United States Environmental Protection Agency

Fish and Shellfish Program NEWSLETTER

July 2019
EPA 823-N-19-006

In This Issue

https://www.epa.gov/fish-tech

Recent Advisory News

New York State Department of Health offers New Advice On Consumption of Fish Caught In Some NY Waters

On March 20, 2019, the New York State Department of Health (NYSDOH) issued new advice about the consumption of certain fish caught in specific waters, due to elevated levels of polychlorinated biphenyls (PCBs) and mercury.

"Eating fish can be part of a healthy diet. However, some fish contain chemicals at levels that may be harmful to health. Our advice is intended to help people make informed choices about eating the fish they catch, while reducing the potential for exposure," said New York State Health Commissioner Dr. Howard Zucker.

The Department issues advice about eating sportfish (caught fish) because some fish contain chemicals at levels that that could adversely affect health. Although the advisories are not regulations, they do help people choose which fish to limit or avoid and learn how to reduce their exposure to contaminants in the fish they eat. The health advice is based on information from fish collected by the New York State Department of Environmental Conservation (NYSDEC).

Women in their childbearing years who eat highly contaminated fish and become pregnant may be at an increased risk of having children who are slower to develop and learn. Some chemicals may be passed on in mother's milk. Chemicals may also have a negative effect on the development of young children.

After reviewing the data, NYSDOH can make an advisory less restrictive or can issue new or additional advice (that would be more restrictive). Based on the most recent data collected, NYSDOH issued this advice for 2019:

Less Restrictive Advice				
Waterbody (County)	**Fish**	**Men over 15 & Women over 50**	**Women under 50 & Children under 15**	**Chemical**
Schoharie Reservoir (Delaware, Greene, Schoharie)	Smallmouth bass <15"	Up to 4 meals/month	Don't eat	Mercury
See http://www.health.ny.gov/fish/CAT for full Schoharie Reservoir advisory.				

More Restrictive Advice				
Waterbody (County)	**Fish**	**Men over 15 & Women over 50**	**Women under 50 & Children under 15**	**Chemical**
Hoosic River (Rensselaer & Washington)	Carp	Up to 1 meal/month	Don't eat	PCBs
See http://www.health.ny.gov/fish/HV for full Hoosic River advisory.				
Mohawk River/Erie Canal, between Lock E21 at New London and Lock E20 at Whitesboro (Oneida)	Carp	Up to 1 meal/month	Don't Eat	PCBs
	All other fish	Up to 4 meals/month	Don't Eat	PCBs
See http://www.health.ny.gov/fish/LE for full Mohawk River/Erie Canal advisory.				
Owasco Lake (Cayuga)	Smallmouth bass Walleye	Up to 1 meal/ month	Don't eat	Mercury Mercury
	Rainbow smelt Rainbow trout < 20" Yellow perch < 10"	Up to 4 meals/ month	Up to 4 meals/ month	Mercury Mercury Mercury
	Rainbow trout > 20" Yellow perch >10" All other fish	Up to 4 meals/ month	Up to 1 meal/ month	Mercury Mercury Mercury
See http://www.health.ny.gov/fish/FL for other advisories in the Finger Lakes Region.				
St. Lawrence River, from South Channel Bridge (including Turtle Creek Cove) downstream to north end of Raquette Point (Navigation Light Number 11) (St. Lawrence & Franklin)	All fish	Don't eat	Don't eat	PCBs
See http://www.health.ny.gov/fish/SL for full St. Lawrence River advisory.				

Boundaries for advisory areas in the Mohawk and St. Lawrence rivers have been updated and extended based on new data. Visit the Leatherstocking/Central and St. Lawrence Valley Regions on the NYSDOH website at www.health.ny.gov/fish for the updates.

Women beyond their childbearing years and men may face fewer health risks from some chemicals. For that reason, women over age 50 and men over age 15 are given more leeway to eat more kinds of sportfish and more often.

Advisory information is available at www.health.ny.gov/fish.

Consumers can also order publications about fish consumption online, free of charge.

