USGS
science for a changing world
May 2014 | Issue 2.5

Western Fisheries Research Center (WFRC)

Western Fisheries Science News

Greg George walks a section of the Wapato reach, the focus of recent hydrodynamic studies on the Yakima River. Photo by USGS.

Assessing Climate-change Risks to Cultural and Natural Resources in the Yakima River Basin, WA

The Yakima River Basin (YRB) in eastern Washington is rich in cultural and natural resources. Named after the 14 tribes and bands that comprise the Yakama Nation—the YRB is important for recreation, natural resources, and agriculture. The YRB is home to many fish species, including ESA-listed salmon and trout. The Yakima River provides irrigation for the dry but fertile land in the valley and irrigated agriculture is the economic base in the region. Agricultural lands in the YRB total 2,600 km^2 and include irrigated pastures, orchards, grapes, and hops. A significant portion of Washington's apples, cherries, and hops are grown in the YRB and it is the first American viticultural area in the state.

Changes in climate are predicted to threaten cultural and natural resources in the YRB. The current climate of the basin is mild and dry since it is in the rain shadow of the Cascade Mountains. The Yakima River begins in the snowy mountains and ends in the desert of eastern Washington where it meets the Columbia River. Climate projections indicate that the weather may be getting even drier in the YRB and available water during summer months could be limited.

Scientists from Western Fisheries Research Center, Columbia River Tribal Fish Commission, Washington Water Science Center, Fort Collins Science Center, and Decision Analysis consultants, recently published a series of papers in (Continued on page 2)

Research

USGS Hosts Visiting Scientist from Spain: The WFRC is hosting a Ph.D. student, Natalia Ballesteros, from Centro de Investigaciones Biologicos (Madrid, Spain). Ballesteros is originally from Colombia but has been pursuing her Ph.D. in Madrid. Her dissertation is focused on improving oral vaccines for finfish viruses. While in Seattle, she will be analyzing a large data set comparing fish infected with or vaccinated against infectious hematopoietic necrosis virus (IHNV). IHNV is a significant pathogen of salmonid fishes in both North America and Europe. For more information, contact Maureen Purcell at mpurcell@usgs.gov or 206-526-2052.

USGS Mentioned in Issue of *Science*: In a recent issue of *Science*, the WFRC was mentioned for its fish laboratory at Marrowstone Marine Field Station (MMFS), located in Nordland, WA. The article titled "Death of the Stars" explores a mysterious disease that has been spreading among sea stars of the west coast of North America. WFRC is hosting Drew Harvell and other Cornell University personnel at MMFS who are investigating the cause of the die-offs. For more information, contact Jill Rolland at jrolland@usgs.gov or 206-526-6291.

Events

USGS Scientist Provides Public Outreach Information: Jill Hardiman presented the results of a salmon habitat assessment for the lower White Salmon River at a public meeting, the Future of the Lower White Salmon River, on May 17th. The meeting was organized by Mid-Columbia Fisheries Enhancement Group and the White Salmon River Watershed Management Committee to present information on fish habitat and an assessment of land development suitability of PacifiCorp properties in the lower White Salmon River. The primary focus was public outreach (Continued on page 2)

(continued from page 1) *Climatic Change* that incorporates stakeholder input to address climate impacts in the YRB. The series "Stakeholder input to climate change research in the Yakima River Basin, WA" contains six articles and represents an interdisciplinary approach to examining the influence of climate change on people and fish in the YRB. Jenni et al. (*2013*) addresses stakeholder-relevant climate change issues, such as water availability and uncertainty, with decision analysis tools. Montag et al. (*2014*) explores Yakama Tribal cultural values and well-being and their incorporation into the decision-making process. Graves and Maule (*2012*) simulates effects of climate change on stream temperatures under baseline conditions (1981-2005) and two future climate scenarios (increased air temperature of 1 °C and 2 °C). Hardiman and Mesa (*2013*) looks at the effects of increased stream temperatures on juvenile steelhead growth with a bioenergetics model. Finally, Hatten et al. (*2013*) examines how changes in stream flow will affect salmonids with a rule-based fish habitat model.

