Populations of alewife and blueback herring are in serious decline along the Atlantic coast and face numerous threats. These river herring play an important ecological role in rivers and coastal waters, providing a crucial source of food to wildlife. By restoring river herring runs, we can protect an entire ecosystem.

**River Herring**

**Signs of Decline**

- **Disappearing Runs**
  Over the past two decades, some river herring runs along the Atlantic coast have declined by 95% or more.

- **Vanishing Industry**
  99% drop in commercial fishery landings over the last 50 years.

- **Fishing Bans**
  Connecticut, Massachusetts, North Carolina and Rhode Island have banned harvests of river herring with zero-tolerance policies for recreational and commercial fishing.

- **Smaller Younger Fish**
  Coastwide decreases in mean length and age of river herring.

- **Species of Concern**
  River herring were designated a Species of Concern in 2006 by the National Marine Fisheries Service, which identifies species at risk and in need of protection.

**One Step Forward...**

**River Restoration**

Restoration efforts protect essential habitat, remove dams and add fish ladders. An excellent example of the benefits of habitat restoration is the Connecticut River, where runs had dwindled to about 200 fish in the 1970s, and then recovered. Half a million blueback herring were counted in 1986. But something apparently defeated this dramatic recovery. By 2008, the run had again plummeted, to only 84 fish. More help is needed.

**Two Steps Back...**

**Management Hot Potato**

River herring have fallen through the cracks of fisheries management. Agencies continue to pass responsibility for river herring like a hot potato.

**LIFE CYCLE**: River herring begin life in headwater creeks managed by state inland fisheries agencies and then migrate to coastal waters controlled by state marine fisheries agencies. As juveniles, they move offshore to school in waters managed by the National Marine Fisheries Service, where they intermix with Atlantic (sea) herring, a separate species. Once mature, river herring retrace their route across jurisdictions to spawn in their home rivers.

**What’s the Catch?**

Evidence shows that river herring bycatch* is significant. Particularly troubling is the number of these fish caught by midwater trawlers, which began fishing in New England in the mid-’90s. These industrial-scale vessels hauling small-mesh nets as big as a football field can catch everything in their path. Trawlers often fish in pairs, dragging a net between them.

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*Bycatch: Sea life unintentionally caught and often killed while fishing for another species.

**The Herring Alliance**

The Herring Alliance is a growing coalition of environmental and public interest organizations dedicated to protecting and restoring marine wildlife populations and ecosystems by reforming the Atlantic herring fishery.

1. Accountability
Change must come at the federal management level through the Atlantic Herring Fishery Management Plan. The New England Fishery Management Council and National Marine Fisheries Service must establish bycatch limits and accountability measures that ensure the limits are not exceeded.

2. Protection
A revision to the management plan, called Amendment 5, must close specific areas to fishing during critical times of the year to protect coastal ecosystems and spawning grounds and minimize river herring bycatch in known hot spots.

3. Monitoring
Amendment 5 also should implement comprehensive monitoring, with at-sea observers, that allows for accurate estimation of bycatch of commercially and recreationally important fish stocks—including river herring.
The imminent closing of the sardine cannery in Prospect Harbor marks the end of an era in Maine. Like the ends of other dominant industries in Maine, such as shoes, poultry and textiles, the news is partly a failure of policy and partly an inevitability that comes in a changing world.

For the 130 workers who will lose their paychecks, such abstractions are irrelevant. The closure will cut deep into the local economy. Like neighboring Washington County towns, the Hancock County villages east of Mount Desert Island have no hub industry to help cushion the blow. Resource-based businesses, such as lobstering and wood harvesting, will continue, but the vagaries of price for both commodities make for uncertain paychecks.

The region can benefit by encouraging more tourism and second-home and retirement-home development. Yet even in the best of times, those economic drivers will not quickly replace 130 paychecks. Maine’s congressional delegation and state government will work hard to assist former cannery workers, as they have in the wake of other plant closures.

The Prospect Harbor cannery was the last in the country, so its closure is symbolic. At one time, scores of sardine packing plants were strung along the coast. The former cannery in Lubec has been redeveloped into a waterfront hotel, studios and fish market. Yet efforts to redevelop the plant in Belfast as condos and a marina have failed.

Fifty years ago, herring approached the shore, chased by larger fish for whom they were a staple, and were captured in weirs, the crude fencelike contraptions on which nets were hung. Fishing boats also pursued them. In recent years, spotters in airplanes would radio the boats, so entire schools of herring could be scooped up.

It should come as no surprise that federal limits on the herring catch have been reduced from 180,000 metric tons in 2004 to just half that amount this year. But the reduction came after 10 years of industrial-scaled vessels caught 150,000 tons annually. The environmental advocacy group Herring Alliance argues that “catch limits are set sometimes in excess of scientific advice and always based on industry demand for herring rather than through a thorough process of understanding the needs of the ecosystem.”