Source: https://www.health.ny.gov/press/releases/2019/2019-03-20_advice_on_consumption_of_fish.htm

EPA News

Update to Chemical Dashboard Adds Wealth of Chemical and Biological Data and Improves User Interface

To ensure informed chemical safety decisions about thousands of chemicals, scientists and decision makers need a constantly evolving set of tools to quickly and efficiently evaluate chemicals of interest. On May 7, 2019, USEPA released an update to the online Computational Toxicology (CompTox) Chemicals Dashboard.

The CompTox Chemicals Dashboard is a one-stop-shop for chemistry, toxicity, exposure, and bioactivity data that allows for searches based on chemical identifiers (e.g. names and CAS Registry numbers), product categories that chemicals are found in, and assay and gene associations with the bioactivity data from EPA's Toxicity Forecaster (ToxCast) and Toxicology in the 21st Century (Tox21) projects. The CompTox dashboard has been updated with new data and functionality every six months for the past three years. The latest version, released in March 2019, adds 110,000 chemicals and associated data, bringing the total number of chemicals to 875,000. The dashboard release also includes several new improvements to the user interface allowing for improved navigation for all data associated with the chemicals' collection.

Dr. Antony Williams, a USEPA chemist and project lead for the dashboard, says that while the addition of the new chemicals was a great enhancement to the data, the new version also incorporates bioactivity data from the latest invitroDb release (v3.1). These data are collected as part of ToxCast's high-throughput screening program.

The latest version of the dashboard adds the ability to view concentration response plots for all ToxCast chemicals and makes it easier for users to navigate multiple results. It also enhances the batch search mode, which allows users to search for thousands of chemicals at one time, to include new types of data in the output.

Before the CompTox Chemicals Dashboard was developed three years ago, USEPA had a suite of web applications (also referred to as dashboards) including the ToxCast or Endocrine Disruptor Screening Program dashboards. Dr. Williams says that the latest dashboard release incorporates data from these dashboards and the plan is to shut down all previous dashboards by late summer 2019. The goal is to create one dashboard as a seamless experience for the user, allowing access to a broad spectrum of chemical and biological information. Consolidating all the data into one dashboard also helps make sure that USEPA's scientists and programmers are able to focus on adding new data, functionality, and improved performance that is valuable to USEPA and its stakeholders.

"We are well on the way to delivering a seamless integrated experience for examining and navigating both chemical and biological data of interest to environmental researchers. With this release we can reduce the burden of maintaining multiple applications and focus on enhancing one application, the underlying infrastructure, and taking the dashboard to the next level of capability," says Dr. Williams.

Dr. Williams says that he is looking forward to making prototype developments such as structure and substructure search, and even mass spectrum searching against predicted mass spec fragmentation spectra, available to the community as resources allow. There will also be new chemicals, their toxicity, and physicochemical property data

that will be added to the dashboard as it becomes available. Plans include rollout of an application programming interface and web services so that stakeholders can integrate the dashboard's data into their own applications and create customized views of the data instead of having to rely on the default interface.

"It is difficult to predict what the dashboard will morph into over the next few years, but it will continue serving its primary role by delivering USEPA data to the community, bringing that data into a coherent application, and integrating new data and modules in a way that had not been achieved to date," Dr. Williams says.

For more information, contact Dr. Antony Williams at william.antony@epa.gov.

Source: https://www.epa.gov/sciencematters/update-chemical-dashboard-adds-wealth-chemical-and-biological-data-and-improves-user

Other News

FDA Announces That It Won't Object to Certain Qualified Health Claims for EPA and DHA Omega-3 Consumption and the Risk of Hypertension and Coronary Heart Disease

On June 19, 2019, the U.S. Food and Drug Administration (FDA) announced that it does not intend to object to the use of certain qualified health claims stating that consuming eicosapentaenoic acid (EPA) and docosahexaenoic (DHA) omega-3 fatty acids in food or dietary supplements may reduce the risk of hypertension and coronary heart disease.

Specifically, FDA responded to a health claim petition submitted by The Global Organization for EPA and DHA Omega-3s in a letter of enforcement discretion. Enforcement discretion means that FDA does not intend to object to the claim if it is used consistent with the factors described in the letter of enforcement discretion. FDA determined that the overall evidence did not meet the "significant scientific agreement" standard required for an authorized health claim but did meet the "credible evidence" standard for a qualified health claim in the labeling of conventional foods and dietary supplements.

