

## Additional notes on Atlantic salmon

### Notes for Part 1:

Steve Gephard, retired Connecticut Department of Energy and Environmental Protection official, has provided the following notes.

1. On the size of Atlantic salmon in the Connecticut River: There appear to have been 40- to 50-pound salmon entering the Connecticut River. To get that large, they were likely repeat spawners, not virgin spawners. Certainly, most CT River salmon were not that large, especially those from MA, which likely averaged 10-12 lbs.
2. On salmon demographics in the Connecticut River: It's hard to know the demographics of a long-gone genome, including the age of the smolts and the duration of the marine phase. I think that smolts from Hall's Stream would have likely been 3 years old. Most salmon in the CT River in our lifetime have spent 2 years in the ocean. It appears that salmon that got over Bellows Falls were large, but we don't know if that was the result of more time spent in the ocean or fast growth rates.
3. On the abundance of Atlantic salmon prior to colonial times: A habitat-based estimate has suggested that the CT River may have had a run in the neighborhood of 40,000 annually and it was one of the largest runs in New England. For the sake of this conversation, let's assume the CT, Merrimack, Androscoggin, Kennebec, and Penobscot all supported runs of 50,000. (No Atlantic salmon runs approach the size of Pacific salmon runs.) Then, let's assume the Housatonic, Thames, Piscataqua, Saco, and St. Croix all supported 20,000 each (very generous for some), and then let's assume the smaller rivers in Maine and elsewhere collectively added up to 100,000 fish (generous). That would offer an estimate of 450,000. Even if I'm wrong by half, it's less than 1 million, not millions like the Columbia, Fraser, or Yukon. Probably, however, there were millions of smolts.
4. On lamprey parasitism of salmon: Images of Sea lamprey parasitizing salmon are almost all from the Great Lakes fishery, which has no outlet to the ocean. Therefore, lamprey prey on the largest fish they can find in the Great Lakes and spawn in the lakes' tributaries. There is no evidence that significant numbers of lampreys parasitize salmon. Lamprey go to deep waters off the continental shelf to attach to very large demersal fish (those living closest to the ocean bottom) and are rarely seen in the ocean. The few salmon that return with lampreys or scars were attached by transformers in the mouth of the river that soon dropped off.
5. Boyd Kynard on shortnose sturgeon: Although common in the Connecticut River, shortnose sturgeon do not make an anadromous run but live in three river reaches and migrate from them to spawn upstream at Montague, MA.

### Notes for Part 2:

1. The Atlantic Salmon Federation (Canada and the US) reported that 2019 saw the third lowest rate of salmon returning to rivers to breed in 49 years of record-keeping. Bill Taylor, Pres. AFS. The exploding predator population of seals and striped bass, climate change warming the ocean and rivers, intensive habitat destruction, and open-pen salmon farming are all sources of the decline.

2. In the state of Maine, only the Penobscot River reported a decent return of salmon (about 2,000) with all other Maine rivers reporting fewer than 100 fish.
3. Greenland has a commercial season on salmon. Here are their reports: About 122 salmon taken by Greenland fishermen in 2019 were of U.S. origin. This accounts for 2% of the total Greenland harvest. The largest European component was 28% from the United Kingdom and Ireland. The 2019 reported catch of 28.8 tons is down from the 39.9-ton catch in 2018.
4. The idea for a salmon-in-the-schools program was conceived in Newfoundland. After a visit to the Exploits River program, Boyd Kynard invited the program manager to introduce the concept to the technical committee of the Connecticut River Atlantic Salmon Commission.