

## River Herring Technical Expert Working Group

### (TEWG) Habitat Subgroup Webinar/Conference Call

May 27, 2015

10:00 am

### Summary

#### I. Overview

The Habitat Subgroup of the River Herring Technical Expert Working Group was established to “consider the impacts from various factors affecting river herring habitat including, but not limited to, connectivity (e.g., fish passage), water quality/quantity, and appropriate habitat characteristics”. Alison Bowden and Jeffrey Pierce, co-chairs of the Habitat Subgroup, convened a call on May 27 to discuss tools for Habitat restoration prioritization and ocean energy development/other emerging human uses/potential threats to Habitat that the TEWG subgroup should consider. The draft agenda for the meeting included these topics. This meeting summary includes the primary discussion topics and outcomes to contribute to future TEWG discussions. The information provided below reflects individual expert opinion and not consensus.

#### II. Key Topics

The below includes a list of individual expert opinion provided by Habitat Subgroup members or the public on various overarching topics. Some ideas have been combined where appropriate.

- ***Draft River Herring Habitat Prioritization and National Fish and Wildlife Foundation’s habitat restoration final report*** presented by Erik Martin (The Nature Conservancy’s (TNC)). Speaker’s conclusions (full presentations available at the website below) and individual comments include:
  - Atlantic Coast Whole System Diadromous fish prioritization project uses habitat information and run count data to identify important areas to focus investment to protect and restore river herring (<https://tnc.box.com/s/0hixcfc9847819g7ff83nsnfqjzxah>).
  - Unit of analysis was HUC 12 (subwatersheds).
  - Abiotic and biotic metrics applied coastwide to represent population, habitat quantity and access, water quality and water quantity; highest weight on population.
  - Prioritization designed to be simple, transparent and relative; 5 species (alewife, blueback herring, American shad, Atlantic and shortnose sturgeon). All scored separately, can be aggregated (e.g., “river herring” or alosines, or used separately).
  - Tool is intended to be screening-level and use the best available data. Intended to help inform decision-making for focused investment to protect healthy habitat/populations and identify restoration targets including dams/connectivity, as well as water quality, other physical habitat, etc.

- The TNC project team welcomes review and comment. There are no specific plans to update the tool at the moment, but with critical mass of interest in using a revised version and/or availability of new data would do it.

- Comments: Q: Did you leave South Carolina, Georgia, and Florida in your area coverage even though no alewife there?

- A: Species are scored separately and stratified by genetic units; South Carolina isn't compared to Maine.

- Q: You said it was screening tool, any surprises?

- A: As is typical of analyses done at coarse scale with GIS, there were instances where we had to correct obvious mistakes—like dams that have been removed in reality are still in the database and affecting the habitat connectivity score. There's no substitute for on-the-ground knowledge; this just helps filter.

- Q: Population seems to reflect all of the other categories, the Merrimack River is an example.

- A: The main question was where do we want to focus our efforts to really see results- where there's momentum or where there isn't? It is a struggle for species that are depleted but very widespread to figure out where to try to help them...trying to determine where we should put restoration efforts is art informed by science.

- Q: Is there opportunity to add/build on this information, including add more data

- A: Yes, this started out as an internal process, but made sense to engage partners

- Roger Rulifson noted that this team has a contract with NOAA to determine population loss to the forage base, and is waiting now for the modelers, but his report has been sent to NOAA.

- **Atlantic marine/estuarine energy development and river herring**

- Alison Bowden noted at the last full TEWG meeting, Tidal energy was discussed, and given that river herring spend so much of their life at sea, there is a suite of things we should take into account that may affect them at sea. She noted that there has been a lot of emphasis on bycatch mortality, which is clearly important, but there are some other potential sources of human-caused marine mortality on the horizon that should be considered as well. There are three types of commercial scale development—proposed opening of Mid- and South-Atlantic waters for oil exploration; offshore wind, and tidal energy development. Climate change is a threat to river herring, so development of renewables is part of the solution, but for tidal energy in particular there are concerns about the geographic overlap between summer feeding grounds in the Bay of Fundy for coastwide populations of migratory fish and desirable development sites for energy generation. Pilot sites

are being monitored, primarily with remote sensing. Presentation:  
<https://tnc.box.com/s/vg3xwugf0etkfw9fajai0mqh0mbxq63>.

Darren Porter noted that he believes something can be done in his area, monitoring with nets and not just remote sensing. He noted it is important because the fish are up here in the summer, and the studies weren't done well in terms of when the fish are there and how they're using the habitat, and there are no studies that have been done here on turbines and river herring. Darren also said that in the Minas basin, a number of companies were recently grandfathered in and momentum seems to be picking up that tidal energy will happen here.

