



Endangered Seafood Guide

WWF's guide to at-risk freshwater and marine species
in seafood procurement

2021



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70%
decline of marine
populations in just
the last 50 years

Since 1970, monitored population sizes of mammals, fish, birds, reptiles, and amphibians have declined an average of 70% globally, according to the WWF Living Planet Report 2020. For freshwater species, the situation is even bleaker; in that same time frame, populations have declined by 84%, and 1 in 3 freshwater species are now threatened with extinction.

As the world's largest conservation organization, WWF combines its scientific foundation and global reach to help ensure that our modern food system allows nature to thrive while also meeting the nutritional needs of people. Working with the seafood industry for more than 20 years, WWF has helped companies transition seafood supply chains to more sustainable, responsible, and ethical operations. Through increased transparency and traceability, businesses can better understand their operations and the potential risks and opportunities within their supply chains, helping to avoid environmental degradation and social challenges, along with financial, legal, regulatory, and reputational risks.

Company commitments to sustainability would not be comprehensive without the inclusion of protective measures for our planet's most threatened species. WWF advocates that companies stay engaged with their existing supply chains and support improvement in the seafood industry overall. However, some populations of threatened species need time and effort to recover, and it's necessary to remove them from procurement until measurable and impactful improvements are made.

This guide can serve as a simple seafood sourcing guide to identify freshwater and marine species of greatest concern to help buyers make more responsible choices in their seafood purchasing.



Our Recommendation

WWF recommends that companies do not source species identified by IUCN Red List as Endangered or Critically Endangered, as well as those listed in CITES Appendix I and Appendix II. Companies should also adhere to country-level endangered species trade bans.

In this guide, we identify some cases where companies can shift to alternative species that have credible environmental certification from well-managed fisheries and farms.

For wild-caught seafood, WWF recommends the Marine Stewardship Council (MSC) as the most credible environmental certification scheme. In cases where a certified fishery credibly meets the MSC requirements, and where the supply chain has verifiable traceability to the certified source fishery, WWF supports sourcing from MSC-certified fisheries even within high-risk species groups*.

**Where relevant, MSC-certified fisheries are identified in this guide if WWF believes the fishery was not properly assessed against the MSC standard by the conformity assessment body (CAB).*

For farm-raised seafood, WWF recommends the Aquaculture Stewardship Council (ASC) standard as the most credible environmental certification standard. ASC certification provides the most robust assurance for both environmentally and socially responsible farmed seafood based on a wide range of sustainability factors, beyond the risk to endangered populations. In farms where the ASC standard has been properly assessed and applied by the conformity assessment body (CAB) and where companies have credible, verifiable traceability to the source farm, WWF recommends sourcing ASC certified species within high-risk species groups. If ASC certified product is not available, WWF recommends sourcing from closed-cycle (hatchery-reared fingerlings) aquaculture farms with chain of custody and verified traceability to the farm location; while this won't assure more responsible aquaculture against all critical environmental and social indicators, this will minimize impacts on wild-caught endangered populations.

For a list of MSC certified fisheries, visit [fisheries.msc.org](https://www.fisheries.msc.org)

For a list of ASC certified farms, visit asc-aqua.org/find-a-farm/

Where available, refer to WWF regional seafood guides for additional, region-specific information. Where information conflicts, WWF's guidance is to abide by the most conservative recommendation available.



Mitigating Risk

Importance of Verification Through Traceability

Traceability is a critical component of responsible sourcing. To verify the origin of products and ensure companies don't fall victim to seafood fraud, mislabeling, or accidentally sourcing endangered species, ultimately serving them to unknowing customers, it is important that companies ensure robust traceability within their business and across their supply chains. Companies should collect environmental and social data on the products they source and be able to track these seafood products back to the source fisheries and farms. Companies can also source products that are certified to leading global sustainability standards like the MSC and ASC, which come with robust Chain of Custody (CoC) standards. This allows companies to maintain the identity of a product and keep it segregated and tracked throughout its journey in a seafood supply chain.

Risks of Farming Endangered Species

There are some species in this guide that are commercially farmed in addition to being caught in the wild. Aquaculture can provide a sourcing alternative for at-risk seafood products, but only if farms and their supply chains are managed responsibly. Though it is not common, some aquatic farms remove fish from the wild to raise in a controlled setting and sell as "farmed" or "ranchered" product. Using this farming method with endangered species is highly discouraged and places an additional threat on already strained populations of wild fish, potentially pushing them closer to extinction. Occasionally, farms raising hatchery-reared endangered species will need to capture limited numbers of wild fish to supplement breeding/genetic programs, however, in most cases this is carefully managed and doesn't pose a large risk to endangered species. This careful management of hatchery-reared fingerlings is called "closed-cycle" aquaculture and is independent of wild fish except for the occasional genetic additions to broodstock.