The Agency found that while there is some credible evidence suggesting that combined intake of EPA and DHA from conventional foods and dietary supplements may reduce the risk of hypertension by lowering blood pressure, this evidence is inconclusive and highly inconsistent. EPA and DHA omega-3 fatty acids are found primarily in some fatty fish, fish oils and dietary supplements.

FDA thoroughly reviewed the 717 publications cited by the petitioner. It also considered other written data and information, including studies published after the petition was submitted and studies cited in public comments about the petition. FDA posted the petition for comment and received 22 comments in response to the petition.

Under FDA's health claim regulations, foods and dietary supplements that bear a health claim must meet requirements regarding levels of certain nutrients. These requirements and the enforcement discretion factors FDA

intends to consider for the use of this qualified health claim are described in detail in the letter of enforcement discretion issued to the petitioner. One of these enforcement discretion factors is that dietary supplements and conventional foods labeled with the qualified health claim contain at least 0.8 grams EPA and DHA (combined total) per serving. To prevent consumer deception about the strength of the science underlying the new claim, the qualified health claim must be accompanied by a disclaimer or other qualifying language that accurately describes the level of scientific evidence supporting the claim. FDA intends to exercise enforcement discretion for the following qualified health claims regarding EPA and DHA when the claims are used in the labeling of conventional foods and dietary supplements consistent with the letter of enforcement discretion:

1. Consuming EPA and DHA combined may help lower blood pressure in the general population and reduce the risk of hypertension. However, FDA has concluded that the evidence is inconsistent and inconclusive. One serving of [name of the food or dietary supplement] provides [ ] gram(s) of EPA and DHA.

2. Consuming EPA and DHA combined may reduce blood pressure and reduce the risk of hypertension, a risk factor for CHD (coronary heart disease). However, FDA has concluded that the evidence is inconsistent and inconclusive. One serving of [name of the food or dietary supplement] provides [ ] gram(s) of EPA and DHA.

3.a. Consuming EPA and DHA combined may reduce the risk of CHD (coronary heart disease) by lowering blood pressure. However, FDA has concluded that the evidence is inconsistent and inconclusive. One serving of [name of the food or dietary supplement] provides [ ] gram(s) of EPA and DHA.

3.b. Consuming EPA and DHA combined may reduce the risk of CHD (coronary heart disease) by reducing the risk of hypertension. However, FDA has concluded that the evidence is inconsistent and inconclusive. One serving of [name of the food or dietary supplement] provides [ ] gram(s) of EPA and DHA.

4. Research shows that consuming EPA and DHA combined may be beneficial for moderating blood pressure, a risk factor for CHD (coronary heart disease). However, FDA has concluded that the evidence is inconsistent and inconclusive. One serving of [name of the food or dietary supplement] provides [ ] gram(s) of EPA and DHA.

In addition to the qualified health claims announced in the letter, since 2004 FDA has exercised enforcement discretion for the qualified health claim “Supportive but not conclusive research shows that consumption of EPA and DHA omega-3 fatty acids may reduce the risk of coronary heart disease” under certain circumstances.

For More Information

- FDA Response to Petition for Qualified Health Claim that EPA and DHA Omega-3 Consumption May Reduce Risk of Hypertension
- Qualified Health Claims

For more information, contact Douglas Balentine, PhD., at douglas.balentine@fda.hhs.gov.

Source:
http://s2027422842.t.en25.com/e/es?s=2027422842&e=226281&elqTrackId=376c7bc788024cd5a73d955f2e3dcbdc&elq=27d46620aca04d16b65c868cf0469d21&elqaid=8439&elqat=1

CEC Continues to Develop Outreach Campaign for Subsistence Fish Consumers

In February 2019, the Duke University Superfund Center's Community Engagement Core (CEC) held a meeting related to a project with the goal to assist subsistence fish consumers decrease contaminant exposures in fish. The CEC is working with community-based organizations to implement a subsistence fisher survey. As a result of the survey, an educational/outreach campaign was developed that intended to change people's actions so that contaminant exposure from fish is reduced.

