

# SEAFOOD TRADITIONS

## at Risk in North America

### A RAFT Redlist For Biological Recovery and Cultural Revitalization

RENEWING AMERICA'S FOOD TRADITIONS

When fish and shellfish populations are depleted or brought to the brink of extinction, this biological loss generates culinary and other cultural consequences that may be too deep to immediately fathom. The loss of marine biodiversity affects all of us, but especially the coastal peoples of North America—both native and immigrant—who have built their bodies, minds and communities from the flesh of fish, a fact their salty stories, songs and sacred ceremonies celebrate.

From potlatches and clambakes, to sea shanties and tales told in ice fishing huts, America's cultural heritage has been built not merely on its fertile soils and mineral-rich mountains, but on its waters as well. That is where some of America's finest artisans have practiced their traditions of weaving nets and basket traps, carving totem-style halibut hooks, harpoons, floats and lures, constructing stone traps, decoys and crab pots, or shaping canoes, kayaks, dories and pangas. Some of the greatest chefs and home-style cooks of the continent have offered their families and friends unforgettable meals of oyster-and-crab jambalayas, alder-smoked salmon or steelhead, clam chowders, blackened redfish, or salted bacalao. American literature would have never achieved its world-renown originality without the mythic novels of Herman Melville, the spare short stories and elegant novellas of Ernest Hemingway, the rich poems of Richard Hugo and Amy Clampitt, or the humorous yarns that John Steinbeck set on *Cannery Row*. Their figures and fables are stained with salt, plastered with seaweed, and smell of freshly caught fish. Without fish and shellfish, there would be no basic stock from which to build the multicultural bouillabaisse that has become America.

These culinary, material and intellectual traditions will be trivialized if we let the fish, mussels, cockles, oysters, crabs and gators which fuel these maritime expressions fall into extinction. We will be left with mere nostalgia for the life of the fisherman and clam-digger if these livelihoods themselves can no longer be practiced with dignity and economic viability.

Barely thirty-five years have passed since the first American scientists suggested that the productivity of the oceans may not be inexhaustible. Since that moment of belated revelation, annual catches have peaked for more than 140 stocks of fish from around the world, and most have gone into decline ever since. Nevertheless, a few have recovered—largely because fishermen, fisheries biologists and chefs have found ways to work together flexibly and tangibly rather than playing the blame game any further. Most of the North American fisheries have the capacity to recover within our lifetimes if valued, rested, invested in and co-managed effectively. However, it is unlikely that we will ever see the white abalone and a few other shellfish on our tables again, for their recovery time under the best of circumstances may take another half century.

**Roughly a third of the fish on the redlist inside are threatened and endangered, even though some were viable elements of America's great seafood traditions as little as two decades ago.** They have declined due to many causes, not just blatant gluttony and greed: the inadvertent arrival of parasites and diseases, the shift in sea currents and sedimentation patterns, the changing densities of otters and seals, and the rises in ocean temperatures that are linked to global warming. Yes, some have been over-harvested, while others persist but are contaminated by mercury or fire retardant chemicals that make them unfit for frequent human consumption. Behind most of the diminished stocks are echoes of habitat destruction, degradation and fragmentation caused by dam-building, dredging, the discharge of pollutants at river mouths, or coastal resort and marina development.

Each of these species has an intrinsic right to live, and once that is guaranteed, each of the maritime cultures traditionally engaged with it should have the right to practice sustainable harvesting at an artisanal scale. The Renewing America's Food Traditions consortium facilitated by Slow Food USA welcomes additions or corrections to this list, but more importantly, encourages you to become personally engaged in actions that allow the biological recovery of these species and the cultural recovery of the traditions associated with them.

