

'Singing fish' study may improve human hearing

Research in Hood Canal

By CASSANDRA PROFITA

Oregon Public Broadcasting

You know that expression, "Leave no stone unturned?"

That's how Washington State University neuroscientist Allison Coffin goes about catching midshipman fish — at least during mating season.

Standing on the rocky, oyster-covered shoreline of Hood Canal, Washington, she rolled over a beach-ball sized rock to reveal a small pool of water just barely covering two fish.

"Oh yeah! Another female," she said. "And then there's the male right there."

Because it's low tide, some of the fish she and her research partner, Joe Sisneros, uncovered aren't in any water at all.

That makes this area prime fishing grounds for the researchers, who say the ears of these fish could teach us how to improve our own hearing.

Sisneros, a University of Washington neuroscientist, picked up a male fish to point out the pattern of white spots on its belly. Its spots glow in the dark, and they look a bit like the buttons on a midshipman's naval uniform — hence, the name.

As the fish struggled to free itself from his grasp, it made a



Cassandra Profita/Oregon Public Broadcasting

Neuroscientists Joe Sisneros and Allison Coffin search for midshipman fish, also known as 'singing fish,' underneath large rocks on the rocky shores of Hood Canal.

noticeable buzzing sound.

"Hear him? That was a series of grunts," Sisneros said. "He's mad."

And grunting is just the beginning of the sounds this fish can make.

"When it gets dark, they start to sing," Coffin said. "It's a hum. There isn't a lot of variety to it. They only know one note. I guess it could be more like monks chanting in a way."

As the males are singing, the females pick a nest to release their eggs into. The bright orange eggs stick to the undersides of the rocks. So if a female has visited a male's nest, you can see the eggs by simply lifting the rock off the shore at low tide.

On their recent trip, the researchers were looking for females in particular because they wanted to know more

about what's going on inside their ears as they're picking their mates. At one point, Coffin found two females in one male's nest.

"So, this guy right here is apparently a stud," she said.

Sisneros said scientists have discovered that the females' hearing improves dramatically during the mating season, and they think they know why.

"One of the questions we want to look at is how do the females find the studs and avoid the duds, right?" he said. "These females are probably not assessing males based on vision. They can't see them at night. We think they're actually assessing the quality of the song."

Learning how is the focus of this research.

can continue to make new ones," she said.

In the midshipman fish, Coffin thinks estrogen may be helping the females to generate — or protect — more hearing cells than they're losing.

But she needs to know which genes are making that happen and whether those genes could do something similar in our own ears.

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Allison Coffin

Washington State University neuroscientist

"We want to take the ear from the fish, keep the ear alive in a culture dish and then manipulate the genes," Coffin said.

If they can identify which genes are changing to boost the females' hearing, they might be able to mimic that process in human ears.

At her lab in Vancouver, Washington, Coffin dissects the ears of the female fish for a closer look at the genes that control hearing cells.

Fish are constantly making new hearing cells as they lose old ones.

"Unlike us, where we lose them and that's it, these fish

Ultimately, she's looking for ways to turn those genes on in people using drugs or gene therapy. The first step is to compare the ears of the fish she finds in the winter with the ones mating under rocks right now.

Somewhere under the rocks in Hood Canal, she may find the secret to protecting people's hearing cells or even regenerating the ones we've lost.

"Nature is doing something really interesting in changing these fishes' hearing seasonally," Coffin said. "We're learning about nature, but we're also learning something we can apply to our own hearing."

Sanctuary law repeal initiative likely to be on November ballot

By PARIS ACHEN

Capital Bureau

An initiative to repeal Oregon's sanctuary law appears likely to go before voters in November.

Backers of Initiative Petition 22 have submitted 110,445 signatures to the Oregon Secretary of State's Office, said Cynthia Kendall, president of Oregonians for Immigration Reform, who led the signature-gathering effort.

Only 88,184 of those need to be verified to land the measure on the ballot.

