent and its pelvic fins.

**Albert:** The incision's just big enough for the acoustic tag. The tag's slightly smaller than a double AA battery.

**Calvanese:** Ok, I'm going to put a few stitches in the fish to close up the wound.

**Albert:** Calvanese weathers splashing water and sloshing fishing gear. He's pure focus. He flips the China right side up and presto – it's de-hypnotized. From there, the fish is placed in a "recovery" cage and eventually released.

Jeff Miles, the *Top Gun's* captain, watches the surgery from the sidelines.

**Miles:** I like the tagging part here. I've always wanted to know what fish do and where they live and how they move. And yeah, I think it's cool. That's why I'm trying to donate the time and get this done. And I realize that you just can't keep hammering on them. They gotta have some places where they can live to survive. And that's what really pushed me over the edge I guess.

**Albert:** Now, Miles and his crew support Calvanese's project. And Calvanese says Miles' knowledge is priceless.

**Calvanese:** Jeff Miles is making my research possible. We have species we're targeting for this research and they're not the most commonly encountered species. So in order to capture enough of them to do the research I need to find them. And I don't know where to find them. I don't know where to go to catch China rockfish, or Copperback rockfish, or Quillback rockfish. I'm in awe of someone who's got that kind of knowledge just from having lived it.

<fade out boat noise>

<sound of chairs pulling up to desk>

**Albert:** The next day I sit down with Calvanese in his apartment. Outside his bay window I can make out the Redfish Rocks reserve in the distance. But Calvanese's focused on his data.

**Calvanese:** So what we're looking at here is the other side of the story. So yesterday we put the transmitter tags in the fish and at the other end of the story is this receiver that receives those signals. Actually, this is all the data for one tag. This is a canary rockfish. What we know about them is they actually do move around quite a bit. And that's what we are seeing here.

**Albert:** Calvanese says traditionally, scientists have a starting point – where the fish was tagged and an end point – where the fish was caught.

**Calvanese:** And so we have these two points and we make inferences about a fish moved from there to there but we don't know anything about what they did in the interim. So here we get an opportunity to get that long time series that combines space and time in way we haven't been able to do before.

**Albert:** Calvanese plans to make his tracking data available to everyone – scientists of course, but also fishermen like Jeff Miles. Fishermen willing to sacrifice immediate gains for the knowledge that their way of life will be sustained, even if traditional fishing grounds like Redfish Rocks are permanently set aside for conservation.

For Ocean Gazing, I'm Jason Albert in Port Orford.

<fade up outro music>

**Ari:** Visit our website – [oceangazing.org](http://oceangazing.org) – to send Jason Albert your questions and comments, to see a few photos of the Redfish Rocks Reserve, and to hear Tom Calvanese describe his view on what he owes to the local community.

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<bring outro music up to full and sustain until the end>