EPA United States Environmental Protection Agency

Fish and Shellfish Program NEWSLETTER

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In This Issue

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

This is the first newsletter in a monthly series that will highlight current information about fish and shellfish. The newsletter provides a snapshot of recent advisories, federal agency activities, publications, awarded research, and future meetings and conferences.

Recent Advisory News

Texas Advisories

Texas Fish and Shellfish Consumption Advisory ADV-53

This advisory is issued as a result of sampling of Lake Livingston and the Trinity River from U.S. Highway 287 downstream to U.S. Highway 90. Fish samples collected from Lake Livingston and the Trinity River indicate the presence of dioxins and polychlorinated biphenyls (PCBs) at concentrations exceeding health assessment guidelines established by the Texas Department of State Health Services. Consumption of fish from Lake Livingston and the Trinity River from U.S. Highway 287 downstream to U.S. Highway 90 may pose a threat to human health. This advisory shall remain in effect until rescinded or modified in writing.

Counties: Anderson, Freestone, Houston, Leon, Liberty, Madison, Polk, San Jacinto, Trinity, and Walker

Area: The Trinity River and all contiguous waters from the U.S. Highway 287 Bridge downstream to the U.S. Highway 90 Bridge including Lake Livingston

Contaminants of Concern	Species	Women of Childbearing Age and Children <12	Women Past Childbearing Age and Adult Men
Dioxins and PCBs	Blue catfish	DO NOT EAT	1 meal/month
	Flathead catfish	DO NOT EAT	1 meal/month
	Freshwater drum	DO NOT EAT	2 meals/month
	Gar (all species)	DO NOT EAT	DO NOT EAT
	Smallmouth buffalo	DO NOT EAT	1 meal/month
	Striped bass	1 meal/month	3 meals/month
	White bass	1 meal/month	3 meals/month

For more information: https://dshs.texas.gov/seafood/advisories-bans.aspx

Texas Fish and Shellfish Consumption Advisory ADV-54

This advisory is issued as a result of sampling of the Arroyo Colorado, Cameron and Hidalgo Counties and revises ADV-34 issued January 31, 2008 for the Arroyo Colorado upstream of the Port of Harlingen. Pesticide concentrations in fish from the Arroyo

Colorado upstream of the Port of Harlingen have decreased to acceptable levels. Longnose gar collected from the Arroyo Colorado indicates the presence of mercury and polychlorinated biphenyls (PCBs) at concentrations exceeding health assessment guidelines established by the Texas Department of State Health Services (DSHS). Smallmouth buffalo collected from the Arroyo Colorado indicate the presence of PCBs at concentrations exceeding health assessment guidelines established by the DSHS. Consumption of longnose gar and smallmouth buffalo from the Arroyo Colorado may pose a threat to human health. This advisory shall remain in effect until rescinded or modified in writing.

Counties: Cameron and Hidalgo

Area: Arroyo Colorado, Llano Grande Lake, and the Main Floodway upstream of the Port of Harlingen

Contaminants of Concern	Species	Women of Childbearing Age and Children <12	Women Past Childbearing Age and Adult Men
Mercury and PCBs	Longnose gar	DO NOT EAT	DO NOT EAT
	Smallmouth buffalo	DO NOT EAT	2 meals/month[1]

[1] A meal is eight ounces of fish

For more information: https://dshs.texas.gov/seafood/advisories-bans.aspx

Texas Fish and Shellfish Consumption Advisory ADV-55

This advisory is issued as a result of sampling of the Houston Ship Channel located in Harris County and revises ADV-49 issued June 26, 2013 for the Houston Ship Channel and the San Jacinto River below the Lake Houston Dam. Pesticide concentrations in fish from the Houston Ship Channel have decreased to acceptable levels, however, blue crab and fish samples collected from the Houston Ship Channel continue to indicate the presence of polychlorinated biphenyls (PCBs) and polychlorinated dibenzo-p-dioxins and dibenzofurans (PCDDs/PCDFs; dioxins) at concentrations exceeding health assessment guidelines established by the Texas Department of State Health Services (DSHS). Consumption of blue crab and fish from the Houston Ship Channel and the San Jacinto River below the Lake Houston Dam may pose a threat to human health. This advisory shall remain in effect until rescinded or modified in writing.