The series provides a framework for incorporating stakeholder input and assisting with decision support. Researchers hope to continue working with the Bureau of Reclamation, Yakima Nation, non-governmental organizations, and local agencies to support future planning in the region. For more information, visit http://link.springer.com/journal/10584/124/1/page/2, pages 363-439 or contact Jim Hatten at jhatten@usgs.gov or 509-539-2299.

Events

(Continued from page 1) and to solicit feedback from the varied public and private interest groups in the region. For more information, contact Jill Hardiman at jhardiman@usgs.gov or 509-528-2299.

USGS Scientist Provides Educational Outreach at Local Watershed Congress: On May 23, 2014, USGS scientist Craig Haskell presented at the 16th annual Watershed Congress held at Washington State University in Vancouver, WA for local middle and high school students. Haskell facilitated sessions where students presented results from their monitoring efforts in local waterways. Later he presented his dissertation work in the lower Columbia River describing food web interactions between juvenile Chinook salmon and nonnative American Shad. For more information, contact Craig Haskell at chaskell@usgs.gov or 509-538-2299.

Honors

USGS Researcher Receives Occupational Health and Safety Award of Excellence: On May 8, Noah Adams of the WFRC was recognized at the 69th Departmental Honor Awards Convocation. Adams was selected for the award for his work training divers to conduct underwater searches for invasive mussels. Adams trained over 45 divers from a variety of federal, state and county agencies. For more information, contact Noah Adams at nadams@usgs.gov at 509-538-2299, ext. 254.

USGS Scientist Receives Graduate Scholarship Award: On May 15, USGS Pathways Career Intern Rachel Reagan was awarded the Oregon Lottery Graduate Scholarship. The scholarship is part of a prestigious university-wide fellowship, requiring nomination from the Head of the Department (Fisheries and Wildlife). For more information contact Steve Waste at swaste@usgs.gov or 509-538-2299.

In The News

On May 15th, WFRC's Klamath Falls Field Station scientists were featured in an article by the *Herald & News*. The story "Sorting the spring spawn" discusses the endangered Lost River and shortnose suckers in the Klamath Basin and the research that USGS conducts to understand the status and dynamics of the sucker populations. For more information, contact David Hewitt at dhewitt@usgs.gov or 541-273-8689 x 215.

Employment

WFRC is advertising for an Ecology Branch Chief!

The Ecology Branch Chief sets the overall scientific direction for the aquatic ecology program at the WFRC. Programs are directed towards the advancement of knowledge in the area of aquatic ecosystems and contribute to the national goals and objectives of the USGS Fisheries: Aquatic and Endangered Resources Program. The announcement closes June 27, 2014 and complete job description can be viewed at USAJOBS.

Publications

Elliott, D.G., G.D. Wiens, K.L. Hammell, and L.D. Rhodes. 2014. Vaccination against Bacterial Kidney Disease. Pages 255-272 *in* Fish Vaccination, Gudding, R., A. Lillehaug, and Ø. Evensen (eds.)

Martens, K.D., and P.J. Connolly. 2014. Juvenile anadromous salmonid production in Upper Columbia River side channels with different levels of hydrological connection. Trans. Am. Fish. Soc. 143(3): 757-767.

Christiansen, H.E., A.C. Mehinto, F. Yu, R.W. Perry, N.D. Denslow, A.G. Maule, and M.G. Mesa. 2014. Correlation of gene expression and contaminant concentrations in wild largescale suckers: A field-based study. Sci. Total Environ. 484: 379-389.

Adams, N.S., J.M. Plumb, R.W. Perry, and D.W. Rondorf. 2014. Performance of a surface bypass structure to enhance juvenile steelhead passage and survival at lower Granite Dam, Washington, N. Am. J. Fish. Manage. 34(3): 576-594.

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