Herring — called sardines once they are in a can — hold a critical place in the food chain. They are a prime food for whales, seabirds, striped bass, tuna and many other marine predators. The lobster fishery relies on herring for bait. Though elected officials publicly decry the tighter catch
limits, clearly the species has been overharvested. It will take years, if not decades, for herring to rebound in New England waters, just as it has for other key species.

Bad policy then is partly to blame for decimating the sardine-packing industry in Maine.

But just as shoe plants have left Maine for other countries, the demise of this industry is probably final. Instead of lamenting and wishing for its return, policymakers should redouble their efforts to rebuild Maine’s economy with jobs tied to 21st century demands.

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TRYING TO RESTORE ALEWIFE AND BLUEBACK HERRING RUNS IN CONNECTICUT STREAMS

April 02, 2010
By Peter Marteka, Nature's Path & Way To Go

Watching the alewife and blueback herring runs in the state's freshwater streams in recent years has been like going to see the annual migration of the swallows to Mission San Juan Capistrano and, instead of seeing thousands and thousands of birds, seeing only one or two.

That's the way it has been for alewife and blueback herring runs up the state's freshwater streams and rivers since the turn of the new century. Runs that once numbered in the hundreds of thousands are now counted by the single numbers or, maybe in a good year, by the dozens. Biologists remain perplexed, with some blaming overfishing or the voracious appetite of the striped bass, which like to eat the fish.

The state Department of Environmental Protection recently announced that the prohibition on taking alewives and blueback herring from most inland and marine waters has been extended through March 2011. And there are no indications the ban will be lifted on its 10th anniversary in 2012.

"Nothing has changed in the last year in terms of the theories of their demise," said Steve Gephard, a supervising fisheries biologist. "And we are not detecting any kind of recovery. And there has been no 'eureka!' moment as to why this is happening."

In 1985, more than 630,000 blueback herring passed over the Holyoke Dam's fish lift on the Connecticut River, one of the chief monitoring stations. By 1995, that number had dropped to 110,000. In 2006, that number had dropped to 21 the lowest number in the lift's 43-year history. While numbers edged up to 75 and 89 over the next two years, only 39 passed by in 2009.

Blueback herring and alewives are anadromous, which means they hatch in freshwater, migrate to the ocean to grow, and return to freshwater to spawn. They are known as indicator species — the field mice of the sea.

In addition to the appetites of the striped bass and bald eagles, another culprit is trawlers with nets the size of football fields in the Atlantic Ocean. Although the ships are targeting other fish, the herring are scooped up, too. The New England Fishery Management Council has been considering changes in federal waters to reduce the accidental harvesting of river herring in the ocean.
Massachusetts, Rhode Island and North Carolina have joined Connecticut in issuing moratoriums, Gephard said, but other states along the Eastern Seaboard have not, because they don't monitor populations.

"It is difficult if you are not taking counts," he said. "If you don't have the hard data, it is hard to prove the point that there are shortages."

Gephard said DEP crews have been taking alewives and blueback herring out of healthy runs like Bride Brook in East Lyme and placing them in waterways — like the Rippowam River in Stamford — where obsolete dams have been removed, restoring and enhancing historic runs.

"They will spawn and while the adults are imprinted to Bride's Brook and will return there, the fish who hatch will return to the Rippowam," Gephard said. "We've done this at about a dozen or so streams across the state."

A little hope for the future of vital fish at the start of the food chain.

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David Ellis, a resource technician for the Inland Fisheries Division of the state Department of Environmental Protection, scoops river herring from a trap on Bride Lake in East Lyme on Wednesday.

**East Lyme** - Amid spring's flourish of new life, there's probably nothing in the state matching the primeval surge of small, sleek, silver-bellied fish out of the Atlantic Ocean into Long Island Sound and then into Bride Brook.

For David Ellis, the transformation of this small and otherwise unremarkable coastal stream into a herring highway to their ancestral spawning grounds at Bride Lake is his favorite seasonal cue.

"I don't think it's spring until the alewife come in," Ellis, research technician with the state Department of Environmental Protection, said Wednesday, after a morning of handling dozens of the lively little fish as part of ongoing research.

No one knows for sure, but the Bride Brook run is believed to be second only to the Connecticut River run in the numbers of alewife that use it, and their progeny have been transplanted by DEP staff to some 30 other streams and ponds around the state in a decade-long effort to bring back the once-mighty populations of river herring.
By the time the spring run ends in early June, some 65,000 to 120,000 alewife - one of two species of river herring, but the only one in Bride Brook - will have tripped the DEP's electronic fish counter at the site.