—Gary Nabhan, PhD. (*Renewing America's Food Traditions* founder)

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# THE REDLIST

## Cod

**Atlantic cod** (*Gadus morhua*). 15th-century explorer John Cabot described shoals of cod so vast that they could be caught “not only with the net, but in baskets let down with a stone.” They were fished in early historic times by the Algonquian-speaking tribes and the Basque, who may have found fishing grounds for *bacalao* off Canadian shores centuries before the arrival of French and English explorers. To this day, the Cape Cod Mashpee Wampanoag still favor salted scrod fishcakes for breakfast. There remain two major cod stocks: 1) Gulf of Maine, and 2) Georges Bank and southward. Over-fishing through the 1980s brought both stocks to a state of collapse until a cod moratorium was declared in 1992 in both Canada and the U.S. Biomass remains extremely low relative to historic levels, and stocks do not appear to be recovering. The catastrophic crash of cod was probably due to industrialized over-fishing (both domestic and foreign), delayed government responses, seal predation, and global warming’s effects on water temperature. Mark Kurlansky’s fine book, *Cod*, chronicles the plight of both the fish and traditional cod-fishing communities. It is now rare, depleted, mercury-contaminated, and many cultural traditions are at risk.

**Tomcod** (*Microgadus tomcod*). Of varying color and seldom more than a foot long, tomcod is found only in the brackish waters and near shore bays and rivers of the North Atlantic, from Labrador to Virginia. A remarkable fishing tradition has developed on the St. Lawrence River near Saint-Anne-de-Perade, Quebec, where tomcod come to spawn. Hundreds of colorfully painted ice fishing huts are erected on thicker ice floes, attracting 100,000 fisher folk per winter. Considered a delicacy, tomcod is line fished. Although not threatened or endangered demographically, tomcod livers now concentrate toxic chlorinated biphenyls and pesticides in such quantities that spine deformities, liver lesions, jaw ulcers and poor body health affect many populations along the St. Lawrence. Unless this basin is protected from toxic industrial discharges, this colorful ice fishing tradition will be left at risk.

## Croaker

**Totoaba** (*Totoaba macdonaldi*). This six-foot long fish was prized among the Seri and other Indians of the Gulf of California and Colorado River delta (where it spawned) for centuries. In the early 1930s, a commercial fishery began that supplied restaurants in southern California and Arizona with the flesh from this fish, and Chinese groceries with its dried bladder. However, the totoaba catch peaked in 1942 at 2261 metric tons, and has never recovered. Its season was closed in Mexico in 1975, although poaching persisted into the mid-1980s. It was listed as endangered in the U.S. in 1979, and in Mexico in 1994. It is commercially extinct.

## Eel

**American eel** (*Anguilla rostrata*). Like its Old World counterpart, this eel has been part of the human diet for hundreds, if not thousands, of years. Richard Schweid’s *Consider the Eel* documents both early Native American uses and those of European immigrants upon their arrival in the New World. The Mashpee Wampanoag of Cape Cod still coat eels in cornmeal and fry them until golden brown. American eels are harvested most often by eel pots, although some are caught by hook and line, and some are now farmed. In the Chesapeake Bay, eel pots historically supported an extensive fishery, which has more recently suffered from contamination. Their harvesting and processing is now limited to a scattering of ethnic enclaves along the East Coast that struggle to maintain their eel traditions. Eels have also been especially impacted by dams and other obstructions in rivers, hydropower plants, and wastage as “by-catch.” Populations have disappeared from many of the more contaminated and altered rivers of the Eastern seaboard; authentic American traditions of eel use could disappear if current trends continue.

## Flounder & Sole

**Atlantic yellowtail flounder** (*Limanda ferruginea*). The sweet lean taste and firm flaky texture of this yellowtail or rusty dab are often regarded as the standard to which other flounders are compared. Commercially important concentrations were found in the relatively shallow offshore waters from Labrador to Chesapeake Bay. Stocks were drastically over-fished in the 1960s and early 1970s by the huge deep-water fleets in Northwest Atlantic. It is no longer fished off the Georges Bank, and is still recovering from a second population crash in 1995. The Northwest Atlantic Fisheries Organization (NAFO) denied the United States an allocation of yellowtail flounder in 2003 and again in 2004. It is threatened and its viability remains of concern throughout its range.

## Greenling

**Lingcod** (*Ophiodon elongatus*). The lingcod is a long-lived bottom dwelling fish taken by scuba-diving sportsmen and commercial fishermen, including those from several First Nation cultures. They were historically cooked with clams and seaweed in steam pits on the beaches of the Pacific Northwest, where land-locked lingcod also occur in freshwater lakes. The flesh is tasty and turns white when cooked. Populations of various lingcod stocks are currently just 3-5% of what they were 100 years ago, and in some places, the U.S. government has ordered drastic reductions in allowable takes. Sports fishery harvests are currently greater than commercial harvests. Recent local stock recoveries may be undermined by growing pressures from sports fishermen. The lingcod needs further protection, since stocks range from threatened to declining.

