



Western Fisheries Research Center (WFRC)

Western Fisheries Science News



Preparing floating net pens for transport and release of acoustic-tagged juvenile Chinook in Little Port Walter research station, Alaska. From left to right: John Beeman, Marty Liedtke, Jared Jillie (NOAA), Ryan Tomka, John Eiler (NOAA), Maria Adams (NOAA). Photo by Ty Hatton, USGS. Inset: Acoustic-tagged juvenile Chinook salmon being released. Photo by John Eiler, NOAA.

New USGS and NOAA Collaboration in Alaska Will Help Gain Insight into Juvenile Chinook Salmon Distributions and Migrations

Although there is increasing evidence that the first year of marine residency is a critical stage for juvenile Chinook salmon, little information is available on the spatial and temporal distribution of the fish during this period. A new collaboration between NOAA Fisheries and USGS Western Fisheries Research Center (WFRC) is allowing scientists to work together, share expertise, and learn more about the fate of juvenile Chinook salmon reared at a remote research station 140 miles south of Juneau, Alaska.

The research hatchery at NOAA's Little Port Walter (LPW) Research Station, located on the southern tip of Baranoff Island, rears several Chinook salmon stocks. Although Chinook salmon have been released from the station since the mid-1970s, the migratory patterns of these fish after entering salt water is essentially unknown.

To find out, Theresa Liedtke, Ryan Tomka, Ty Hatton, and John Beeman of the WFRC's Columbia (Continued on page 2)

Events

USGS Study Presented at the Yakima Basin Science Conference: USGS researchers Russell Perry and Toby Kock have been evaluating juvenile salmon survival at Roza Dam and in downstream reaches of the Yakima River since 2012. Studies conducted during 2012-2014 revealed that passage survival through the fish bypass at Roza Dam was low compared to other passage routes. A study was conducted during 2016 to further evaluate mortality factors in the fish bypass and to estimate survival rates of juvenile Chinook salmon and coho salmon through the lower 128 miles of the Yakima River. This study is nearly complete and preliminary findings were presented by Toby Kock at the Yakima Basin Science and Management Conference on June 15, 2016, in Ellensburg, WA. For more information, contact Russell Perry, rperry@usgs.gov, 509-538-2942, or Toby Kock, tkock@usgs.gov, 509-538-2915.

USGS at Pacific Northwest Topobathymetric Models and Applications Workshop:

On June 9-10, 2016, scientist Tim Counihan presented at a workshop on topobathymetric models and applications in Lacey, WA. Counihan's talk titled "Large River Monitoring Forum and Columbia River Science Applications" was co-authored with colleagues from the Lower Columbia River Estuary Partnership and the North Pacific Landscape Conservation Cooperative. Counihan also participated on the steering committee. The geographic focus of the workshop was the coastal zone of Oregon and Washington, including Puget Sound, principal estuaries, and major rivers draining the coastal zone, from the mouth of the Columbia River to Bonneville Dam. Input from workshop participants will help (Continued on page 2)

River Research Laboratory (CRRL) traveled to LPW to participate in a collaborative study of the migration of juvenile Chinook salmon reared and released at LPW.

The collaboration was initiated and led by Dr. John Eiler, a member of the Salmon Ocean Ecology and Bycatch Analysis group of the NOAA Auke Bay Laboratories (Juneau, Alaska) and station manager of LPW. Eiler and Beeman met at a biotelemetry conference in 2001 and in 2012 co-edited a book, along with WFRF's Noah Adams, titled "Telemetry Techniques: A User Guide for Fishery Research". Numerous CRRL scientists contributed their expertise to the book as well.

The team tagged and tracked juvenile Chinook salmon surgically-implanted with acoustic transmitters. First, a laboratory study was conducted to determine whether fish might best be tagged before or after their transition from freshwater to saltwater. An array of acoustic receivers deployed near the mouth of Port Walter and along the shoreline of Chatham Strait (both north and south of the station) was used to determine the movements and migratory timing as the tagged fish left LPW.

During their research trip, the team also met with scientists from Rutgers University who are collaborating with NOAA on a study using autonomous underwater vehicles to detect and track tagged animals in the marine environment.

The first year of the study for this collaborative effort provided insight into tagging juvenile salmon near their time to transition from freshwater to saltwater (smoltification) and in conducting large-scale telemetry studies of juvenile salmon in these types of marine environments. Although results are only preliminary, the research team is already finding interesting information and hopes to continue to build on this research in coming years.

The WFRF continues to be an innovator in field studies of fish migration behavior, survival, thermal selection, responses to water velocity, and behavior and passage at barriers such as hydro dams. Many of our scientists collaborate on studies such as this, both nationally and internationally, bringing their expertise to a variety of research questions.

To learn more about this study, please contact Theresa Liedtke tliedtke@usgs.gov at 509-538-2963 or John Beeman jbeeman@usgs.gov at 509-538-2967.

Events (Continued)

catalog source data for the topobathymetric elevation model, identify science applications, and improve the coordination of data acquisition efforts. For more information, contact Tim Counihan, tcounihan@usgs.gov, 509-538-2981.

USGS Invited to Give Talk at Washington Department of Fish and Wildlife Meeting: On June 7, 2016, scientist Carl Ostberg gave a talk at the Washington Department of Fish and Wildlife's Region 6 Habitat Biologist meeting in Sequim, WA. The talk, titled "Using aquatic environmental DNA (eDNA) (Continued next Column)

Events (Continued)

to track fish recolonization following dam removal on the Elwha River", described the outcomes of dam removal, recolonization, and future research and monitoring. For more information, contact Carl Ostberg, costberg@usgs.gov, 206-526-2535.

In the News

On June 22, 2016, research scientist Theresa Liedtke was interviewed for an article that will be published in the [Encyclopedia of Puget Sound](#). The article will be published in early July and summarizes several talks on forage fish from the Salish Sea Ecosystem conference that took place in April of this year in Vancouver BC. During the conference, Liedtke co-hosted a forage fish session and presented some results on an acoustic telemetry study on surf smelt. The article will highlight findings from several of the talks, including Liedtke's telemetry study on surf smelt. For more information, contact Theresa Liedtke, tliedtke@usgs.gov, 509-538-2963.

Publications

Giermakowski, J.T., J.R. Hatten, M.J. Johnson, J. A. Holmes, E.M. Nowak, M. Peters. 2015. Final Report: Predicting Effects of Climate Change on Riparian Obligate Species in the Southwestern United States. Bureau of Reclamation, Desert Landscape Conservation Cooperative, Albuquerque, New Mexico: University of New Mexico. Agreement Number: R11AC81532. <http://hdl.handle.net/1928/31796>.

Hereford, D.M., Ostberg, C.O., and Burdick, S.M., 2016, Predation on larval suckers in the Williamson River Delta revealed by molecular genetic assays - A pilot study: [U.S. Geological Survey Open-File Report 2016-1094](#), 16 p.

Perry, R.W., Kirsch, J.E., and Hendrix, A.N., 2016, Estimating juvenile Chinook salmon (*Oncorhynchus tshawytscha*) abundance from beach seine data collected in the Sacramento-San Joaquin Delta and San Francisco Bay, California: [U.S. Geological Survey Open-File Report 2016-1099](#), 21 p.

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