

THE SALTERS OF STANLEY BROOK

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Stanley Brook begins as rain that flows down the slopes of The Triad, Redfield Hill, and Day Mountain, then tumbles unimpeded through a forest of fir, cedar, and birch before flattening out and running like a ribbon of freshwater across the sandy beach of Seal Harbor, where it then meets the tide. This natural phenomenon of rivers emptying into the sea is rarely observed in the East, as so often rivers are forced through culverts and straightened channels, under roads, or between rock jetties. And so, it has been easy to forget that the land was once connected to the ocean in many intricate ways, and that some species continue to move between fresh and salt water.

Even brook trout, commonly considered a fish of remote, cool mountain rivers, wander into the sea on occasion. These sea-run brook trout, also known as salters, historically ranged as far south as Cape Cod, coastal Connecticut, and Long Island, although many populations have disappeared. Mount Desert Island once was home to sea-run populations of brook trout, alewives, smelts, and eels, and yet little is known of the present day populations, or how current human activities and uses may be threatening them.

Three or four major areas in Acadia are known to host salters today, including Stanley Brook, where a team of scientists from federal and state agencies and the University of Maine are studying the movements of sea-run brook trout in an attempt to better manage the species and understand the overall health of small coastal ecosystems.

Maine contains the greatest extent of remaining wild brook trout habitat in the eastern United States, according to a recent assessment by the Eastern Brook Trout Joint Venture. Yet much remains unknown about the species in the state, especially sea-run populations. Salters are not a commercial species, so their numbers are not tracked as closely by the state Department of Marine Resources as other marine food fish. Nor have salters traditionally been of interest to Maine's Department of Inland Fisheries and Wildlife



A sea-run trout from Stanley Brook.

(IFW), which focuses on freshwater fisheries. Perhaps the only individuals who notice are the handful of anglers who seek out salter streams. Participants in this “cult fishery” don't like to share their secrets, though, presenting a challenge for those charged with managing the state's fisheries. “Salter trout use these smaller streams and their estuaries to varying degrees, but these fish are not well-known,” said Merry Gallagher, a fishery biologist with IFW, who needs to determine if the recreational fishery should be managed on a stream-by-stream basis or with statewide regulations.

While Stanley Brook is not under an abundance of fishing pressure, it's possible that anglers have already taken all the big fish; if so, the stream has lost a significant part of its life history, according to Ben Letcher, a fish population ecologist at the Conte Anadromous Fish Laboratory in Turners Falls, Massachusetts. “In order to answer this question, we have to know the mechanisms of migration,” says Letcher, who is leading the project.

Brook trout in clear, cool, clean coastal streams such as Stanley Brook occasionally venture into salt water, especially when they are young. Last July, Letcher and his crew caught 40 sea-run trout off the beach at Seal Cove. In October they didn't catch any. His theory is that the fish are heading upriver to spawn in the fall. But it's also possible that the

fish are residents of the stream and simply like to wander into the sea once in a while—likely for food, as sea-run trout grow much faster than their freshwater counterparts. In salt water, trout take on a rainbow of hues that distinguish them from fish that stay in fresh water; Stanley Brook salters are purple, green, brown, and silver when they return to upstream reaches. By fall, their colors have faded as they put all their energy into spawning.

Letcher has tagged the fish with little wires that send out unique signals, which are detected by two receivers placed beneath the Route 3 bridge. By tracking fish movement, Letcher is hoping to gauge how much time they spend in Seal Cove and whether their migration is driven by genetics. “I'm really interested in life history; how early genes get expressed that make trout go to the ocean,” says Letcher, who has spent the last decade studying trout and salmon.

From the perspective of the National Park Service, part of its mission is to maintain and perpetuate natural populations and processes to their full integrity, which requires an initial understanding of what resources exist in the park, says Bruce Connery, wildlife biologist at Acadia National Park. “We think we have a problem and we're trying to figure out how big it is, but we also hope to learn more about the biology of these animals. Even a small population of sea-run trout could play an important role in maintaining the larger fabric of coastal ecosystems, and so the results will apply to small coastal streams throughout the region,” says Connery.

Perhaps the best indicator of the study's relevance are the diverse partners participating in the project, which include Maine Sea Grant, U.S. Geological Survey Cooperative Fish and Wildlife Research Unit, Maine Department of Inland Fisheries and Wildlife, University of Maine, U.S. Fish and Wildlife Service, the U.S. Forest Service, and the National Park Service. 🐟

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