## Lampreys

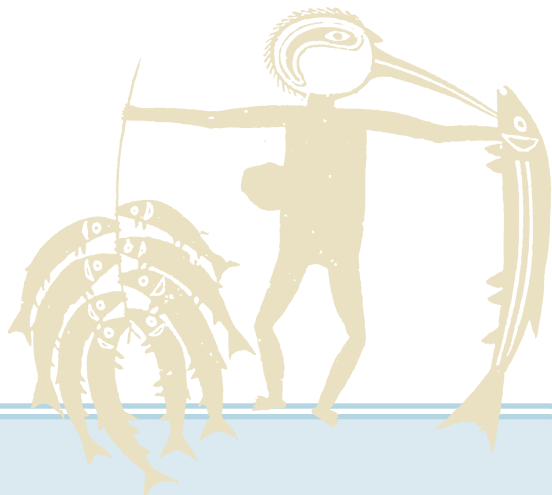
**Pacific or trident lamprey** (*Lampetra tridentata*). One of four lampreys of Northwestern rivers and bays that has suffered severe declines, this one was also widely harvested for food by Native Americans in centuries past. Formerly occurring from northern California through the Columbia River, in the 1880s lampreys were so abundant that they literally cloaked the Willamette Falls. Since the 1960s, Snake River populations have declined from 50,000 to less than 100 in 1990. Its commercial harvest is all but over, though First Nations are struggling to maintain their traditional rights to this food source. It is endangered as a traditional food.

## Grouper

**Goliath grouper** (*Epinephelus itajara*). Of historical importance to commercial Florida and Caribbean fisheries, these intriguing groupers were once featured in white tablecloth restaurants throughout the South. Recreational and sport fishers have also long prized the excellent flavor and texture of goliath groupers, formerly known as jewfish. The large size, slow growth, low reproductive rate, and spawning behavior have made the goliath grouper especially susceptible to over-fishing. Some estimates suggest that its numbers have been reduced by 80% over its last three generations. Since being recognized as a critically endangered species by the World Conservation Union (IUCN), it has become completely banned from harvesting. In U.S. waters, take of this species has been prohibited since 1990, and the species has been protected in the Caribbean since 1993. Endangered, with recent effects of hurricanes Katrina and Rita unknown.

## Herring

**Pacific Herring and Spawn** (*Clupea pallasii*). Spawn harvesting and herring raking are ancient traditions in Alaska, Canada and the Pacific Northwest, where they are still practiced in early spring along the shores of many bays and coves. The spawn is a delicacy harvested by kelp ribbons, spruce, fir or cedar boughs placed in the water. However, Pacific herring roe, or eggs, has also become a delicacy for sushi lovers, for whom the roe is destructively harvested straight from the belly of the female herring. Over 90% of the Pacific herring now caught is for the roe inside the herring. As Hilary Stewart wrote, “today fishermen complain that herring runs are depleted by over-fishing [but] Indians once went out in canoes to meet herring that schooled in uncountable numbers.” Pacific herring themselves remain over-fished in certain localities, despite state policies to regulate harvests to leave enough for wildlife. The spawn-on-kelp fishery is currently limited to specific spawning stocks in northern Puget Sound, British Columbia and southeastern Alaska. Traditions at risk/declining to the point of rarity.



## Smelt

Eulachon or ooligan grease from **candlefish smelt** (*Thaleichthys pacificus*). Candlefish smelt formerly moved by the millions up coastal rivers and bays to spawn on gravelly beaches, serving as a cultural keystone species whose products were linked to many culinary traditions. They form the core of an ancient but vanishing fermented oil food tradition of the First Nations of the Pacific Northwest. Candlefish smelt were smoked and eaten, or gathered into canoes to decompose and ferment, so that their oil could be extracted and refined to mix as a preservative with berries and other foods. Some of the greatest potlatch ceremonies were ooligan ‘grease feasts,’ and different flavors of ooligan were traded into the interior for hundreds of miles as a valued medicine and food. While smelt runs in Alaska and British Columbia remained substantial through the 1940s, they have since become irregular, disrupted by coastal and riverine development as well as contamination. By the 1990s, some runs had stopped altogether, and catches from remaining runs in British Columbia and Washington have become highly regulated. Biologists have projected that the candlefish populations can support only 28 percent of the former harvesting pressure without suffering irrevocable declines. Among the most endangered food traditions in North America.

