

Northeast Region Key Products (Report Template)

4th Quarter 2017 (October - December 2017)

Science Center	Title of Product	USGS Authors	Brief summary (2-3 sentences ONLY)	What project this product is part of	Impact of the product	Which customers and partners are using key product	Full citation
LSC	Using Carbon Dioxide in Fisheries and Aquatic Invasive Species Management	Barnaby J. Watten and Robert E. Gresswell	Carbon dioxide is an emerging alternative to traditional chemical control agents used in fisheries programs. This paper provides a review of induced changes in water chemistry, changes in organismal biochemistry, previous use to suppress invasive species, potential use in removal of fish or providing deterrents to migrations as well as cost considerations.	Partial funding was provided by the U.S. Dept of Agriculture, North Carolina Regional Aquaculture Center and the USGS Midwest Science Center.	This product provides the background information required to rationally apply carbon dioxide in a variety of fisheries applications.	State and Federal fisheries programs including the Bureau of Reclamation	Treanor, H.b., Ray, A.M., Layhee, M., Watten, B.J., Gross, J.A., Gresswell, R.E. and Webb, M.A.H. 2017. Using carbon dioxide in Fisheries and Aquatic Invasive Species Management. Fisheries 42: 621-628.
LSC	Forecasting stream habitat and Brook Trout responses to climate change in Catoctin Mountain Park	Hitt, N.P., C. Snyder, E. Snook, M. Morgan, and a non-USGS author (Z. Johnson)	Anticipating and mitigating the effects of climate change is a fundamental challenge for natural resource conservation. In this report, we respond to research needs identified by Catoctin Mountain Park for native Brook Trout (<i>Salvelinus fontinalis</i>) conservation and management as part of the USGS Natural Resources Preservation Program. Climate forecasts identified spatial variation in warming potential due to influences of headwater ponds and groundwater upwelling.	LB00A30.105.3	Improves conservation planning for native brook trout in National Parks; USGS authors were invited to present results to regional NPS managers.	NPS, Maryland DNR	Hitt, N.P., C.D. Snyder, E.L. Snook, Z.C. Johnson, and M.J. Morgan. 2017. Forecasting stream habitat and brook trout responses to climate change in Catoctin Mountain Park. Final Report for National Park Service, Catoctin Mountain Park. US Geological Survey, Leetown Science Center. 14 December 2017. 51 pg.
LSC	Atlantic Sturgeon 2017 Benchmark Stock Assessment Report	Kazyak, D. and non-USGS authors	The 2017 Benchmark Stock Assessment for Atlantic Sturgeon compiles data from across the US range of the species, reviews existing science, and applies new analyses to provide insight on the status of Atlantic Sturgeon at the coastwide, Distinct Population Segment (DPS), and population levels. Current population trajectories, changes in stock composition, and patterns of mortality are used to evaluate conservation progress and identify ongoing threats. At the coastwide and DPS levels, Atlantic Sturgeon remain depleted relative to historical levels, but there are signs of a slow recovery since 1998, when the last assessment was completed.	A30.89	The assessment report provides critical information for state and federal agencies tasked with the management of this imperiled species. It also identifies high priority research needs, which will guide continued research to support recovery actions. This stock assessment is also progressive in its application of population genetics data to support the assessment process, setting a benchmark for future stock assessments.	ASFMC	Atlantic States Marine Fisheries Commission, Atlantic Sturgeon Stock Assessment Subcommittee. 2017. Atlantic Sturgeon 2017 Benchmark Stock Assessment Report. Atlantic States Marine Fisheries Commission, Washington, D.C.
LSC	Molecular Detection of Avian Influenza Virus from Sediment Samples in Waterfowl Habitats on the Delmarva Peninsula, United States	Christine Densmore, Diann Prosser, Deborah Iwanowicz, Chris Ottinger, Luke Iwanowicz	Recovery of matrix gene of Type A influenza virus (avian influenza virus) was investigated in waterfowl habitat in Dorchester County, MD, a region along the Atlantic flyway. Differences in recovery of the avian influenza matrix gene from pond sediment samples were noted both temporally and spatially. The AIV matrix gene was recovered at a higher rate from sediment samples than from the waterfowl sampled in the same region during this time.	Avian Influenza in the Aquatic Project LB109A6	Improves our knowledge of low pathogenic avian influenza virus in the aquatic environment.	State and federal land managers, and other managers of waterfowl habitat	Densmore, C.L., D. D. Iwanowicz, C. A. Ottinger, L. J. Hindman, A. M. Bessler, L. R. Iwanowicz, D. J. Prosser, M. Whitbeck, and C. P. Driscoll. 2017. Molecular Detection of Avian Influenza Virus from Sediment Samples in Waterfowl Habitats on the Delmarva Peninsula, United States. Avian Diseases, 61(4):520-525.

