AUDUBON'S GUIDE TO SEAFOOD

Fish Scale: The guide's color spectrum reflects the state of the fish or shellfish, roughly in order from least problematic to most problematic.

GREEN: Abundant, well-managed, low bycatch species **YELLOW: Concerns about a species' status, fishing methods, or management** **RED: Species with significant problems**

SPECIES OR GROUP	BACKGROUND	STATUS	MANAGEMENT	BYCATCH & HABITAT CONCERNS	EXCEPTIONS / ALTERNATIVES
Wild Alaska Salmon	Salmon hatch in rivers and grow in the sea, returning to their rivers of birth to spawn. They find their natal stream with a complex internal navigation system using the sun and the Earth's magnetic field.	Populations in Alaska are healthy. This is not the case off the Pacific Northwest or in the Atlantic, where salmon are depleted.	Management good. In Alaska, catch limits are based on estimates of how many fish will return to spawn.	Caught with gillnets, seines, and trolling, with moderate bycatch. Habitat healthy in Alaska but degraded elsewhere due to logging and dams.	Buy Alaskan salmon because farmed salmon and other (non-Alaskan) wild salmon are rated "red."
Farmed Freshwater Catfish, Crawfish, and Tilapia	Farming fish can take some of the pressure off wild fish, but it is not a panacea. Some problems include disease, water pollution, escapes, and conflicts with other wildlife. However, some fish farming has evolved to address these problems, especially when enclosed systems and waste-water controls are used.	From a market perspective, farms provide a consistent supply of uniformly-sized animals, year-round. Unlike with wild fish, measures of abundance are not applicable to farmed fish.	Fed an artificial diet including much vegetable content. This is preferable to the practice of catching wild fish, necessary to feed many other types of farmed species, like shrimp and salmon.	Look for animals from less ecologically damaging closed-system tank aquaculture. Open water systems used to farm salmon and shrimp are often damaging to habitat.	Catfish is a good substitute for orange roughy; tilapia can substitute for grouper. There are pollution problems related to farming rainbow trout.
Pacific Cod, a.k.a. scrod	These fish extend from the Bering Sea to Oregon, and occasionally as far south as California. They spawn in the Gulf of Alaska. Its dominantly white flesh indicates a body built of muscle designed for short bursts of speed.	Abundant.	Management is good.	Caught with trawls, longlines, and traps. Bykill controlled by shutting down the fishery if fishers inadvertently take too many halibut or other species.	Differentiate from Atlantic cod which have been overfished and poorly managed. They are rated "red."
Dolphinfish, a.k.a. mahimahi or dorado	Found in offshore waters in the tropics and subtropics, the acrobatic dolphinfish is probably the world's most beautiful fish. Its vibrant colors–yellow, green, and blue–flash in life but fade upon death.	Apparently widespread and abundant; however, not enough research has been done to assess these fish.	Poor. Virtually no commercial management for the fishery anywhere. A sizeable portion of mahimahi on the market comes from recreational catches, although commercial catches are increasing-largely to make up for the depletion of billfish, sharks, and tunas.	Low bycatch. In U.S. waters, most are caught by anglers using rod and reel. They are increasingly being caught on commercial longlines targeting other fish, and are kept and sold.	
Striped Bass, a.k.a. rockfish	In the wild, these fish are born in fresh water, spend their lives in the ocean, and return to fresh water to spawn. Half of all striped bass sold are farmed, mostly in closed tanks, which controls pollution and escape problems.	Recovered to abundance after severe depletion in the 1980s, the striped bass is beginning to become overfished once again on its native East Coast.	A great success story in fishery management, achieved through fishery closures, lower catch limits, and increased protection of juveniles. States still struggle to keep this fishery healthy.	Most nets used for wild striped bass entail moderate bycatch. Coastal and river development and pollution are problematic for bass habitat.	Good alternative to black sea bass, which is depleted and in the "red."
Pacific Pollock	Particularly plentiful off Alaska, Pacific pollock is one of the world's most abundant food fish for humans and marine animals alike. Principal fish in fish sticks and frozen fillets, as in fast-food fish sandwiches.	Though abundant, in the late 1990s there were signs that Alaska pollock were beginning to decline. Studies are underway to find out why.	The North Pacific pollock fishery is often cited as an exemplary management regime.	Moderate bycatch of other species, including sharks and skates.	
Pacific Halibut	Largest of the flounder-like flatfishes. Pacific halibuts can reach 500 pounds; California halibuts 70 pounds.	Abundant in the Pacific, particularly off Alaska.	Well managed off the Pacific coast.	Caught off California with high bycatch gillnets. Little bycatch in Alaska's longline fishery. Alaska longliners asked for regulations requiring devices to prevent albatrosses from getting hooked—a big plus.	Distinguish from the Atlantic halibut, which is rated "red."