Early arrivals showed up on March 12, Ellis said, followed by successive waves by the hundreds each night that peaked last week and this week. On Wednesday morning, the fish counter showed 2,414 herring swam into the lake the previous night.

After spawning, adults will stay a week or two in the lake before heading back to the sea. Some of their offspring will stay in the fresh water to fatten on insects until the end of June, while others will wait until October to head for salt water.

"This year the herring run started one to two weeks early, and once it started, they really poured in quickly," Ellis said as two seasonal employees working with him set up buckets and nets and pulled on waders to prepare for the morning's work beside the rushing stream. "The floods (last month) sent a huge pulse of fresh water into the Sound, and it cued them to start coming."

Impressive as it is, the Bride Brook run isn't what it once was. Records from a scientist who collected data in the 1960s show 180,000 alewife would reach the lake each spring, Ellis said, and experts believe it was even higher for hundreds of years before that.

Declines more extreme than this have been seen throughout the coastal Atlantic states, where river herring runs once numbered fish in the millions, a worrisome trend Ellis and other wildlife officials throughout the East are hoping to reverse.

Completion of one herring restoration project will be celebrated Monday with a 2 p.m. ceremony at Rocky Neck State Park, where Bride Brook empties into the Sound.

Save the Sound/Connecticut Fund for the Environment, a nonprofit group, led a $510,000 project in partnership with the DEP and federal agencies to replace an unsafe, undersized culvert at the brook's mouth, making it easier for the thousands of alewife that use it each year to pass through. It will also improve water flows in a marsh the fish pass through on their way to the lake.

"Within the food web, herring are extremely important for the vitality of our fisheries, and for bird populations," said Christopher Cryder, habitat restoration director for Save the Sound. "There were other reasons (for restoring the culvert), but herring were probably the most important reason."

While rarer, top-of-the-food chain species like whales and wolves may capture much the public's attention when it comes to wildlife conservation efforts, river herring are the species at the bottom that, when abundant, make healthy ecosystems possible.
They are staples in the diets of many animals, including osprey, cormorants, otters and larger marine and freshwater fish. Herring also carry with them nutrients from salt water environments that improve the health of the fresh water lakes where they spawn.

"They're a keystone species for marine and freshwater systems, and for terrestrial species," Ellis said.

In 2002, the state banned all fishing of river herring and has renewed the ban every year since. Four other states have done the same. Before the ban, fishermen netted the fish mainly for lobster and fish bait.

In one dramatic example of their declining numbers, a fish counter on one Connecticut River dam recorded 630,000 river herring passing over in 1985. In 2009, just 39 fish were counted. But that, at least, was an increase over 2006, when the number was 21.

Some combination of factors is probably responsible for the decline, Ellis said. Possible explanations include increases in the populations of striped bass (herring make up a large part of their diet) and the proliferation of dams that block herring from getting to lakes and ponds to spawn (installation of fish ladders have helped).

Unmonitored offshore fishing of herring may also be a factor, as well as lakefront development that has compromised water quality where the herring spawn.

Bride Lake has been able to maintain its strong run, Ellis and Cryder noted, because there is no large dam blocking access to the lake, and about three-quarters of the lakefront is forest. State-prison buildings front the remaining portion. The town has a couple of groundwater wells near the lake, but is not drawing an amount that would make it less hospitable for the fish, Ellis said.

"The town is under heavy scrutiny to only draw a certain amount of water," he said. The purpose of the field work on the herring, Ellis said, is to track any changes in the population as it responds to the various stresses and determine whether the fishery can reopen. The information is collected from six other sites with fish counters in addition to Bride Brook. Thus far, he added, the data don't support the reopening.

After setting up their equipment on the lakeside, Ellis and his two-man crew begin their work. One of the seasonal employees, Brandon Ritchie, wades through thigh-high water to corral some of the fish caught the night before into a net, then from the net to a pen. Then, scoop net by scoop net, a few herring at a time are transferred to a bucket on shore.
Ellis, holding gently but firmly, measures each fish, notes its sex and scrapes a few pearly scales from one side. These are passed on the knife blade to Andrews, the other seasonal employee, who puts them into a small envelope and marks them.

In all, Ellis and his crew collected data and scales on 100 Bride Brook fish Wednesday morning. Over the course of the run, this process is repeated four times, and the data shared with researchers and universities. During the winter, he and other DEP staff examine each set of scales under the microscope to determine the age of each sample, much like tree rings can be used to age a tree, and how many times each fish has spawned.

One key finding thus far, he said, is that herring are reaching sexual maturity at one or two years of age, instead of at three or four as had historically been the case. This indicates the way herring are adapting to the various stresses threatening them, by reproducing at a younger age.

"We're doing this because it tells you something about the population itself," Ellis said.

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