

BIOLOGIST SPEAKS AT SEASIDE LIBRARY

Life in the river

Understanding the migration patterns of salmon

By Katherine Lacaze
For Seaside Signal

Community members delved beneath the surface and got a glimpse of salmonid life cycles and behavior in northern coastal river basins during a presentation by Oregon Department of Fish and Wildlife research biologist Derek Wiley.

Wiley, the assistant project leader for the department's North Coast Salmonid Life Cycle Monitoring Project, gave a presentation on "Life in the River" at the Seaside Public Library on Feb. 15. It was the second presentation for the Listening on the Land winter lecture series, put on by the Necanicum Watershed Council and North Coast Land Conservancy.

Since 1998, the project has been monitoring the survival and downstream migration of salmon in coastal river basins, such as the North Fork Nehalem River, whose basin contains about 48 miles of Coho rearing and spawning habitat. Using a GoPro camera on the job and while fly fishing, Wiley has captured footage that documents project activities from the fall 2015 field season.

"I thought it would be really interesting to try and capture what we do in a documentary-style format," he said. "Documentaries can give you a really powerful look at a topic or a project in a way a conventional presentation just can't do."

A wet, rough season

The life cycle monitoring project was initiated with two goals in mind. First, to estimate the abundance of returning adult salmonids and downstream migrating juvenile salmonids. Second, to estimate freshwater and marine survival rates of Coho salmon.

The documentary follows the 2015 fall adult trapping season, which started Oct. 1, with weather forecasts predicting a mild and dry fall and winter.

With strong El Niño conditions present and warm sea surface temperatures in the Pacific Ocean, the season on the North Fork Nehalem began with low water levels. As adult salmon started making their way up the river, staff drove "through stormy conditions to greet them," the documentary states.

The department of fish and wildlife operates two adult traps on the Nehalem, at Waterhouse Falls and at Fall Creek Falls, further upstream. All wild salmon that travel through the Waterhouse Falls trap are processed, which includes tagging them and

collecting biological data. The ratio of tagged to untagged fish recovered as carcasses in spawning surveys and captured alive at the adult traps is used to make population estimates for all species.

Hatchery fish who go through the trap are processed and euthanized there, and then donated to the Oregon Food Bank or used for stream enrichment.

"Eliminating as many hatchery fish as possible from reaching the spawning grounds is extremely important in the conservation and protection of wild fish," the documentary states.

Another part of the data collection process is completing spawning surveys by walking or canoeing along river tributaries. After spawning, salmonids die, so their carcasses can be found on or near spawning grounds. The staff finds the carcasses and checks for tagged fish to help calculate population estimates.

Contrary to predictions, the fall and winter of 2015 were not dry and mild. In mid-November, the first of a number of strong storms spattered the coast, bringing gale force winds, debris and flooding that created unsafe conditions for processing fish at the traps and conducting surveys.

"Over the course of a month and a half, flooding and continually high flows forced us to close the adult traps for an unprecedented 20 days," the documentary states.

The fall trapping season ended Jan. 16, with staff entering data and running population estimates.

The documentary shared some of the data collected. Notably, the number of Coho salmon who were caught and who spawned were less than the project average. The marine survival rate for Coho was estimated at 3.3 percent, lower than the project high of 21 percent in 2014 and the project average of 15 percent. The fish also were smaller than normal.

The number of wild Chinook caught for the season, 196, was below the project high of 349 in 1999, but higher than the project average of 175. However, capture efficiency was low because of high river flows and trap closures, and a majority of Chinook still jump Waterhouse Falls rather than traveling through the trap. Because of the low capture efficiency, the staff had reduced confidence in its data regarding Chinook spawning estimates.

Only 147 hatchery fish were donated to the food bank, below the project average of 295 per year.

The documentary raised several questions that were unable to be answered at the time, but which Wiley addressed having information from the 2016 season, as well.



Silver salmon



KATHERINE LACAZE/FOR SEASIDE SIGNAL

Derek Wiley (center), assistant project leader of the Oregon Department of Fish and Wildlife's Salmonid Life Cycle Monitoring Project, talks with attendees after presenting for "Life in the River," at the Seaside Public Library.