Soles (Dover, rex, yellowfin)	These Pacific flatfishes live on the sea floor in a variety of habitats from lagoons, bays and shallow estuaries, to the deep sea.	Rex and yellowfin soles are abundant in the Pacific. Dover sole is less abundant but not overfished.	Good management. Conservation measures include limiting catches, permits, size limits, and seasonal and area restrictions.	Bottom-trawl nets are hard on habitat and take moderate to high bycatch.	Dover sole of the Pacific is not doing as well and rates a "yellow."
Squids, a.k.a. calamari	Many species exist worldwide, in habitats ranging from shallow bays to abyssal depths. Squids have the most complex brain of any invertebrate animal. They live at most a year and a half.	Squid off the U.S. Atlantic coast are numerous but overfished. If fishing continues to intensify, they will become depleted. Squid off the U.S. Pacific coast are abundant.	In the Atlantic, U.S. managers are working to keep fishing in balance with the natural cycles of squid. Off the Pacific coast, the number of squid boats is controlled but there are no limits on catches.	Caught with nets or hook and line. Bykill is sometimes a problem, sometimes not where the squid school only among themselves. When squid are caught close to the surface, habitat problems are negligible. Bottom trawls catching squid off the Atlantic Coast can damage habitat.	
Crabs (blue, dungeness, red king, snow, stone, tanner)	A very large and diverse group from many regions, inhabiting anywhere from shallow to deep water depending on species. Most crabs are taken whole, but only the larger claw is taken from stone crab. Instead of being killed, the animal is returned to the sea alive and will grow a new claw in 18 months.	Stone and dungeness doing well. King, tanner, and snow crabs are depleted. The snow crab fishery recently collapsed from natural factors. Chesapeake Bay blue crabs are depleted. Other blue crabs doing well.	Stone and dungeness crabs are well-managed. Red king, snow, and tanner crabs are tightly managed due to low abundance of these species. Chesapeake Bay blue crabs are overfished.	Caught with traps rather than nets, so bycatch is generally low. Chesapeake Bay blue crabs suffer from polluted and degraded habitat.	Select blue, stone, and dungeness crabs, rated "green," because they are abundant and well-managed.
Tunas (albacore, bigeye, bluefin, skipjack, yellowfin)	Swift and strong, some tunas migrate thousands of miles. They occur in temperate to tropical waters of the Atlantic, Pacific, Southern, and Indian oceans. Almost all large bluefins are shipped to Japan for sushi. Bluefins are often worth $15,000 each at dockside (the record is $80,000), making them one of the world's most valuable animals. Canned "white tuna" is albacore; "chunk lite" is yellowfin or skipjack.	Abundance varies depending on species. Bluefins are severely overfished. Bigeyes, yellowfins, and albacores are declining in some regions but still abundant. Skipjack populations are still large, though declining in parts of the Atlantic.	Management poor in the Atlantic, where populations are most depleted. Current management in the Pacific not adequate to prevent future depletion.	Moderate-to-high bycatch. Caught mainly with purse seines and longlines, tunas sold in the U.S. must be "dolphin-safe" (generally, no dolphins killed), but many dolphin-safe netting methods catch juvenile tunas and unwanted species.	Bluefin tuna are rated "red" because of serious depletion and poor management. Troll-caught tuna are "green" because of low bycatch.
Clams and Oysters	Clams and oysters are a big, diverse group living throughout the world; with a vast array of methods for catching them. Some clams and oysters are farm-raised. Because clams and oysters can absorb toxins, be sure your shellfish come from healthy waters. Ask to see the tag of origin that accompanies all shellfish.	Hardshell clams are stable to declining depending on locale. Softshell clams generally remain abundant except in Maine and Maryland. Most wild oysters are overfished; oysters are frequently farmed.	Variable. Management of catches is state-based. Farmed and wild-caught shellfish habitat well-monitored for water quality.	Half of all clams caught in the U.S. are surf clams from New Jersey and Virginia, which are mostly dredged. Dredging degrades habitat. Shellfish are susceptible to algal blooms like red tide.	The key is to ask for local, non-dredged clams and oysters. West Coast oysters are not dredged. South Carolina clams are grown on suspended racks so collecting them does not damage habitat.
Lobsters (American, a.k.a. "Maine," and various spiny lobster species)	That they grow slowly and mature late, makes lobsters vulnerable to heavy fishing pressure. American lobsters can live 40 years, but that is now rare due to fishing pressure. A recent massive die-off of lobsters in Long Island Sound underscores their vulnerability. Cause of the die-off remains unknown.	American lobsters are overfished, though most are not depleted. Spiny lobsters are overfished in many parts of the tropics.	Intense fishing pressure removes nearly all American lobsters shortly after they mature, leaving populations vulnerable to one bad year of reproduction. Management poor for spiny lobsters.	Most American lobsters are caught with habitat-friendly, low-bycatch traps.	Divers for spiny lobsters in the tropics frequently become crippled or die because of poor equipment and training.