Source: https://sites.nicholas.duke.edu/superfund/outreach-fish-campaign-progress/

Recently Awarded Research

USEPA Awards Five Pacific Northwest Tribes Nearly $500k for Water Quality and Habitat Restoration

On February 5, 2019, USEPA awarded five Northwest tribes a total of $498,601 to boost programs that restore habitat and protect tribal water quality across three Northwest states. Grant funds have been awarded to the Nooksack Indian Tribe, Quinault Indian Nation, Confederated Tribes of the Colville Reservation, Confederated Tribes of the Umatilla Indian Reservation, and Nez Perce Tribe, through USEPA's CWA Nonpoint Source program.

Congress enacted Section 319 of the CWA in 1987, establishing a national program to control nonpoint sources of water pollution. Through Section 319, USEPA provides states, territories, and tribes with guidance and grant funding to implement their nonpoint source programs and to support local watershed projects to improve water quality. Collectively this work has restored over 6,000 miles of streams and over 164,000 acres of lakes since 2006. Hundreds of additional projects are underway across the country.

The following are specific project profiles from this round of funding:

Nooksack Indian Tribe - Project Title: Riparian Restoration along Black Slough Tributary to South Fork Nooksack River to Address Water Temperature and Salmon Habitat Impairments.
(Contact: Oliver Grah, 360-592-5140 Ext. 3139) ($99,997)

Both the North/Middle Fork and South Fork Nooksack River early Chinook populations are considered essential for Puget Sound Chinook salmon recovery, but current abundances of Nooksack natural-origin spawners are critically low. While hatchery programs are in place to ensure persistence of both populations, recovery will require

substantial improvement in habitat conditions. The South Fork Nooksack River (SFNR) watershed is the highest salmon habitat restoration priority to recover the South Fork Nooksack early Chinook population. This project will address high temperatures and low river flows that substantially limit the South Fork Nooksack early Chinook population. Specifically, the Nooksack Tribe will:

1) Refine riparian protection and restoration actions.
2) Restore 10 acres of riparian buffer along Tinling Creek, a tributary to Black Slough and the SFNR.
3) Restore 30 acres of riparian wetland associated with Tinling Creek and Black Slough.
4) Monitor and maintain treated areas for two years.
5) Conduct water quality monitoring above, within, and below the treated areas.
6) Analyze data and prepare reports that discuss the effectiveness of protection and restoration actions.

Quinault Indian Nation - Project Title: Invasive plant species removal and native replanting in riparian areas to improve water quality in the Lower Quinault River. (Contact: Greg Eide, 360-276-8215) ($100,000)

Invasive knotweed upsets native ecosystem functions that native salmonid species depend on by excluding native vegetation, influencing sediment transport, and impacting the food web by reducing the abundance and diversity of insects. Native trees and shrubs that would usually grow tall and provide shade and habitat structure are prevented from growing in areas infested with knotweed. Thousands of acres of knotweed infestations occur in the Queets-Clearwater rivers, Quinault River, Moclips River, and Raft River basins. With this funding, the Quinault Indian Nation will:

1) Revisit and spot-treat remnant knotweed infestations along two river miles of the lower Quinault River.
2) Conduct initial treatment of invasive knotweed along an additional two river miles on the lower Quinault River.
3) Establish native plant communities on river miles where patches treated over the past few years have left open ground.
4) Finalize and implement the Stewardship Plan for the Quinault Indian Reservation.

Confederated Tribes of the Colville Reservation - Project Title: Stream crossing and road improvements in Little Jim Creek Watershed. (Contact: Douglas Marconi, 509-634-2417) ($100,000)

The Confederated Tribes of the Colville Reservation (CTCR) will implement nonpoint source water pollution best management practices (BMPs) to improve water quality in the Little Jim Creek watershed with two new stream crossing and critical road improvements. The project work will improve water quality by reducing sediment from roads to streams and will improve in-stream channel hydraulics on this tributary to the Columbia River, complementing other restoration efforts by CTCR in the watershed.

Confederated Tribes of the Umatilla Indian Reservation - Project Title: Meacham Creek Floodplain and Riparian Restoration Project. (Contact: Rick Christian, 541-429-7283) ($98,604)

Meacham Creek was constrained years ago by the construction of an adjacent railway that included extensive levees (to force the stream away from the tracks), channel relocation, channelization, vegetation alteration, and harvesting of wood for fuel to power trains. Primary use of the USEPA funds will be to excavate the side channel and main channels to reconnect the main channel to the floodplain, as well as providing erosion control best management practices through levee removal and channel reconnection/creation.