The state's sanctuary law, passed in 1987, prohibits the use of state and local resources to enforce federal immigration law when a person's only crime is being in the country illegally.

The campaign for IP 22 asserts that unauthorized immigrants cannot live in the country without breaking other laws, such as acquiring a fraudulent identity or driving without insurance. They argue too many of the state's resources are used to support unauthorized immigrants at the expense of Oregonians.

"They have to continue breaking laws to perpetrate the law they broke by coming here," Kendall said. "They have gone on to commit other crimes to shield the fact that they came here illegally."

Opponents of the initiative on Friday launched their official "no" campaign — Oregonians United Against Profiling — and plan to hold news conferences around the state to publicize it, said Andrea Williams, executive director of Causa, a statewide immigrants rights organization.

"Republicans and Democrats came together in 1987 to pass this law for a really important reason — unfair racial profiling in our state



Paris Achen/Capital Bureau

A pro-immigrant rally at the Oregon State Capitol in Salem in January.

— and to ensure local police are focused on local communities and not focused on the job of the federal government," Williams said.

The official opposition campaign includes a coalition of about 80 businesses, including Nike and Columbia Sportswear, and other organizations, she said.

"We believe Oregon's existing sanctuary law has been working as intended for over three decades in giving clear guidance to law enforcement officials on complicated immigration issues," she said.

State Sen. Michael Dembrow, D-Portland, said the state's sanctuary law is essential until the federal government passes comprehensive immigration reform.

Dembrow serves on the National Conference of State Legislatures' bipartisan Task Force on Immigration and the States. The 30-member task force unanimously supports comprehensive federal immigration reform, he said.

"We all believe there needs to be a federal solution," Dembrow said. "Until

there is one, we need to make do with the current reality, and we need people who are here as documented immigrants or undocumented immigrants to feel confident that their neighbors are supporting them: If they have to call the police or have to go to court for whatever reason, they don't have to worry about state law enforcement turning them in."

The ability to report crimes without repercussions because of their immigration status makes everyone in Oregon safer, he argued.

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Attorney general targets IP 31 with criminal investigation

By CLAIRE WITHYCOMBE

Capital Bureau

SALEM — Oregon Attorney General Ellen Rosenblum has opened a criminal investigation into signature-gathering practices for Initiative Petition 31.

The investigation is unlikely to interfere with that measure going before voters in November, however, according to the state elections division.

IP 31 would amend the state's constitution to mandate stricter voting requirements for the Legislature to pass certain tax measures.

Our Oregon, a progressive political coalition, and Connea Derber, a former paid circulator for Ballot Access LLC, allege that while she was working for the company she was paid below minimum wage, that another circulator improperly attested signature sheets that Derber collected and that Derber was allowed to

circulate a petition without being properly registered.

Ballot Access' owner, Lee Vasche, denies those allegations and says they are politically motivated.

Our Oregon and Derber filed its complaint July 2 with the Oregon Secretary of State's Office and the Bureau of Labor and Industries.

The next day, the Secretary of State's Elections Division Director Steve Trout asked the attorney general to investigate whether elections law violations occurred by "circulators, and/or others, including the circulating company employing certain of the subjects," according to a Tuesday letter provided by the Department of Justice.

It's not clear when the investigation will be complete.

Once the Department of Justice investigates and reaches a conclusion on the criminal investigation, the secretary of state's office will look into possible civil

violations.

It's unlikely that the investigation could prevent IP 31 from going before voters in November, though, Trout says.

If the attorney general finds criminal wrongdoing, and if someone believes that means the measure shouldn't be on the ballot, they could challenge it in Marion County Circuit Court.

Trout said that while allegations are common in the initiative petition process, he has not seen a court intervene in an initiative petition getting to the ballot.

"I've never seen a court step in and change things," Trout said.

Additionally, the election is in just four months. The state and counties must move swiftly to prepare voting materials.

The petition would still have sufficient signatures to make it to the ballot even if the signatures questioned by the complaint were taken out, Trout said.

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