- Roger Rulifson noted that he has tagging study that he would like to share with the group. July was the high point and he also got some recaptures in the Roanoke River. He also noted that his group is doing some acoustic tagging in June and are concerned about offshore energy. They do have some striped bass tagging data and are requesting alewife from other states for study of otoliths and body length
- Paul Jacobson noted that he will provide reports as a follow-up to the last TEWG call and to this group (see below). He noted that it is important to maintain a distinction between a tidal barrage and tidal turbines; also there's a temporal component and he believes that it poses more of an issue for fishing activities rather than it posing issues to the fish themselves
  - Amaral, S. V., M. S. Bevelhimer, G. F. Cada, D. J. Giza, P. T. Jacobson, B. J. McMahon and B. M. Pracheil. 2015. Evaluation of behavior and survival of fish exposed to an axial-flow hydrokinetic turbine. *North American Journal of Fisheries Management* **35**(1): 97-113.
  - EPRI (Electric Power Research Institute). 2011. *Fish Passage Through Turbines: Application of Conventional Hydropower Data to Hydrokinetic Technologies*. Palo Alto, CA. 1024638. October 2011. <http://www.epri.com/abstracts/Pages/ProductAbstract.aspx?ProductId=000000000001024638>
  - EPRI (Electric Power Research Institute). 2011. *Evaluation of Fish Injury and Mortality Associated with Hydrokinetic Turbines*. Palo Alto, CA. 1024569. November 2011. <http://www.epri.com/abstracts/Pages/ProductAbstract.aspx?ProductId=000000000001024569>
  - EPRI (Electric Power Research Institute). 2012. *Survival and Behavior of Juvenile Atlantic Salmon and Adult American Shad on Exposure to a Hydrokinetic Turbine*. Palo Alto, CA. 1026904. December 2012. <http://www.epri.com/abstracts/Pages/ProductAbstract.aspx?ProductId=000000000001026904>
  - EPRI (Electric Power Research Institute). 2014. *Evaluation of Survival and Behavior of Fish Exposed to an Axial-Flow Hydrokinetic Turbine*. Palo Alto, CA. 3002003911. April 2014. <http://www.epri.com/abstracts/Pages/ProductAbstract.aspx?ProductId=3002003911>

[000000003002003911](https://www.epri.com)

- As an alternative to using the direct links to the EPRI reports, folks can go to [www.epri.com](http://www.epri.com) and search on the product ID (e.g. 1024638).
  
- Paul noted that the upshot of the studies is that the fish tested were capable of largely avoiding entrainment through the turbines – even those tested in the dark. Those that did pass through a turbine generally had high survival rates and low rates of injury.
  
- **Review of spring/summer monitoring activities**
  - Alan Weaver- the river herring spring runs are done, which went from winter to summer, and there were good runs on the James and Rappahanock Rivers (Virginia)
  - Darren Porter- the river herring runs have been up this year (Nova Scotia)
  - Claire Enterline- the river herring runs have been good here (Maine)

### III. Key Outcomes

The below includes a list of individual expert opinions provided by participants related to specific threats, data gaps, research projects, conservation actions, information to be considered and/or monitoring (i.e., the identified research projects and/or conservation actions). These outcomes are listed in no particular order, and those related to other subgroups are also included in the “Cross-Cutting Issues” section below.

- a. Specific threats
  - See individual opinion above related to hydropower.
- b. Data gaps
  - See individual opinion above related to hydropower.
- c. Research projects
  - See individual opinion above related to habitat research.
- d. Information To Be Considered (e.g., published papers)
  - See list of reports noted above.

### IV. Next Steps

The Habitat Subgroup discussed the following next steps:

- \*\*\*Alison will send the NFWF habitat restoration final report to Kirby and Diane to put on the website\*\*\* (it is undergoing revision with NFWF July 2015; current version is here: <https://tnc.box.com/s/pnnko7hs721mmfjmwq2xfg56hlik0gm5>)
- The group should consider what information on energy development would be helpful to include in the Conservation Plan and make a recommendation on content/approach. A white paper is an option.

## V. Cross-Cutting Subgroup Issues

The following cross-cutting subgroups issues were discussed and will be further considered by the TEWG and its Ecosystem Integration Committee.

- The topic of other sources of mortality at sea relates to Stock Status and Fisheries subgroups.

## VI. Participants

### a. Subgroup members

The affiliation of each member can be found on the subgroup roster available at the TEWG Habitat Subgroup website:

<http://www.nero.noaa.gov/protected/riverherring/tewg/habitat/index.html>

Alison Bowden

Ben Lenz

Alan Weaver

Eric Nelson

Dan Kircheis

Matt Ogburn

Sean McDermott

Carolyn Hall

Eric Hilton

Darren Porter

Phil Edwards

Rob Vincent

Tara Lake

Roger Rulifson

Claire Enterline

Lisa Havel

Sara Turner

Erik Martin

Paul Jacobson

### b. Staff

Kirby Rootes-Murdy

Diane Borggaard

## VII. Meeting Materials

The following materials were provided to support the meeting. Additional information can be found at the TEWG Habitat Subgroup website:

<http://www.nero.noaa.gov/protected/riverherring/tewg/habitat/index.html>

- a. Draft Agenda