## Salmon and Trout

**[Wild] Atlantic salmon** (*Salmo salar*). The Atlantic salmon was a plentiful source of food for Native Americans and the colonists, both of whom continue to poach it as a favorite traditional Fourth of July dish in New England. However, its numbers have dropped precipitously over the past 50 years. Dams and other constructed impediments to fish passage prevent these salmon from reaching historic spawning habitats along many rivers formerly important to their regeneration. Ocean fisheries in the North Atlantic continue to indiscriminately harvest salmon stocks derived from a mixture of river systems in an unsustainable manner. What’s worse, genetically modified farmed Atlantic salmon are being dumped on the market, and escaping into rivers from Canada to Chile. This practice is undermining already endangered salmon runs in many places. Sebago salmon (*Salmo salar sebago*), a land-locked, non-migratory subspecies of Atlantic salmon barely hangs on in Maine, and is endangered.

**Chinook Salmon** (*Oncorhynchus tshawytscha*). Powerful, sleek and singularly determined to return to their birthplace to spawn and die, this salmon is at the heart of many First Nations’ fishing traditions. It is also a pillar of the economy of the Pacific Northwest. Different spring runs, such as those of whitnose and blueback Chinook are said to have distinctive flavors associated with them. They are all highly valued by commercial fishermen, despite their scarcity relative to other salmon remaining along most of the Pacific coast. Large populations once spawned in headwaters found in the drier interior regions, but many of these runs have been disrupted by dams. Today, farmed salmon escaped from aquaculture in the Frazier River may be genetically contaminating native wild runs. Farmed and wild chinooks may also have high levels of PBDE fire retardant chemicals in Oregon and British Columbia. Worse yet, the majority of historically documented runs in the south are now extinct. The Sacramento River winter-run population is classified as endangered. Riverside access issues affect Alaskan natives attempting to maintain their harvesting traditions. Remaining naturally spawned populations in California, Idaho, Oregon, Washington, and British Columbia are classified as threatened.

**Sockeye** (*Oncorhynchus nerka*). Sockeye range south as far as the Klamath River in California to as far north as Bathurst Inlet in the Canadian Arctic. They have been an important traditional food and ceremonial totem for the First Nations of the Pacific Northwest, who both fire-roasted them when fresh, or smoked and dried them for winter use. Where available, sockeye are still an important mainstay of many subsistence users and support one of the most important commercial fisheries on the North Pacific coast. However, traditional runs of sockeye in the Columbia and Snake were severely disrupted by dam building, and remain depleted or destroyed. A few runs of Puget Sound sockeye have rebounded in response to restoration efforts. With the exception of a few fish that return to the Deschutes River, there are no longer self-sustaining populations in Oregon. They are considered endangered on the Snake, and threatened elsewhere in Washington and British Columbia. Kokanee (*Oncorhynchus nerka*), a landlocked sockeye may be endangered in certain lakes.

## Sturgeon

**Atlantic sturgeon** (*Acipenser oxyrinchus*). An ancient (semi-) bony fish that historically supported a traditional fishery for caviar as well as for the veal-like pink meat, this species favors cold waters north of Delaware and Pennsylvania. William Penn once saw thousands of these fish running together, and to supply “Albany beef” to restaurants in New York thousands of men worked in a distinctive fishery. But by the end of the nineteenth century, sturgeon numbers had so precipitously declined that legislation was enacted then to protect young sturgeon known as “mammoses.” Despite these earlier efforts at recovery, this historic species remains over-fished and endangered.