Farming species that are endangered in the wild can impact the supply chain dynamics of these species. First, if traceability of the farmed seafood is not robust it can allow the intentional mixing of wild illegally-caught individuals with the farmed version. Second, increasing the volume of the farmed version of an endangered species on the market can in some cases drive greater consumer demand, which can spill over to the wild.

Identifying At-Risk Species

WWF uses IUCN (International Union for Conservation of Nature) Red List of Threatened Species™ and the CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) to identify species at global risk of extinction.

The **IUCN Red List of Threatened Species™** is the world's most comprehensive inventory of the global conservation status of biological species. Species are categorized from greatest extinction risk to least concern. There are a range of quantitative criteria for any given ranking, including **Critically Endangered** and **Endangered**; meeting any one of these criteria qualifies a species for a listing at that level of threat. To learn more, visit www.iucnredlist.org.

WWF has not included IUCN 'Vulnerable' species on the fact sheets in this guide at this time. While we recognize that these species are also at-risk, and buyers should take care to avoid them when making purchasing decisions, the priority for these materials is to identify those species that are currently at extreme risk. Many vulnerable populations may benefit from conservation programs such as FIPs or other mechanisms to reduce fishing pressure and to halt and reverse declines in viable biomass, and we encourage our partners to work with such at-risk fisheries to move them toward sustainability and away from collapse. If you are concerned that you are purchasing or consuming species that may be vulnerable, please consider working with your local WWF office to identify those at-risk species and develop alternative solutions to sourcing those species.

The **Convention on International Trade in Endangered Species of Flora and Fauna**, or **CITES**, is a global agreement between governments to follow rules to monitor, regulate, or ban international trade in species under threat. Species listed under CITES are categorized into three different levels of protection. To learn more, visit www.cites.org, and to search CITES-listed species, visit www.speciesplus.net.

CITES Appendix I includes the world's most endangered plants and animals. International commercial trade in these species, or products of these species, is banned. **CITES Appendix II** includes plants and animals that are not yet threatened with extinction but could become threatened if trade were to continue without regulation. International commercial trade in these species, or products of these species, is allowed but subject to restriction.

Symbols used in this publication:

E = Endangered

M = MSC Certification

I = CITIES appendix I

CE = Critically Endangered

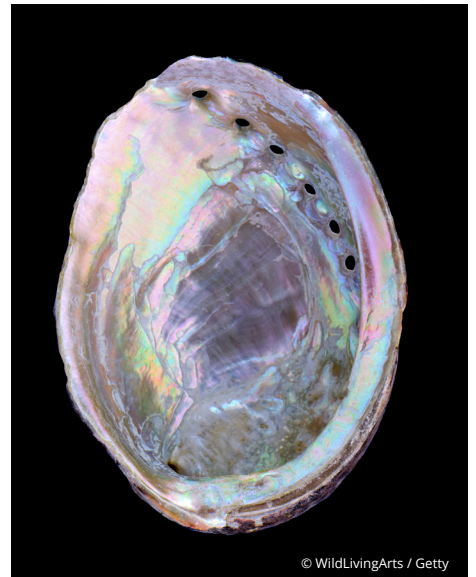
A = ASC Certification

II = CITIES appendix II



Black abalone

© Science History Images / Alamy



© WildLivingArts / Getty

AT-RISK SPECIES:

- CE** Black abalone
Haliotis cracherodii
- E** Northern abalone
Haliotis kamtschatkana

ABALONE

Why It's Endangered

Overfishing, disease, reduced kelp abundance, and competition with sea urchins are the main threats to wild abalone populations. Abalone are also targeted for their shells, which are often sold as decorative items and as a source of mother-of-pearl.

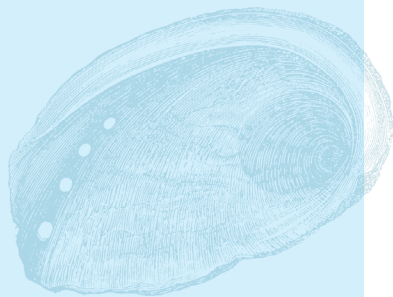
Harmful aquaculture practices, such as the removal of abalone from the wild for farming or ranching, can place an additional threat on already depleted populations of endangered species. In abalone farming, there have also been instances of inadequate water treatment on abalone farms that has transferred lethal diseases to already at-risk wild populations.

When a new farmed source becomes available for an endangered species, there can also be a risk that consumer demand will increase, which may put pressure on wild populations. When there is no robust traceability back to a closed-cycle farm, mixing — when legitimately farmed endangered species become mixed in supply chains with illegal product — can occur; this leakage generates a market for poached abalone, which causes a threat to wild populations.