County: Harris

Area: The Houston Ship Channel and all contiguous waters north of the Fred Hartman Bridge, State Highway 146 including the San Jacinto River below the Lake Houston Dam

Contaminants of Concern	Species	Women of Childbearing Age and Children <12	Women Past Childbearing Age and Adult Men
Dioxins and PCBs	All species of fish and blue crab	DO NOT EAT	1 meal/month[1]

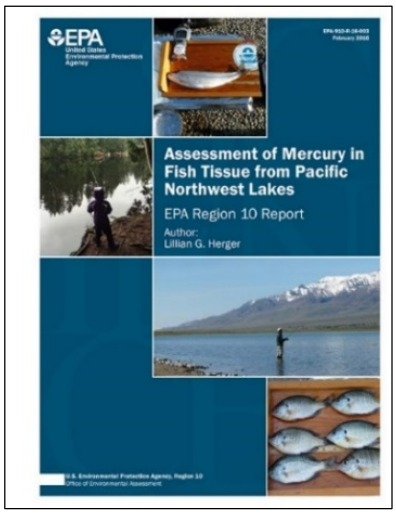
[1] A meal is eight ounces of fish

For more information: https://dshs.texas.gov/seafood/advisories-bans.aspx

EPA News

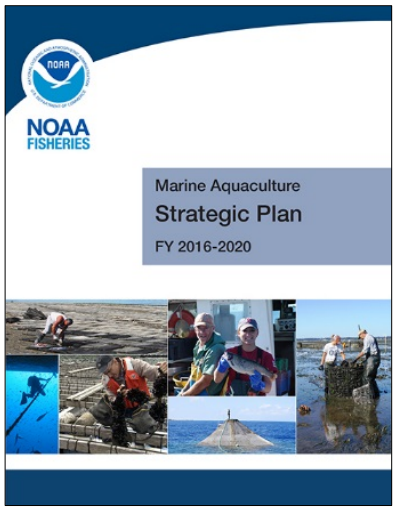
In February 2016, EPA released the report: *Assessment of Mercury in Fish Tissue from Pacific Northwest Lakes*. The report summarizes the results of a mercury assessment of fish in the Pacific Northwest. During the 2012 to

2014 study, sportfish were collected from 50 fishable lakes in Idaho, Oregon, and Washington. All of the fish samples had quantifiable levels of mercury that exceeded the Minimum Reporting Level of 0.0125 mg kg wet weight based on standard mass of 80 mg wet tissue. EPA's tissue-based water quality criterion (300 µg kg-1) was exceeded in 11% of the fishable lakes. A comparison of the results to other regional fish tissue mercury studies found that generally, Pacific Northwest lakes have lower fish tissue mercury concentrations. The EPA report is available at: https://www.epa.gov/fish-tech/assessment-mercury-fish-tissue-pacific-northwest-lakes.



Other News

NOAA Fisheries Releases its Marine Aquaculture Strategic Plan



NOAA's Plan will guide efforts within NOAA Fisheries to support development of sustainable marine aquaculture from 2016-2020. The Plan features four main goals: regulatory efficiency, science tools for sustainable management, technology development and transfer, and an informed public. Cross-cutting strategies of the plan include strengthening partnerships, improving external communications, building infrastructure to support marine aquaculture, and sound program management. The Plan also establishes a target of expanding sustainable U.S. marine aquaculture production by at least 50 percent by the year 2020. The U.S. imports over 90% of its seafood, about half of which is farmed. While aquaculture globally has grown dramatically over the past 30 years, in the U.S. production has remained low. "As demand for seafood continues to rise, aquaculture presents a tremendous opportunity not only to meet this demand, but also to increase opportunities for the seafood industry and job creation," said Kathryn Sullivan, Ph.D., NOAA administrator. "Expanding U.S. aquaculture in federal waters complements wild harvest fisheries and supports our efforts to maintain sustainable fisheries and resilient oceans." Source: http://www.nmfs.noaa.gov/aquaculture/homepage_stories/26_aquaculture_strategic_plan2016.html. Download the plan: http://www.nmfs.noaa.gov/aquaculture/docs/aquaculture_docs/noaa_fisheries_marine_aquaculture_strategic_plan_fy_2016-2020.pdf.

