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Bristol Mills Dam Advisory Committee Hosts Sea-Run Fish Researcher from the University of Southern Maine

Bristol, Maine – April 11, 2017 – University of Southern Maine researcher and professor, Dr. Karen Wilson, presented information to the Bristol Mills Dam Advisory Committee on April 11 about sea-run fishes and their migrations. Together with information from other meetings, this material will be added into the Committee’s report to the Town that presents options for improvements to fish passage, water level control, and other factors under consideration as part of an ongoing feasibility study.

Sea-run fishes, also known as diadromous fishes, migrate between the ocean and freshwater. There are two categories of diadromous species: anadromous and catadromous. Anadromous species like Atlantic salmon, American shad, alewife, blueback herring, sea-run brook trout, sea lamprey, rainbow smelt, and sturgeon spawn in freshwater, but spend most of their adult lives in the ocean. Catadromous species spawn in marine waters but live their adult lives in freshwater. In Maine, the American eel is the only catadromous species.

The Pemaquid River supports known populations of American eel, alewife, and rainbow smelt. Spawning blueback herring, American shad, and sea lamprey may also use the river. Alewives spawn in lakes and ponds, while blueback herring and shad spawn in the mainstem of streams and rivers in fast moving, pool-and-riffle areas. Rainbow smelt spawn immediately above the head of tide. American eel live throughout the watershed, with female eels generally living further upstream in the river and in lakes and ponds, and males living further downstream and in the estuary.

The Pemaquid River is located in a region designated as “Critical Habitat” for Atlantic salmon, though the current and past use of the river by salmon is unknown. Atlantic salmon are federally listed as Endangered and populations in Maine are struggling. The nearby Sheepscot River supports wild spawning salmon and is also stocked by the Department of Marine Resources (DMR).

Statewide populations of Maine sea-run species declined rapidly in response to dam building that peaked during the 1800s. Dr. Wilson reported that in the 1960’s many sea-run species experienced further declines that may have been tied to heavy fishing pressure in near shore areas by herring trawlers. As a result of these changes, most sea-run species persist at a small fraction of historic numbers.

Dr. Wilson noted that alewife are particularly responsive to projects that re-establish access between freshwater and ocean habitats, making them one of the most successful species in sea-run restoration efforts. Alewife stocking by DMR has often been used to “jump-start” these projects prior to implementation of fish passage improvements. A very successful example is the restoration of passage on the Penobscot River, where the alewife count at Milford Dam increased from about 9,000 in 2013 to over a million in 2016.

Dr. Wilson presented an example of how, even with a fishway, a dam on the Penobscot River slowed the progress of fish migrating to upstream spawning habitat. She noted that this delay and the labor of using a fishway can exhaust fish, impacting their ability to successfully reproduce and also making them more vulnerable to predators.

Both Dr. Wilson and Bristol Fish Committee Chair Rick Poland stressed the importance of good attraction flow at the entrance of a fishway for successful passage. At the Bristol Mills fishway, volunteers must build a leader fence each year to guide alewives to the fishway because the fish are much more attracted to the base of the dam than the fishway itself. Even with the leader in place, many alewives find their way to the base of the dam, making it unlikely they reproduce successfully.

In addition to good attraction flow, Dr. Wilson added that the most effective fishways must also function properly under a wide range of flows, provide passage for a diversity of fish sizes and species, be open for passage throughout the entire migration season (spring, summer and fall), function at all times of day, and require minimal upkeep and “hands-on” flow management. She added that fishways must also provide safe passage for both upstream and downstream migrations, because juvenile and adult fish can become injured, subject to predation, stranded or delayed in their downstream migration over dams.

Upcoming meetings of the Bristol Mills Dam Advisory Committee will include presentations from Wright-Pierce Engineering about the current condition of the Bristol Mills Dam, as well as infrastructure surveys and hydrologic and hydraulic modeling for the impoundment upstream of the dam (April 25), Dr. Joseph Zydlewski from the University of Maine about how mainstem dams effect fish communities and movement (May 9), and Scott Williams from the Maine Volunteer Lake Monitoring Program about water quality in the ponds and lakes of the Pemaquid Watershed (May 23).

The Committee meets the 2nd and 4th Tuesday of every month from 6-8pm at the Bristol Town Office. All meetings are open to the public and all Committee materials, including supplementary reports and background information, are available at the Town Office. We hope to share this process with as many town residents and interested people as possible. Please join us to learn more about this valuable resource.

The Dam Committee welcomes Public Comments.