Look Out For

In Chinese-speaking regions, abalone is commonly known as *bao yu*.

Studies suggest that without effective management, black abalone are likely to become extinct within 30 years.



WWF Recommendation

Verify the species and origin of abalone products; avoid if you cannot verify the species and origin to ensure you are not sourcing from at-risk populations. For wild-caught abalone, only source from MSC certified fisheries; for farm-raised abalone, preferentially source from ASC certified farms. If ASC certified product is not available, at a minimum, ensure you can credibly show chain of custody back to a closed-cycle (hatchery-reared fingerlings) farm, which helps minimize the impacts of farming on wild-caught endangered species.

- M** For a list of MSC certified fisheries, visit [fisheries.msc.org](https://www.fisheries.msc.org)
- A** For a list of ASC certified farms, visit [asc-aqua.org/find-a-farm/](https://www.asc-aqua.org/find-a-farm/)



Atlantic bluefin tuna

© Wild Wonders of Europe / Zankl / WWF; DeepAqua / Getty

AT-RISK SPECIES:

- E** Atlantic bluefin tuna
Thunnus thynnus
- CE** Southern bluefin tuna
Thunnus maccoyii

BLUEFIN TUNA

Why It's Endangered

Overfishing is the primary threat to bluefin tuna populations. Bluefin tuna are also slow-growing and late to mature, making them particularly vulnerable to the threat of overfishing. Effective conservation and management of highly migratory species like bluefin tuna require international cooperation as well as strong domestic management.

Harmful aquaculture practices, such as the removal of bluefin tuna from the wild for farming or ranching, can place an additional threat on already depleted populations of endangered species. Bluefin tuna caught for ranching are not necessarily counted against strict international quotas that are designed to conserve the species, which thwarts conservation efforts.

While closed cycle bluefin production systems with effective traceability can reduce risks to wild bluefin stocks, there are other significant sustainability challenges associated with closed cycle farmed bluefin tuna including extremely high FCR, high energy requirements (and associated GHGs) as well as low survival rates.

Look Out For

Other common names are giant bluefin, northern bluefin tuna, tunny, and oriental tuna. When sold as sashimi, bluefin is commonly called *toro* or *otoro*. In Spanish-speaking countries, bluefin is often known as *atún rojo*, translated to "red tuna" which can cause confusion.

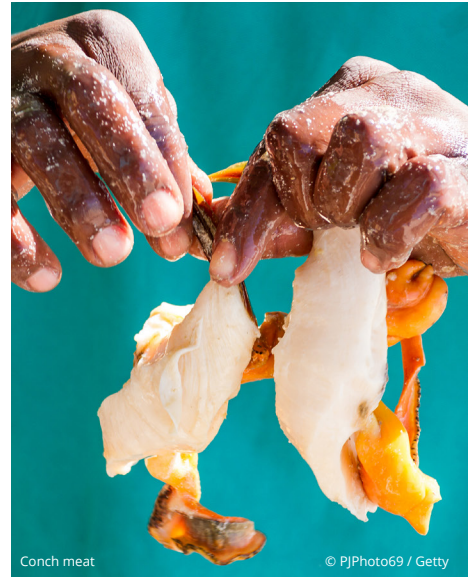
Spawning Stock Biomass (SBB) is the combined weight of all individuals in a fish stock that are capable of reproducing; bluefin's SBB is estimated to have declined by more than 80% globally since the 1970s. Stronger management measures are supporting the recovery of these stocks, which remain at very depleted levels due to overfishing.

WWF Recommendation

Avoid Atlantic and Southern bluefin tuna products*. While the status of Atlantic bluefin tuna has improved and stock has recovered over recent years, the management program is not strong enough to support population regrowth. WWF believes that MSC certification of any fishery of Northeast Atlantic bluefin tuna is premature, therefore, WWF recommends avoiding Atlantic and Southern bluefin tuna products, including those with MSC certification. Farmed bluefin tuna from wild seed (or fingerlings) and ranched bluefin tuna should be avoided as fish from those operations frequently **impact wild bluefin populations**. For closed-cycle (hatchery-reared fingerlings) farmed bluefin tuna at a minimum, ensure you can credibly show chain of custody back to a closed-cycle farm.