# REDLIST

## of Other Fisheries at Risk in North America

### FISH SPECIES OR POPULATIONS AT RISK

**Angler-fish:** Atlantic monkfish

**Cod and Hake:** cowcod, Pacific cod, Pacific hake, silver hake

**Croaker:** Atlantic hardhead, striped croaker

**Flounder and Sole:** Atlantic yellowtail flounder, English sole, Petrale sole, starry flounder, summer flounder, turbot, winter flounder

**Grouper and Sea bass:** black grouper, gag grouper, Nassau grouper, Warsaw grouper, yellowedge grouper, yellowmouth grouper, speckled hind, tilefish, white perch

**Herring:** Alabama shad, Atlantic shad

**Lampreys:** virtually all other species

**Marlin:** blue marlin, white marlin

**Rockfish:** bodacious, china rockfish, idiot or shortspine thornyhead rockfish, red snapper, yellow eye or red rockfish, yellowtail

**Sablefish:** Pacific black cod

**Salmon and trout:** Chinook, chum, coastal cutthroat, Coho, Colorado River pike-minnow, Dolly Varden char, pink, steelhead

**Scalping:** cabezón

**Shark:** dusky, sand tiger, night, whale, white

**Smelt:** rainbow smelt, surf smelt

**Sturgeon:** green sturgeon, pallid sturgeon, white (Columbia River) sturgeon, Gulf of Mexico sturgeon

**Swordfish:** swordfish

**Tuna:** blue-fin

**Weakfish:** red drum, tautog

### SHELLFISH SPECIES OR POPULATIONS AT RISK

**Abalone:** Atlantic, black, flat, pinto or North Pacific, white

**Bivalves:** Bay scallop, butter clam, Colorado River clam, geoduck, hard shell mussels, heart cockle, horse clam, littleneck clam, Olympia oyster, Pacific razor clam, quahog, queen conch, soft shell mussels

**Crab and lobsters:** Atlantic lobster, Dungeness crab, rock crab

**Shrimp:** Pacific northern shrimp and other trawl caught shrimp, spot prawn



## WHAT YOU CAN DO

Despite these dramatic declines in fish, shellfish and their associated cultural traditions, there are impressive biological efforts to recover these species as well as cultural restoration efforts to record and preserve the practices and preparations associated with them. The Renewing America's Food Traditions consortium (see [www.environment.nau.edu/raft](http://www.environment.nau.edu/raft)) is doing much to link work on both of these fronts. You can join hands—and fins—with others to help such efforts gain momentum. Here are just a few of the initiatives that need your help and enthusiasm:

### Slow Food USA

([www.slowfoodusa.org](http://www.slowfoodusa.org)) has placed several seafoods—wild catfish, geoducks, Delaware Bay and Olympia oysters—on its Ark of Taste, and needs knowledgeable people to nominate additional seafoods for the Ark, and to move already-honored foods into Presidia restoration projects. Slow Food International has developed many educational programs directing its members toward safe seafood choices, including *Slow Fish, the Sustainable Seafood Salone*. As Slow Food founder Carlo Petrini has suggested, consumers and fishermen should “focus on the need to protect endangered species, and the high quality of the *forgotten ones* that get thrown back into the sea, while highlighting the importance of sustainable fishing practices... We aim to promote small-scale fishing that maintains local economies and inshore ecosystems...” Contact your local Slow Food convivium or chapter for ideas on what you can do right where you live.

### Chefs Collaborative—

an organization of over 1000 chefs and other members of the food community—has pioneered efforts to reduce sales of declining fish stocks by voluntarily abstaining from purchases of those stocks until they have biologically recovered. *Seafood Solutions*—Chefs Collaborative's sustainable seafood initiative—educates chefs about the elements of a sustainable aquatic food system and, as a result, seeks to improve the quality and taste of the fish that we eat. Chefs are making a difference for our oceans, rivers, and lakes through use of materials like the downloadable Sustainable Seafoods Primer ([www.chefscollaborative.org](http://www.chefscollaborative.org)). The Primer emphasizes the following criteria:

- Seasonality of fish
- Fish to avoid
- Sustainable alternatives
- Underutilized or unfamiliar species to use through a variety of new and creative recipes and techniques.

**We encourage all citizens of North America to collaborate with these groups and others to make consumer choices that help replenish our fisheries, so that our rich maritime cultural traditions—and their culinary treasures—can be sustained in the future.**