Nez Perce Tribe - Project Title: Water quality improvement project in the headwaters of the Lower Lapwai Creek watershed. (Contact: Ken Clark, 208-843-7368) ($100,000)

The Lapwai Creek watershed is part of the lower Clearwater River drainage. The watershed is approximately 175,000 acres and is located in both Nez Perce and Lewis counties. This project will:

1) Create approximately 14-acres of new riparian habitat along a heavily degraded stream reach.
2) Construct beaver dam analogues throughout the project area to promote reconnection of floodplain surfaces and increase habitat heterogeneity and quality.
3) Replace one dilapidated culvert.
4) Collect data to determine the effectiveness of implemented BMPs.
5) Present and disseminate program information at local gatherings and venues with the goals of highlighting tribal programs, educating local community members, and promoting collaboration.

For more about USEPA's Tribal 319 program visit https://www.epa.gov/nps/tribal-319-grant-program or contact Mark MacIntyre at 206-553-7302 or macintyre.mark@epa.gov.

Source: https://www.epa.gov/newsreleases/epa-awards-five-pacific-northwest-tribes-nearly-500k-water-quality-and-habitat

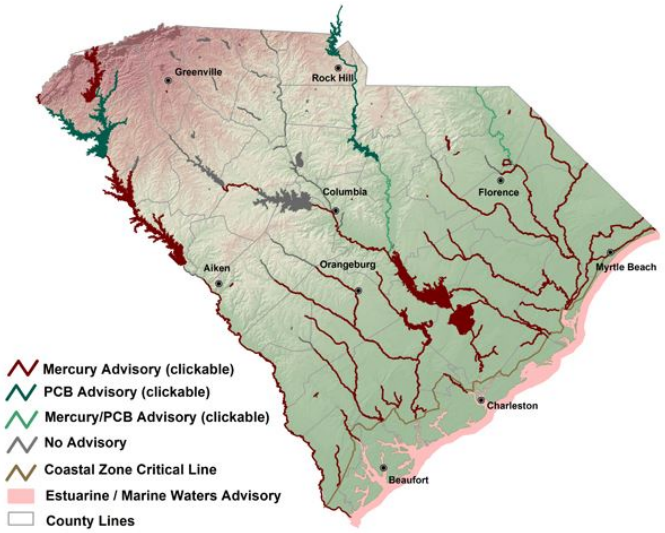
Tech and Tools

South Carolina Department of Health and Environmental Control Fish Advisory Map

Whether fishing to enjoy the outdoors, to spend time with family, or to catch dinner, always be safe about eating fish. The South Carolina Fish Consumption Advisories provide guidance on where fish consumption should be limited and where it is safe to eat fish without any restrictions through its interactive fish advisory map.

Fish Advisory Map

Users can roll the mouse over a burgundy or green area to identify the waterbody name. By clicking on a waterbody, they can view the current advisory.



Screenshot of the South Carolina Department of Health and Environmental Control (SCDHEC) Fish Advisory Map. *(Photo courtesy of SCDHEC)*

For more information:

- **Download a more detailed map (pdf)**
- **Fish Consumption Advisory Table (pdf)**

Index of All Waterbodies Where Fish Tissue is Tested in South Carolina

Below is an index of waterbodies in South Carolina where fish tissue has been tested. Not all have fish advisories.