**While the population of Pacific bluefin tuna is currently listed by IUCN as Vulnerable – not Endangered or Critically Endangered – the stock's status is still a concern, and we suggest using caution when sourcing from this fishery.*





AT-RISK SPECIES:

- II Queen conch
Strombus gigas

CONCH

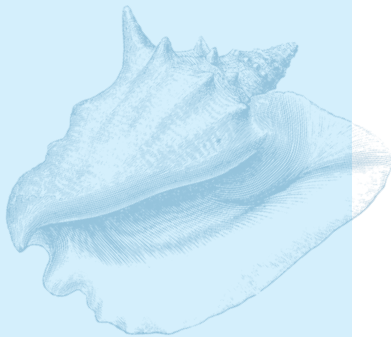
Why It's Endangered

Queen conch is listed under CITES II and is commercially threatened in numerous areas due to overexploitation for food and ornamentation. Rebuilding plans are in place, but populations continue to be threatened by illegal and unsustainable harvest.

Look Out For

In both English and Spanish-speaking regions, queen conch meat is known as *lambi*.

Queen conch was once prevalent in Florida, but populations were decimated by overfishing. Despite strict harvest controls put in place in the mid-1980s, stocks have not yet been able to fully recover. Without increased regulation and sustainable fishery management, conch in the Caribbean will likely see a similar decimation.



WWF Recommendation

Verify the species and origin of your conch products; avoid if you cannot verify the species and origin to ensure you are not sourcing from at-risk populations.



AT-RISK SPECIES:

- E** American eel
Anguilla rostrata
- CE** European eel
Anguilla anguilla
- E** Japanese eel
Anguilla japonica
- E** New Zealand longfin eel
Anguilla dieffenbachii

FRESHWATER EEL

Why It's Endangered

Wild populations of freshwater eel are primarily threatened by man-made barriers to upstream and downstream migration, which also includes mortality by hydroelectric turbines. Also, freshwater eels are semelparous, only breeding once in their lifetime, which requires migration into marine waters to spawn, and they do not reach sexual maturity until at least 12 or 13 years old, putting their populations further at risk. Additional threats include habitat loss, overfishing, disease, parasites, climate change, pollution, and poaching.

Driven by consumer demand, eels are often trafficked along the East coast of the US and Europe and smuggled into Asia. Research from WWF Japan shows eel products are associated with a high risk of Illegal, Unreported, and Unregulated (IUU) fishing occurring at some stage in the supply chain, most commonly during export processes (to Japan). This risk is increased by high market prices, low supply-chain traceability, and a high variance in (Japanese) national and international management frameworks.

Harmful aquaculture practices, such as the removal of freshwater eel from the wild for farming or ranching, can place an additional threat on already depleted populations of endangered species. Currently, scientists have not been able to successfully breed freshwater eels in a hatchery, so eel farming is not possible without sourcing young eels from the wild. When a new farmed source becomes available for an endangered species, there can also be a risk that consumer demand could increase, which may put pressure on wild populations.

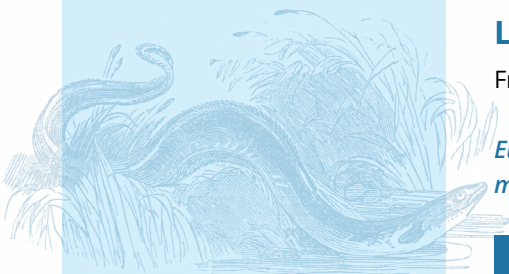
Look Out For

Freshwater eel is commonly found on sushi menus as *unagi*.

Europol estimates 100 metric tons of juvenile freshwater eels, equivalent to about 350 million fish, are illegally trafficked from Europe to Asia annually.

WWF Recommendation

Avoid all freshwater eel products until MSC or ASC certified options become available. There are currently no closed-cycle aquaculture farms operating for freshwater eel because breeding in captivity is not yet possible without sourcing stock from the wild.





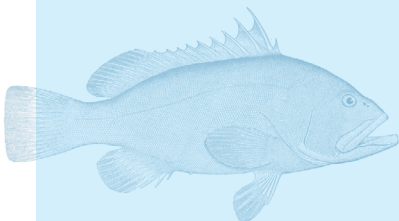
Dusky grouper

© Zocha_K / Getty

AT-RISK SPECIES:

- E **Atlantic goliath grouper**
(Gulf of Mexico)
Epinephelus itajara
- E **Dusky grouper**
(Europe & Mediterranean)
Epinephelus marginatus
- CE **Giant sea bass**
Stereolepis gigas
- E **Gulf grouper**
Mycteroperca jordani
- E **Hong Kong grouper**
Epinephelus akaara
- CE **Nassau grouper**
Epinephelus striatus
- E **Yellowfin grouper**
(Gulf of Mexico)*
Mycteroperca venenosa

*This species is not endangered throughout its range but is endangered in specific geographies.



GROUPEr

Why It's Endangered

Overfishing, particularly when species are aggregated in large numbers to spawn, is the primary threat to most grouper populations. Habitat degradation, climate change, and displacement by invasive species are also identified as significant threats.