Mussels (dozens of varieties including New Zealand green, blue, and Mediterranean)	As filter feeders, mussels ingest microscopic plant and animal matter from the water. Shellfish beds from which mussels are taken are carefully monitored for water quality. About half the mussels on the U.S. market are cultured.	Wild native blue mussels are low but stable in the Northeast U.S. Mediterranean mussels and others are farmed off the U.S. West Coast.	Variable. Management of catches is largely state based. In the U.S., farmed and wild mussel beds are well monitored for water quality.	New Zealand mussels are largely dredged. Much habitat is damaged during dredging. Some farmed mussels are grown on suspended racks, which reduces habitat problems.	Ask for non-dredged cultured native mussels, rated "green" because their culturing techniques save habitat and reduce the risk of disease problems.
Scallops (over 400 species worldwide)	Scallops swim by clicking their shells together and propelling backward. They also have eyes and chemoreceptors to sense their surroundings and potential predators. Some scallops farmed; many imported; most sold in the U.S. have been dredged.	Atlantic sea and bay scallops are overfished and depleted. Bay scallops are having trouble with harmful algal blooms. The status of others is mostly unknown.	Management generally poor. Varies on regional basis.	High bycatch. Dredging for scallops takes many other species and severely degrades habitat.	Ask for farmed native scallops grown on suspended racks, which are less harmful to the environment than dredged wild scallops.
Haddock and Monkfish	Like other New England groundfish—cod and flounder—these occur from estuaries to the nearshore shelf to deep channels and holes off the U.S. Atlantic coast. The monkfish sports a fleshy protruding "fishing" lure which it uses to attract prey.	Haddock severely depleted and monkfish overfished. Monkfish only became a target for market when cod became scarce.	Several decades of mismanagement and overfishing left haddock and monkfish depleted but stepped-up management has given them a chance for recovery.	Caught with high bycatch and habitat-destroying bottom trawls.	Alternatives to haddock are striped bass and tilapia.
Snappers (i.e. yellowtail snapper and red snapper)	Snappers are a very large, widely distributed group; most live in the tropics or subtropics.	Red snapper is overfished and depleted. The status of yellowtail snapper is unknown.	Snapper fisheries are unmonitored in most countries. Management in the U.S. is generally poor.	Fishing for snappers entails significant bykill of juveniles and non-target species. Bykill of red snappers in shrimp trawls in the Gulf of Mexico is a major problem.	Yellowtail snapper is not the Pacific yellowtail, called hamachi in sushi bars. Avoiding Gulf of Mexico shrimp helps red snappers.
Swordfish and Marlins (one species of swordfish; several marlin species)	Their impressive size, sleek appearance, and superb hunting skills make these billfishes perhaps the most spectacular sea fishes. But their popularity as pricey steaks is depleting the species.	Overfished and depleted in the Atlantic. Their status is unknown in most of the Pacific.	Management poor in the Pacific Ocean; poor but improving in U.S. Atlantic waters. New international management in Atlantic may give swordfish a chance to recover.	High. Most swordfish and marlins are caught with longlines, which bear thousands of hooks and kill high numbers of juvenile billfish, sharks, turtles, and some marine mammals. Longlining is a culprit in the near extinction of leatherback turtles in the Pacific.	Use of harpoons to catch swordfish prevents bycatch problems, but harpooners can no longer make a living because of depletion caused by large-scale longlining.
Flounders (summer, witch, etc.)	These bottom-dwelling flatfishes live in a variety of habitats from lagoons, bays, and shallow estuaries, to the deep sea. They are artists at camouflage.	Many are overfished and depleted. Note that some are beginning to recover.	Historically poor, management is tightening for all groundfish fisheries.	High bycatch and habitat destruction from bottom trawling.	
Groupers (black, jewfish, Nassau grouper, red)	Essentially tropical fishes, extending into the sub-tropics and occasionally temperate seas. Groupers gather in large groups to spawn, the timing and location of which are highly predictable, which makes them particularly vulnerable to overfishing. Most groupers change sex with age.	Overfishing threatens this large tribe of predominantly tropical species. Fishing in spawning areas has depleted many populations.	Poor. Many groupers, especially in the tropics, are taken in unregulated fisheries. Management in the Southeast U.S. is improving. Commercial fishing for Nassau grouper and jewfish is prohibited in U.S. waters.	Because of their high value, almost any fishing technique is used to catch them: hooks, traps, spears, trawls. Cyanide, which kills corals and fish, is often used to stun and catch groupers for the live-fish market. Explosives are also used.	Alternative choices are mahimahi or U.S. farmed tilapia.