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LSC	Micronuclei and other erythrocyte nuclear abnormalities in fishes from the Great Lakes Basin, USA	Braham, RP, Blazer VS	We incorporated the micronucleus assay into a suite of indicators assessing exposure to genotoxic and mutagenic contamination at five Great Lakes Areas of Concern (AOCs), as well as one non-AOC (reference) site, allowing enumeration of micronuclei and other nuclear abnormalities for site and species comparisons. Erythrocyte abnormalities were observed at all sites with variable occurrence and severity among sites and species. Benthic-oriented brown bullhead and white expressed lower rates of erythrocyte abnormalities, but higher rates of skin and liver neoplasms compared to pelagic-oriented largemouth bass or smallmouth bass at the same site.	Great Lakes Restoration Initiative	Understanding the effects of carcinogenic chemicals in fish	USEPA and State agencies including DNR and state environmental protection agencies	Braham, RP, Blazer, VS, Shar CH and Mazik, PM. 2017. Micronuclei and other erythrocyte nuclear abnormalities in fishes from the Great Lakes Basin, USA. Environmental and Molecular Mutagenesis. 58:570-581 DOI: 10.1002/em.22123
LSC	Estrogenicity of select surface water samples in Chesapeake Bay watershed in Maryland, Pennsylvania, Virginia, and West Virginia (2008-2011)	Luke Iwanowicz, Vicki Blazer, John Young	Intersex in small- and largemouth bass has been observed in the upper Chesapeake Bay Watershed since 2003, indicative of exposure to estrogenic endocrine disrupting chemicals. In order to better identify spatial and temporal nature of this endpoint, discrete grab water samples were collected throughout the upper Chesapeake Bay Watershed for the evaluation of estrogenic activity. Data reported: estrogenicity values from bioassay screening of OASIS-HLB extracts discrete grab water samples. Estrogenicity determined using a bioluminescent yeast estrogen screen. Estrogenicity data for selected sites in the Chesapeake Bay watershed collected between 2008 and 2011 reported here.	Chesapeake Bay EDC Project funded by Environmental Health Program	The research data has been made public for other researchers to conduct further analyses. USGS is merging this data with big land use data to identify hot spots and predict areas of estrogenicity.	USGS researchers, other Chesapeake Bay researchers will use this data	Iwanowicz, L.R., Ciparis, S., Blazer, V.S., Young, J., Pinkney, A and Lookenbill, J. Nov. 11, 2017. USGS ScienceBase-Catalog https://www.sciencebase.gov/catalog/item/59bfc56de4b091459a5e08ad
LSC	Draft Genome Sequence of a PicornaLike Virus Associated with Gill Tissue in Clinically Normal Brook Trout, <i>Salvelinus fontinalis</i>	Luke Iwanowicz, Deborah Iwanowicz, Cynthia R. Adams, Heather Galbraith, Aaron Aunins, Robert Cornman	Researchers discovered and provided a draft genome sequence of a picorna-like virus associated with brook trout, <i>Salvelinus fontinalis</i> , gill tissue. The draft genome comprises 8,681 nucleotides, excluding the poly(A) tract, and contains two open reading frames. It is most similar to picorna-like viruses that infect invertebrates.	Fisheries Program	This is the first known documentation of this brook trout virus.	Federal and state fish health researchers and hatchery scientists.	Iwanowicz, LR., Iwanowicz, DD., Adams, CR., Galbraith, H., Aunins, A., and R.S. Cornman, Oct. 12. 2017 Draft Genome Sequence of a PicornaLike Virus Associated with Gill Tissue in Clinically Normal Brook Trout, <i>Salvelinus fontinalis</i> . Genome Announcements doi: 10.1128/genomeA.01022-17