Harmful aquaculture practices, such as the removal of grouper from the wild for farming or ranching, can place an additional threat on already depleted populations of endangered species. When a new farmed source becomes available for an endangered species, there can also be a risk that consumer demand could increase, which may put pressure on wild populations. In some situations, with increased demand, the likelihood of smuggling and poaching wild individuals into farmed supply chains also grows. When there is no robust traceability back to a close cycle farm, mixing — when legitimately farmed endangered species become mixed in supply chains with illegal product — can occur; this leakage generates a market for poached grouper, which causes a threat to grouper in the wild.

Look Out For

In the South, blackened grouper is a common preparation, but grouper can be fried, grilled, skewered or used in chowders and soups. In the marketplace, grouper is most commonly called by its common name, but it can also be called hag. In Japan, grouper is called *hata*; in Spanish-speaking regions, it's called *mero* or *garoupa*.

In the Gulf of California, gulf grouper was once abundant and represented approximately 45% of the artisanal fishery in 1960; now, they make up less than 1%.

WWF Recommendation

Verify the species and origin of grouper products; avoid if you cannot verify the species and origin to ensure you are not sourcing from at-risk populations. For wild-caught grouper, look out for future availability of MSC certified product; for farm-raised grouper, preferentially source from ASC certified farms. If ASC certified product is not available, at a minimum, ensure you can credibly show chain of custody back to a closed-cycle (hatchery-reared fingerlings) farm, which helps minimize the impacts of farming on wild-caught endangered species.

- A For a list of ASC certified farms, visit asc-aqua.org/find-a-farm/



Atlantic halibut

© Robert S. Michelson / age fotostock

AT-RISK SPECIES:

- E** Atlantic halibut
Hippoglossus hippoglossus

HALIBUT

Why It's Endangered

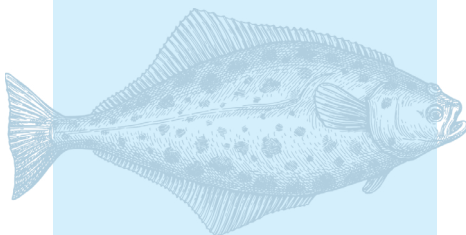
Populations of Atlantic halibut in US and Canadian waters crashed in the 20th century due to overfishing and remains depleted today. Halibut are slow-growing and late to mature, making them particularly vulnerable to the threat of overfishing.

When a new farmed source becomes available for an endangered species, there can also be a risk that consumer demand could increase, which may put pressure on wild populations. In some situations, with increased demand, the likelihood of smuggling and poaching wild individuals into farmed supply chains can grow. When there is no robust traceability back to a closed-cycle (hatchery-reared fingerlings) farm, mixing — when legitimately farmed endangered species become mixed in supply chains with illegal product — can occur; this leakage generates a market for poached halibut, which causes a threat to halibut in the wild.

Look Out For

In Japan, halibut is called *ohyō*.

According to a 2012 stock assessment, the estimated biomass of the Atlantic halibut stock is only 3% of its target level.



WWF Recommendation

Verify the species and origin of halibut products; avoid if you cannot verify the species and origin to ensure you are not sourcing from at-risk populations. For wild-caught halibut, only source from MSC certified fisheries. For farm-raised halibut, look out for future availability of ASC certified product. Since ASC certified product is not currently available, at a minimum, ensure you can credibly show chain of custody back to a closed-cycle (hatchery-reared fingerlings) farm, which helps minimize the impacts of farming on wild-caught endangered species.

- M** For a list of MSC certified fisheries, visit [fisheries.msc.org](https://www.fisheries.msc.org)



Bocaccio rockfish

© Mark Conlin / Alamy

AT-RISK SPECIES:

- E** Acadian/Atlantic redfish
Sebastes fasciatus
- E** Beaked redfish (Europe)*
Sebastes mentella
- CE** Bocaccio rockfish
Sebastes paucispinus

**This species is not endangered throughout its range but is endangered in specific geographies.*

REDFISH & ROCKFISH

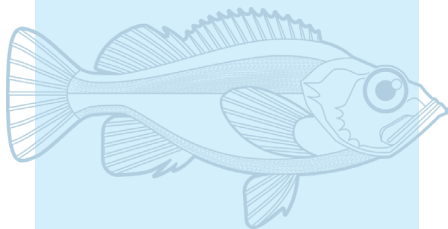
Why It's Endangered

Although conservation measures like fishing bans have been put in place to protect some species of rockfish and redfish, recovery from threats such as past overfishing and continued bycatch will take many years due to the slow-growing, late to mature, and long-lived nature of these species.

Look Out For

Redfish and rockfish catch can be sold fresh or frozen and is exported to markets all over the world. According to the MSC, the largest single markets for all stocks of redfish are Germany, Japan, the Netherlands, and China.