Index of all Waterbodies Where Fish Tissue is Tested in South Carolina					
Ashepoo River	Cooper River	Lake Cherokee	Lake Murray	Lower Wando River	Salkehatchie River
Ashley River	Coosawhatchie River	Lake Conestee	Lake Oliphant	Lumber River	Saluda River
Ashley River (downstream of U.S. Hwy 17)	Cuckolds Creek	Lake Cooley	Lake Prestwood	Lynches River	Sampit River
Back River Reservoir	Dargan's Pond	Lake Cunningham	Lake Rabon	Marine Waters	Santee Cooper Lakes
Black Creek	Diversion Canal (Santee Cooper Lakes)	Lake Edgar Brown	Lake Russell	Middle Tyger River	Santee River
Black Mingo Creek	Durham Creek	Lake George Warren	Lake Secession	Mountain Lake 1	Savannah River
Black River	Edisto River	Lake Greenwood	Lake Thicketty	Mountain Lake 2	Sesquicentennial State Park
Broad River	Edisto River (downstream of U.S. Hwy. 17)	Lake H.B. Robinson	Lake Tugaloo	Muddy Bay	South Fork Edisto River
Broadway Lake	Estuarine Waters	Lake Hartwell	Lake Wallace	New River	South Santee River
Cape Romain	Fishing Creek Reservoir	Lake J. Strom Thurmond (Clarks Hill Lake)	Lake Wateree	North Fork Edisto River	Star Fort Pond

Catawba River	Four Hole Swamp	Lake J.A. Robinson (Greenville County)	Lake Wylie	North Santee River	Sunrise Lake
Cedar Creek Reservoir	Goose Creek Reservoir	Lake Joccassee	Lake Yonah	North Tyger River	Waccamaw River
Charleston Harbor	Great Pee Dee River	Lake John D. Long	Lancaster Reservoir	Parr Reservoir	Wadboo Creek
Chessey Creek	Horseshoe Creek	Lake Keowee	Langley Pond	Penny Creek	Wadmacon Creek
Clarks Creek	Intracoastal Waterway	Lake Marion	Little Pee Dee River	Pocotaligo River	Wambaw Creek
Combahee River	Lake Ashwood	Lake Monticello	Little River	Port Royal Sound	Wateree River
Combahee River (downstream of U.S. Hwy. 17)	Lake Blalock	Lake Monticello Sub-Impoundment	Little Salkehatchie River	Rediversion Canal	Winyah Bay
Congaree River	Lake Bowen	Lake Moultrie	Louthers Lake	Russ Creek	

For more information, contact Chad Altman at 803-898-4035 or Altmankc@dhec.sc.gov.

Source: https://www.dhec.sc.gov/food-safety/food-monitoring-advisories/fish-consumption-advisories

Recent Publications

Journal Articles

- Rounding the corner on residual risk: Implications of REDUCE-IT for omega-3 polyunsaturated fatty acids treatment in secondary prevention of atherosclerotic cardiovascular disease
  Baum, S.J. and K.P. Scholz. 2019. Rounding the corner on residual risk: Implications of REDUCE-IT for omega-3 polyunsaturated fatty acids treatment in secondary prevention of atherosclerotic cardiovascular disease. *Clinical Cardiology* 1:10.

- Depuration reduces microplastic content in wild and farmed mussels
  Birnstiel, S., A. Soares-Gomes, and B.A.P. da Gama. 2019. Depuration reduces microplastic content in wild and farmed mussels. *Marine Pollution Bulletin* 140:241-47.

- Land use contributions to adverse biological effects in a complex agricultural and urban watershed: A case study of the Maumee River
  Cipoletti, N., Z. Jorgenson, J. Banda, S. Hummel, S. Kohno, and H. Schoenfuss. 2019. Land use contributions to adverse biological effects in a complex agricultural and urban watershed: A case study of the Maumee River. E*nvironmental Toxicology and Chemistry* 38(5):1035-1051.

- Nitrogen removal potential of shellfish aquaculture harvests in eastern Canada: A comparison of culture methods
  Clements, J.C., and L.A. Comeau. 2019. Nitrogen removal potential of shellfish aquaculture harvests in eastern Canada: A comparison of culture methods. *Aquaculture Reports* 13:100183.

- Trace minerals in tilapia fillets: Status in the United States marketplace and selenium supplementation strategy for improving consumer's health
  Farzad, R., D.D. Kuhn, S.A. Smith, S.F. O'Keefe, N.V.C. Ralston, A.P. Neilson, and D.M. Gatlin. 2019. Trace minerals in tilapia fillets: Status in the United States marketplace and selenium supplementation strategy for improving consumer's health. *PLoS ONE* 14(6):e0217043.

