

## Running Silver – Restoring Atlantic Rivers and Their Great Fish Migrations

By John Waldman. 2013. Lyons Press, 246 Goose Lane, Guilford, CT, USA, 06437. 304 pages, 29.95 USD, Cloth.

Although it has been on store shelves for a little more than a year, John Waldman's book has lost none of its relevance. *Running Silver* chronicles the historic and ongoing degradation of our embattled Atlantic rivers and the decline of their migratory fish populations. These fish migrations refer to both the anadromous fish that begin their life in freshwater and then migrate to the sea, and catadromous species that spawn in the ocean and whose juveniles move into freshwater where they mature into adults. Much of *Running Silver* focuses on anadromous fish native to the east coast of North America, with occasional reference to their European or Pacific coast counterparts. Atlantic Salmon, Atlantic Sturgeon, American Shad, Rainbow Smelt, Alewife, Striped Bass, and Sea Lamprey are the main species discussed. The author also touches on some lesser-known anadromous fish, such as Shortnose Sturgeon and sea-run Brook Trout that make much shorter migrations in the lower reaches of river estuaries.

The American Eel is the only catadromous fish in North America and, as discussed by Waldman, the species' current status is as sobering as its life history is astonishing. Adult eels spawn in the Sargasso Sea near the Bermuda Triangle, and the larvae catch a ride up the eastern seaboard on the Gulf Stream. They transform into glass eels as they approach the shore and then into elvers as they move into freshwater and up East Coast tributaries. After spending 10-20 years in freshwater, they descend East Coast rivers as they make the epic return to their marine spawning grounds. Once estimated to comprise  $\frac{1}{4}$  of all the fish biomass in East Coast tributaries, American Eel populations have plummeted to less than 10% of their historical abundance. Although eels have been reported to squirm up 60' waterfalls, hydroelectric dams lacking fish ladders prove an insurmountable barrier to upstream passage; on systems where eels do make it upriver, adults often run a gauntlet of turbine blades on their return descent. In Canada, young eels used to move up the St. Lawrence River into Lake Ontario in vast numbers, but have declined so precipitously that this species has recently been listed under Ontario's *Endangered Species Act*.

Like the American Eel, the decline in other migratory fish populations is a slow-motion tragedy that has played out since the New World was colonized by

Europeans. No longer do East Coast rivers "run silver" with an almost unimaginable abundance of American Shad. These were truly great migrations, on par with the immense herds of bison or flocks of Passenger Pigeon. Waldman cites a French priest who described fish ascending the Kennebec River in 1723 as being "in such numbers that a person could fill fifty-thousand barrels in a day, if he could endure the labour." Sadly, the former ecological and cultural significance of these fish migrations is only dimly remembered, if at all, even in many riverside communities. Once a vital source of food for settlers and aboriginal communities, these fish populations now suffer from Pauly's "shifting baseline" syndrome. This form of collective societal amnesia results from successive generations' perceptions of fish abundance (and size) gradually get distorted over the long, slow play of time. Since memory is fallible, Waldman uses multiple lines of evidence to chronicle how fish size and abundance have declined over time. Simply put, Waldman reminds us what we have lost.

*Running Silver* is an important read because it takes a broad approach, encompassing the whole suite of diadromous fish from Florida to Newfoundland. It tackles a broad sweep of time, delving back into colonial history and even prehistory. Other recent works on single species, such as *The Founding Fish* (John McFee's excellent book on the American Shad), have a much more limited scope. Detailed and authoritative (as one would expect from a preeminent fisheries biologist), *Running Silver* is also very accessible and even poetic at times (the dedication to Thoreau should have tipped me off). Waldman even offers a description of an American Shad's migratory journey circa 1600 compared to 2013 from the perspective of an individual fish – definitely an eye-opener as to how the shad's world has changed. The book has some black and white illustrations as well as contemporary and historical photos, but a few more would have better connected us to the past. Additional maps, particularly of individual rivers, would also have been useful, especially for Canadian readers less familiar with the US waterways that feature prominently in the book.

Waldman chronicles the cumulative effects on migratory fish from over-harvest, mill dams, and tanneries of the bygone era, as well as more recent industrial pol-

lution, hydroelectric dams, invasive species, and climate change. The success (or often the lack thereof), of hatchery stocking and fish “passage” efforts is also discussed. However, *Running Silver* is not all doom and gloom. The author shares stories of how committed individuals have improved the lot for migratory fish through stewardship actions, such as removal of old mill dams that are no longer needed but still block upstream passage to traditional spawning grounds. Waldman provides the incentive and playbook on how to start the long journey to restoring these great fish migra-

tions. Not only that, *Running Silver* also reminds us that it is much easier to degrade natural river systems than it is to restore them. The Miramichi of New Brunswick is specifically cited as a river that is still in relatively good condition. We must be vigilant to preserve it and other rivers with great fish migrations, be they on our coasts, Great Lakes, or elsewhere.

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