The redfish fishery began as an incidental fishery, meaning it was not targeted directly. Redfish were caught and sold as bycatch (incidental catch) in halibut, haddock, and cod fisheries.



WWF Recommendation

Verify the species and origin of your redfish and rockfish products; avoid if you cannot verify the species and origin to ensure you are not sourcing from at-risk populations. Only source redfish and rockfish from an MSC certified fishery.

M For a list of MSC certified fisheries, visit [fisheries.msc.org](https://www.fisheries.msc.org)

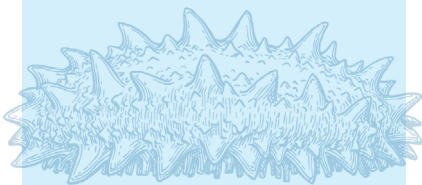


Prickly redfish

© ifish / Getty

AT-RISK SPECIES:

- E **Black teatfish**
Holothuria nobilis &
Holothuria whitmaei
- II **Brown sea cucumber**
Isostichopus fuscus
- E **Golden sandfish**
Holothuria lessoni
- E **Japanese spiky sea cucumber**
Apostichopus japonicus
- E **Prickly redfish**
Thelenota ananas
- E **Sandfish**
Holothuria scabra
- II **White teatfish**
Holothuria fuscogilva



SEA CUCUMBER

Why It's Endangered

The rapid expansion of sea cucumber fisheries has caused overfishing to become the largest threat to sea cucumber populations. Sea cucumber has also increasingly become a Chinese delicacy traded on the black market, which has fueled a poaching epidemic that has caused devastating declines for sea cucumber populations along all coastlines.

Harmful aquaculture practices, such as the removal of sea cucumber from the wild for broodstock in farming or ranching, can place an additional threat on already depleted populations of endangered species. When a new farmed source becomes available for an endangered species, there can also be a risk that consumer demand could increase, which may put pressure on wild populations. In some situations, with increased demand, the likelihood of smuggling and poaching wild individuals into farmed supply chains also grows. When there is no robust traceability back to a closed-cycle farm, mixing—when legitimately farmed endangered species become mixed in supply chains with illegal product—can occur; this leakage generates a market for poached sea cucumber, which causes a threat to sea cucumber in the wild.

Look Out For

Sea cucumber products are primarily exported to Asia with the common names *bêche-de-mer*, *trepang*, or *iriko*.

In Fiji, over-fishing of sea cucumber (primarily driven by the China market) is leading, in part, to the degradation of native coral reef systems; sea cucumber species can play an integral role as algae and detritus cleaners on the reef.

WWF Recommendation

Verify the species and origin of your sea cucumber products; avoid if you cannot verify the species and origin to ensure you are not sourcing from at-risk populations. Only source wild-caught sea cucumber from an MSC certified fishery. For farm-raised sea cucumber, due to risk, ASC has currently decided not to develop a standard for sea cucumber and therefore no farm can be ASC certified. Since ASC certified product is not currently available, at a minimum, ensure you can credibly show chain of custody back to a closed-cycle (hatchery-reared fingerlings) farm, which helps minimize the impacts of farming on wild-caught endangered species.

M For a list of MSC certified fisheries, visit [fisheries.msc.org](https://www.fisheries.msc.org)



AT-RISK SPECIES:

Due to the high volume of at-risk species of shark, please see the appendix for a full list of species to avoid.

SHARK

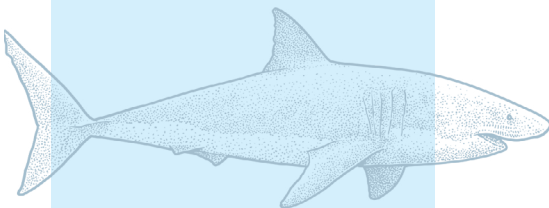
Why It's Endangered

Shark populations around the world are in rapid decline. Sharks grow relatively slowly, take many years to mature and produce relatively few young. These characteristics make sharks particularly vulnerable to over-exploitation. This vulnerability is exacerbated by the large and growing demand for shark fins and the general lack of management of shark fishing. Populations simply cannot replenish at the same rate as they are caught and finned to meet market demand. Also, sharks are often caught incidentally by fishing gear set for other types of fish — such as tuna longlines, trawls and seine nets — and many will simply be discarded. This contributes to the decline of many species of sharks.

Look Out For

Shark is typically served in Chinese and Vietnamese cuisine as shark fin soup. Shark meat is also consumed domestically in countries such as Japan, Korea, Singapore, Indonesia, Mexico, Ecuador, and others.

With tens of millions of sharks killed every year, they are among the marine species affected the most by overfishing; a landmark 2014 study finding that 25% (or 1 out of 4) of all species were threatened with extinction. Populations continue to decline over time.