Sharks (400 species worldwide, including mako, thresher, and dogfish, a.k.a. cape shark)	Sharks mature late in life, grow slowly, and produce few offspring. Populations require decades to recover from intensive fishing. Sharks are often caught for shark-fin soup, sold in China for $100 a bowl. Shark cartilage is now being exploited for "miracle" drugs.	Many populations are declining. Most species in the Atlantic are overfished and depleted.	Management fair to poor off U.S. Atlantic coast. Poor in Pacific waters. Almost no management elsewhere.	Moderate to high bykill. Mostly caught with longlines or gillnets, which also catch unwanted fishes and creatures such as turtles and marine mammals. Many sharks are killed just for their fins, then dumped.	
Shrimps	A wide variety of shrimps come from all over the world, from tropical to temperate climates. They are prolific breeders. About half are farmed, mostly in the tropics. Shrimp farms pollute and destroy habitat–so much so that farms frequently have to be shut down.	Plentiful in some regions, depleted in others (such as Mexico's Gulf of California). Their status is not well known elsewhere.	Generally poor in the U.S., and even worse in many other countries. Regulation of shrimp farming practices, the effects of bottom-trawl nets, and bycatch are the main issues.	Very high bycatch, the highest of any fishery in the world. For every pound of shrimp you buy, an average of 4 to 10 pounds of other sea life was killed and discarded.	Alternatives include the California trap-caught spot prawn and Atlantic northern pink shrimp, which have low bykill. Crawfish can be substituted for shrimp in many recipes.
Atlantic and Pacific Salmon (except Alaska) (wild, hatchery raised, and farmed)	Atlantic salmon are farmed in more than a dozen countries. In North America, they're grown in pens (including along the West Coast), but some inevitably escape. Unlike other salmon that die after spawning, Atlantic salmon may live to spawn again. Pacific salmon are hatchery-raised and released to grow in the ocean. They return to the hatchery to spawn and are killed for their reproductive organs used to breed new hatchery fish. A major proportion of salmon runs in the Pacific Northwest are hatchery-born. There is no interbreeding among wild salmon born in different streams.	Most wild salmon (except in Alaska) are in severe trouble. Wild Pacific salmon have disappeared from 40 percent of their historical breeding ranges in Washington, Idaho, Oregon, and California. Half of all salmon sold are farmed. All Atlantic salmon sold in the U.S. are farmed; selling commercially caught wild Atlantic salmon is prohibited.	Catches of wild salmon highly regulated, but logging, agriculture, and dams severely inhibit recovery. Some controls exist for salmon hatcheries and farms but habitat, disease, and interbreeding problems remain. Washington State designated escaped Atlantic salmon a "pollutant" there because of effects on wild salmon.	Moderate bycatch. Many of the few wild Pacific salmon that remain are inadvertently caught and killed when hatchery-born fish are being targeted, contributing to declines in wild runs. Hatcheries and fish farms destroy and stress natural habitats. Wild Pacific and Atlantic salmon have significant habitat problems (see previous square).	Substitute with wild Alaskan salmon, rated "green." Some salmon farmers in Maine move their pens regularly to reduce habitat degradation and the spread of disease. Hatchery salmon have clipped fins to help fishers and buyers distinguish them from their wild counterparts.
Orange Roughy	Most orange roughies come from deep waters off New Zealand and Australia. Orange roughies grow very slowly, taking 20 years to reach spawning age, and can live more than 100 years. They congregate in large groups to spawn, making them vulnerable to being fished out.	Many populations were severely and rapidly fished out in the 1980s when the mild-tasting species' popularity soared. Once depleted, they take decades to recover.	Poor management. Orange roughy is still on the market because fishers have moved on to newly discovered (though smaller) populations.	Significant bycatch. Also, trawls used to catch orange roughies damage underwater habitats.	Substitute with catfish.
Chilean Seabass (a market pseudonym for Patagonian and Antarctic toothfish)	Capable of reaching 6 feet and 100 pounds, these cold, deep water species first mature when 10 years old, and can live up to 50 years. Scientists predict commercial extinction before 2005.	Overfished and depleted. Much rampant illegal fishing in subantarctic waters, which is drawing attention and maybe some solutions.	Patagonian and Antarctic toothfish are marketed as Chilean seabass to mask illegal catches and trade. Most of what appears in the markets is actually toothfish, not Chilean seabass.	High bykill of seabirds, particularly albatross and petrels.	Real Chilean seabass can sometimes be distinguished from toothfish by its price; the former is more expensive.

Compiled by Michel Woodard and Mercédès Lee of National Audubon Society's Living Oceans Program.
Based on the book, *Seafood Lover's Almanac*, by Mercédès Lee, and the 1998 Audubon Guide to Seafood.

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