- Toxic effects of a methanolic coal dust extract on fish early life stage
  Guerrero-Castilla, A., J. Olivero-Verbel, I.T. Sandoval, and D.A. Jones. 2019. Toxic effects of a methanolic coal dust extract on fish early life stage. *Chemosphere* 227:100-108.

- Urban recreational fisheries: Implications for public health in metro-Phoenix
  Lucas, D. and B. Polidoro. 2019. Urban recreational fisheries: Implications for public health in metro-Phoenix. *Chemosphere* 225:451-459.

- Legacy habitat contamination as a limiting factor for Chinook salmon recovery in the Willamette Basin, Oregon, USA
  Lundin, J.I., J.A. Spromberg, J.C. Jorgensen, J.M. Myers, P.M. Chittaro, R.W. Zabel, L.L. Johnson, R.M. Neely. and N.L. Scholz. 2019. Legacy habitat contamination as a limiting factor for Chinook salmon recovery in the Willamette Basin, Oregon, USA. *PLoS ONE* 14(3):e0214399.

- Biomonitoring of pesticides, pharmaceuticals and illicit drugs in a freshwater invertebrate to estimate toxic or effect pressure
  Miller, T.H., K. Tiong Ng, S.T. Bury, S.E. Bury, N.R. Bury, L.P. Barron. 2019. Biomonitoring of pesticides, pharmaceuticals and illicit drugs in a freshwater invertebrate to estimate toxic or effect pressure. *Environment International* 129:595-606.

- Applicability of a human cell co-culture model to evaluate antioxidant responses triggered by chemical mixtures in fish and oyster homogenates
  Sutherland, G.E., M.E. Franco, S.M. Willing, and R. Lavado. 2019. Applicability of a human cell co-culture model to evaluate antioxidant responses triggered by chemical mixtures in fish and oyster homogenates. *Food and Chemical Toxicology* 128:154-162.

- Organic carbon content drives methylmercury levels in the water column and in estuarine food webs across latitudes in the Northeast United States
  Taylor, V.F., K.L. Buckman, E.A. Seelen, N.M. Mazrui, P.H. Balcom, R.P. Mason, and C.Y. Chen. 2019. Organic carbon content drives methylmercury levels in the water column and in estuarine food webs across latitudes in the Northeast United States. *Environmental Pollution* 246:639-649.

- Environmental contaminants in fish species from a large dam reservoir and their potential risks to human health
  Varol, M. and M.R. Sünbül. 2019. Environmental contaminants in fish species from a large dam reservoir and their potential risks to human health. *Ecotoxicology and Environmental Safety* 169:507-515.

- Bisphenol A and 17α-ethinylestradiol-induced transgenerational differences in expression of osmoregulatory genes in the gill of medaka (*Oryzias latipes*)
  Wang, X., D. Hill, D.E. Tillitt, and R.K. Bhandari. 2019. Bisphenol A and 17α-ethinylestradiol-induced transgenerational differences in expression of osmoregulatory genes in the gill of medaka (*Oryzias latipes*). *Aquatic Toxicology* 211:227-234.

Upcoming Meetings and Conferences

19th International Conference on Diseases of Fish and Shellfish
September 9–12, 2019
Porto, Portugal

Atlantic International Chapter Meeting
September 22–24, 2019
Prince Edward Island, Canada

2019 Interstate Shellfish Sanitation Conference (ISSC) Biennial Meeting
October 5–10, 2019
San Diego, California

International Conference on Molluscan Shellfish Safety
September 13, 2019
Ensenada, Baja California

American Fisheries Society & The Wildlife Society 2019 Joint Annual Conference
September 29 – October 3, 2019
Reno, Nevada

Organization of Fish and Wildlife Information Managers Annual Conference
October 6–10, 2019
Shepherdstown, West Virginia

Additional Information

This monthly newsletter highlights current information about fish and shellfish.

For more information about specific advisories within the state, territory, or tribe, contact the appropriate state agency listed on EPA's National Listing of Fish Advisories website at https://fishadvisoryonline.epa.gov/Contacts.aspx.

For more information about this newsletter, contact Sharon Frey (Frey.Sharon@epa.gov, 202-566-1480).

Additional information about advisories and fish and shellfish consumption can be found at https://www.epa.gov/fish-tech.