WWF Recommendation

Avoid all shark products unless they are from an MSC certified fishery.

M For a list of MSC certified fisheries, visit [fisheries.msc.org](https://www.fisheries.msc.org)



Giant manta ray

© crisod / Getty

AT-RISK SPECIES:

Due to the high volume of at-risk species of skate and ray, please see the appendix for a full list of species to avoid.

SKATE & RAY

Why It's Endangered

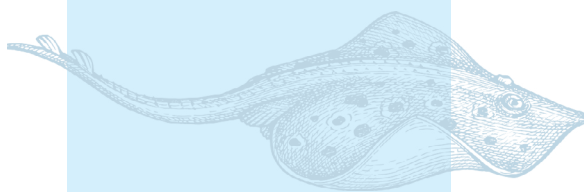
Overfishing is the largest threat to skates and rays, as it is for most sharks. Some of the most valuable fins in the shark fin trade are from shark-like rays, such as sawfishes and large guitarfishes, while the meat of many species of rays and skate are also eaten in coastal communities. Additionally, bycatch, or the incidental uptake of nontarget species, also contributes significantly to populations loss for skate and ray species.

Five out of the seven families of *elasmobranch* most threatened with extinction are rays.

Look Out For

Skate meat is often sold as skate wing. Some skate, including sawfishes and guitarfishes, have fins that enter the shark fin trade. Manta rays and devil rays have gill rakers that are sold dry and used as a health tonic in Asia.

At least 20% of all species of skates and rays are in danger of extinction.



WWF Recommendation

Verify the species and origin of skate and ray product; avoid if you cannot verify the species and origin to ensure you are not sourcing from at-risk populations. Only source MSC certified skate; avoid all ray products until MSC certified options become available.

M For a list of MSC certified fisheries, visit [fisheries.msc.org](https://www.fisheries.msc.org)



AT-RISK SPECIES:

Due to the high volume of at-risk species of sturgeon, please see the appendix for a full list of species to avoid.

STURGEON

Why It's Endangered

Overfishing and regulation of river-flow are the main threats to wild sturgeon populations. Poaching, water pollution, and destruction of habitats are also identified as significant threats.

Harmful aquaculture practices, such as the removal of sturgeon from the wild for farming or ranching, can place an additional threat on already depleted populations of endangered species. When a new farmed source becomes available for an endangered species, there can also be a risk that consumer demand could increase, which may put pressure on wild populations. In some situations, with increased demand, the likelihood of smuggling and poaching wild individuals into farmed supply chains also grows. When there is no robust traceability back to a closed-cycle (hatchery-reared fingerlings) farm, mixing —when legitimately farmed endangered species become mixed in supply chains with illegal product — can occur; this leakage generates a market for poached sturgeon, which causes a threat to sturgeon in the wild.

Look Out For

Sturgeon is most commonly exploited for its eggs. Sturgeon eggs, or *roe*, are processed, salted, and sold as caviar. The fish itself is also sold fresh or frozen and is exported to markets all over the world

It takes a female sturgeon about 20 years to start producing eggs. These eggs are critical to the species' future, but they are also considered a delicacy, fueling an illegal caviar market that drives poachers and traffickers around the world.

WWF Recommendation

Avoid all wild-caught sturgeon and sturgeon products until MSC certified options become available. Despite egg extraction or sturgeon harvest method, sturgeon is an extremely at-risk species; wild-caught sturgeon and its eggs should not be sourced until stocks have stabilized. For farm-raised sturgeon, due to risk, ASC has currently decided not to develop a standard for sturgeon and therefore no farm can be ASC certified. Since ASC certified product is not currently available, at a minimum, ensure you can credibly show chain of custody back to a closed-cycle (hatchery-reared fingerlings) farm, which helps minimize the impacts of farming on wild-caught endangered species. For internationally traded farmed sturgeon, look for the CITES label for traceability.

While paddlefish is currently listed as Vulnerable by IUCN, populations are in steep decline and the current management program for many species and populations is not strong enough to support healthy population regrowth; therefore, the precautionary approach should be applied.





Totoaba

© Richard Hermann / Minden Pictures

Dried fish maw (bladders)

© WWF-Hong Kong / Allen To

AT-RISK SPECIES:



Totoaba



Totoaba macdonaldi

TOTOABA

Why It's Endangered

Overfishing initially caused the steep decline of wild totoaba populations. Now that all fisheries are closed, illegal poaching accounts for the continuous decline.

Look Out For

The swim bladder of the totoaba is a valuable commodity in Chinese cuisine. It is considered a delicacy and is commonly found in a soup called fish maw. Totoaba is endemic to Mexico's Gulf of California — any totoaba swim bladder found in China, or other countries where fish maw soup is consumed, would have been imported illegally from Mexico.