'An impact everywhere you look'

Some the struggles salmonids face along the various stages of their life-cycle, from birth to spawning, include the unnaturally warm surface water temperatures in the Pacific Ocean along the coast; extreme weather events, like those that took place in late 2015; and poor habitat in the river systems, to name a few.

"The good thing about a monitoring project like this is you capture all that variability," Wiley said.

Since 2010, the project has had the top three population estimates on the number of wild Coho in the North Fork Nehalem, as well as its lowest estimate and one of its lowest estimates.

"If you take a snapshot of one (year) at a time, and you get the good year, your conclusion on the condition of the resource, or condition of the fish, is very different than if you continually monitor and keep track," Wiley said.

As of Feb. 6, data from the Na-

tional Oceanic and Atmospheric Administration showed water temperatures were more favorable for marine survival, although they were still higher than normal. The administration's graphs on water temperature are updated frequently.

Wiley said ocean conditions are a contributing factor to survival for salmonids, but it is one of the factors most difficult to address by a single agency or on the small scale.

"We don't have a lot of control over the ocean conditions, because that will have to be solved on a global scale," he said.

However, other contributing factors — such as restrictions to refuges, eliminating hatchery fish before they can spawn with wild salmon and improving habitats — can be addressed at the local level.

"That's small scale, but everything we can do is going to help," Wiley said. "But as far as one impact, it all goes together. And in certain years, one might be more important than the other. Cumulatively, there's an impact everywhere you look."

Program in jeopardy

As part of a plan to reduce the department of fish and wildlife's budget, the life-cycle monitoring project may be defunded starting in the 2017-18 fiscal year. The department was requested to offer two budget reduction strategies, one to decrease the budget by 10 percent and one by 15 percent. The program was part of the strategy at the 10-percent level, Necanicum Watershed Council Coordinator Mellyssa Graeper said. The matter now is in the hands of the Joint Committee on Ways and Means, with numerous state legislative sessions still to take place.

If the program is eliminated, the continuity developed by collecting data for nearly two decades would be lost, undermining the work that's been accomplished.

She urged the attendees to contact state representatives and express interest in the program's survival.

A closer look at fish behavior

Another film shared during the presentation showed the underwater behavior and spawning activities of chum salmon, fall Chinook salmon, Coho salmon and Pacific lamprey. All the footage was captured on the north coast in a variety of rivers.

Wiley put together the video for the Oregon chapter of the American Fisheries Society's annual meeting in Seaside last year.

"It's just a snapshot of a bunch different behaviors and a bunch of different things I've captured with the GoPro," Wiley said.

The next Listening to the Land presentation will be held from 6 to 8 p.m. March 15 at the Seaside Public Library. The topic will be "Tracking the Brown Pelican," presented by Astoria biologist Deborah Jaques.

Tracking the brown pelican

Skimming the waves and plummeting beak-first for fish, the California brown pelican is one of the most iconic and easily recognizable seabirds on the Oregon Coast. On Wednesday, March 15, at 6 p.m. join Astoria wildlife biologist Deborah Jaques at the Seaside Public Library to explore the natural history of brown pelicans, from their breeding grounds off Mexico to their summer feeding grounds off our own coast.

Use of DDT and other pesticides decimated breeding populations of brown pelicans off southern California by the early 1970s. Pelicans recov-



Deborah Jaques

ered from the pesticide era, but their numbers continue to rise and fall, impacted by environmental conditions here and in their breeding grounds and by natural and unnatural mortality events. Astoria biologist Jaques has been closely observing brown pelicans since the 1980s. Jaques is an independent wildlife biologist based out of Astoria. Her work over the past 30 years has taken her from the coastal margins of Antarctica to the Olympic

Peninsula and has most often involved seabirds and other colonial water birds. Jaques did her graduate research at the University of California, Davis, on California brown pelican habitat use and distribution in the non-breeding range, including evaluation of northern range expansion and communal roosting behavior. Brown pelicans are a focus of her monitoring and conservation efforts on the West Coast.

Listening to the Land is a monthly winter speaker series offered January through May in partnership with the Seaside Public Library. For more information, visit NCLTrust.org.

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