Assessing Emerging Algal Toxin Threat in Washington State Waters

In early June 2016, NOAA and Washington State partners began a four-month long effort to monitor shellfish and water every week at six locations around Puget Sound and on the Pacific coast. The team plans to measure concentrations of marine algae and their associated lipophilic (fat soluble) toxins, which can accumulate in shellfish and cause human illnesses when consumed. Lipophilic shellfish toxins comprise an extensive suite of compounds, including those associated with the human illnesses known as diarrhetic shellfish poisoning (DSP) and azasparacid shellfish poisoning (AZP). Though research has documented several algal species associated with DSP in Washington waters, distribution and toxicity data is limited. While little is known about the distribution of algal species that produce AZP toxins in the U.S., they have been found in Puget Sound water and shellfish.

The research team will map the distribution of toxic algae that produce DSP and AZP toxins and establish and validate a tiered HAB early warning system using capabilities of the SoundToxins and ORHAB programs. Ultimately, the research will establish globally accepted protocols for quantifying a suite of lipophilic toxins to enhance state agency biotoxin monitoring programs. The team is led by the NOAA Northwest Fisheries Science Center and includes the Washington Department of Health, University of Washington, Washington Sea Grant, NCCOS, Jamestown S'Klallam Tribe, the U.S. Food and Drug Administration, Molecular Resources, LLC, and the Alfred Wegener Institute, Germany. This is an NCCOS Monitoring and Event Response for Harmful Algal Bloom (MERHAB) supported project. For more information, contact Marc.Suddleson@noaa.gov.

Source: https://coastalscience.noaa.gov/news/habs/assessing-emerging-algal-toxin-threat-washington-state-waters/

Recently Awarded Research

2016–2017 Monkfish Research Set-Aside Awards Announced

NOAA Fisheries, in coordination with the New England and Mid-Atlantic Fishery Management Councils, announced the selection of two cooperative research proposals submitted to the 2016/2017 Monkfish Research Set Aside (RSA) Program. Researchers will work on two projects involving dozens of commercial fishing vessels, supported by awards valued at approximately $3.77 million. Both grant recipients propose to build on previous research in an effort to identify monkfish stock structure through genetic studies and to estimate growth and movement of juvenile monkfish.

Monkfish (*Lophius americanus*)

The University of Massachusetts Dartmouth School of Marine Science and Technology (SMAST) will tag juvenile monkfish to improve monkfish growth estimates, a critical parameter for the model used in the monkfish stock assessment. A previous monkfish research set-aside grant to this group found that the current approach of

estimating monkfish growth is not valid, exposing a gap in the monkfish stock assessment. This two-year project proposes to fill this gap for juvenile monkfish through this tagging study.

Researchers at Cornell University Cooperative Extension of Suffolk County, in cooperation with New York University School of Medicine, will conduct a two-year study of the fine-scale genetic population structure of monkfish. The new study will use microsatellite DNA analysis to determine if monkfish constitute a single or multiple stocks over their coast-wide distribution from Newfoundland to North Carolina, define their spatial boundaries, and determine if there is migrational mixing between management areas.

Source: http://www.nefsc.noaa.gov/coopresearch/news/monkfish-rsa-2016-17.html.

Recent Publications

Journal Articles

The list below provides a selection of research articles focusing on PCBs.

Fish and Shellfish Health

- Exposure to sublethal levels of PCB-126 impacts fuel metabolism and swimming performance in rainbow trout
  Bellehumeur, K., D. Lapointe, S.J. Cooke, and T.W. Moon. 2016. *Comparative Biochemistry and Physiology Part B: Biochemistry and Molecular Biology* (in press).

- Variability of PCB burden in 5 fish and sharks species of the French Mediterranean continental slope
  Cresson, P., M.C. Fabri, F.M. Miralles, J.L. Dufour, R. Elleboode, K. Sevin, K. Mahé, and M. Bouchoucha. 2016. *Environmental Pollution* 212:374–381.

- Re-visiting projections of PCBs in Lower Hudson River fish using model emulation
  Field, L.J., J.W. Kern, and L.B. Rosman. 2016. *Science of the Total Environment* 557–558:489–501.

- Different carbon sources affect PCB accumulation by marine bivalves
  Laitano, M.V., M.F. Silva Barni, P.G. Costa, M. Cledón, G. Fillmann, K.S.B. Miglioranza, and H.O. Panarello. 2016. Marine Environmental Research 113:62–69.

- PCB and OCP accumulation and evidence of hepatic alteration in the Atlantic bluefin tuna, *T. thynnus*, from the Mediterranean Sea
  Maisanoa, M., T. Cappello, S. Oliva, A. Natalotto, A. Giannetto, V. Parrino, P. Battaglia, T. Romeo, A. Salvo, N. Spanò, and A. Mauceri. 2016. *Marine Environment Research* (in press).

- Analysis of all 209 polychlorinated biphenyl (PCB) congeners (with special reference to dioxin-like PCB congeners) in Japanese seabass and related species by high-resolution gas chromatography/high-resolution mass spectrometry (HRGC/HRMS)
  Matsumoto, R., N.P.C. Tu, S. Haruta, M. Kawano, and I. Takeuchi. 2016. *Regional Studies in Marine Science* 3:119–130.

- Identification of Baltic Sea salmon based on PCB and dioxin profiles
  Sørensen, S., K.H. Lund, T.L. Cederberg, and N.Z. Ballin. 2016. *Food Control* 61:165–171.

- Persistent organic pollutants in tissues of the white-blooded Antarctic fish *Champsocephalus gunnari* and *Chaenocephalus aceratus*
  Strobel, L., P. Schmid, H. Segner, P. Burkhardt-Holm, and M. Zennegg. 2016. *Chemosphere* (in press).

Human Dietary Exposure

- Dietary exposure to polychlorinated biphenyls and risk of myocardial infarction in men – A population-based prospective cohort study
  Bergkvist, C., M. Berglund, A. Glynn, B. Julin, A. Wolk, and A. Åkesson. 2016. *Environment International* 88:9–14.

- PCDDs, PCDFs and PCBs in farmed fish produced in Greece: Levels and human population exposure assessment
  Costopoulou, D., I. Vassiliadou, and L. Leondiadis. 2016. *Chemosphere* 146:511–518.

- Polychlorinated biphenyls and omega-3 fatty acid exposure from fish consumption, and thyroid cancer among New York anglers
  Haslam, A., S.W. Robb, M.R. Bonner, W. Lindblad, J. Allegra, Y. Shen, and J.E. Vena. 2016. *Journal of Environmental Sciences* 41:270–277.

- Benefits and risks associated with consumption of Great Lakes fish containing omega-3 fatty acids and polychlorinated biphenyls (PCBs)
  Paliwoda, R.E., A.M. Newbigging, Z. Wang, and X.C. Le. 2016. *Journal of Environmental Sciences* 41:1–5.

- Estimated dietary intake and risk assessment of polychlorinated dibenzo-p-dioxins and dibenzofurans and dioxin-like polychlorinated biphenyls from fish consumption in the Korean general population
  Shin, E.S., J. Kim, S.-D. Choi, Y.-W. Kang, and Y.-S. Chang. 2016. *Chemosphere* 146:419–425.

Other

- Evaluation of the global impacts of mitigation on persistent, bioaccumulative and toxic pollutants in marine fish
  Bonito, L.T., A. Hamdoun, and S.A. Sandin. 2016. *PeerJ* 4:e1573.

- Environmental PCBs in Guánica Bay, Puerto Rico: Implications for community health
  Kumar, N., D. Ramirez-Ortiz, H.M. Solo-Gabriele, J.B. Treaster, O. Carrasquillo, M. Toborek, S. Deo, J. Klaus, L.G. Bachas, D. Whitall, S. Daunert, and J. Szapocznik. 2016. *Environmental Science and Pollution Research* 23(3):2003–2013.

- Improvements in fish polychlorinated biphenyl and other contaminant levels in response to remedial actions at Hamilton Harbour, Ontario, Canada
  Neff, M.R., S. Stefanoff, and S.P. Bhavsar. 2016. *Aquatic Ecosystem Health & Management* 19(2):161–170.

Upcoming Meetings and Conferences

146th Annual Meeting of the American Fisheries Society
August 21–25, 2016
Kansas City, Missouri

18th International Conference on Shellfish Restoration
November 16–19, 2016
Charleston, South Carolina

Pacific Coast Shellfish Growers Association 70th Annual Shellfish Conference and Tradeshow
October 11–14, 2016
Chelan, Washington

67th Annual Northwest Fish Culture Concepts: A Workshop for Fish Culturists
December 6–8, 2016
Centralia, Washington

Additional Information

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 (NLFA) 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.