Illegal fishing for totoaba using gillnets is responsible for bycatch of the vaquita — the most critically endangered marine mammal on the planet. These fishing practices have contributed to significant population decline, leaving only about a dozen vaquita left in the wild.



WWF Recommendation

Avoid all wild-caught totoaba. For farm-raised totoaba, there is not an ASC standard for totoaba, and therefore no farm can be ASC certified. Since ASC certified product is unlikely to be available anytime soon, at a minimum, ensure you can credibly show chain of custody back to a closed-cycle (hatchery-reared fingerlings) farm, which helps minimize the impacts of farming on wild-caught endangered species. Currently, farmed totoaba can only be traded within Mexico due to CITES restrictions.



Beluga whale

© cmeder / Getty

AT-RISK SPECIES:

Due to the high volume of at-risk species of whale, please see the appendix for a full list of species to avoid.

WHALE

Why It's Endangered

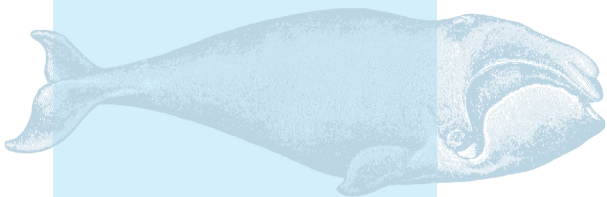
Despite a moratorium on commercial whaling and a ban on international trade of whale products, three countries — Iceland, Japan, and Norway — continue their commercial whale hunts. Over 1,000 whales a year are killed for such commercial purposes. The blue whale, the largest animal ever known to have existed, was almost exterminated in the 20th century due to commercial whaling.

The United States and other International Whaling Commission (IWC) member countries have tried for years to persuade Iceland, Japan, and Norway to end their whaling as it undermines the effectiveness of the commission's commercial whaling ban. However, in 2019, Japan chose to walk away from the IWC and now conducts commercial whaling in its own territorial waters, outside of any international controls.

Look Out For

In Japan, two cuts of whale meat are generally marketed: tail meat (*onomi* or *oniku*) or belly meat (*unesu*).

An estimated minimum of 300,000 whales and dolphins are killed each year as a result of fisheries bycatch, while others succumb to a myriad of threats including shipping and habitat loss.



WWF Recommendation

Avoid all whale products.

APPENDIX

The appendix provides a more robust list of at-risk species found in procurement. For all other marine and freshwater species, please refer to IUCN and CITES to identify threatened populations and find more in-depth information on at-risk populations.

ABALONE	Black abalone <i>Haliotis cracherodii</i> IUCN Critically endangered Northern (or Pinto) abalone <i>Haliotis kamtschatkana</i> IUCN Endangered
<p>A ASC certified options are available for this species. To find a certified farm, visit asc-aqua.org/find-a-farm/</p> <p>M MSC certified options are available for this species. To find a certified fishery, visit fisheries.msc.org</p>	
ARAPAIMA	Arapaima (or Pirarucu) <i>Arapaima gigas</i> CITES Appendix II
BLUEFIN TUNA	Atlantic bluefin tuna <i>Thunnus thynnus</i> IUCN Endangered Pacific bluefin tuna <i>Thunnus orientalis</i> IUCN Vulnerable Southern bluefin tuna <i>Thunnus maccoyii</i> IUCN Critically endangered
M WWF recommends avoiding all Atlantic and Southern bluefin tuna products, including those with MSC Certification.	
CARP*	Isok barb (Jullien's golden carp) <i>Probarbus jullieni</i> IUCN Critically endangered CITES Appendix I Thicklip barb <i>Probarbus labeamajor</i> IUCN Endangered
CONCH	Queen conch <i>Strombus gigas</i> CITES Appendix II
FRESHWATER EEL	American eel <i>Anguilla rostrata</i> IUCN Endangered European eel <i>Anguilla anguilla</i> IUCN Critically endangered CITES Appendix II Japanese eel <i>Anguilla japonica</i> IUCN Endangered New Zealand longfin eel <i>Anguilla dieffenbachii</i> IUCN Endangered
GRENADIER	Roundnose (or Black or Rock) grenadier <i>Coryphaenoides rupestris</i> IUCN Critically endangered
M MSC certified options are available for this species. To find a certified fishery, visit fisheries.msc.org	
GROUPE	Atlantic goliath grouper (Gulf of Mexico)** <i>Epinephelus itajara</i> IUCN Endangered Dusky grouper (Europe & Mediterranean)** <i>Epinephelus marginatus</i> IUCN Endangered Giant sea bass <i>Stereolepis gigas</i> IUCN Critically endangered Gulf grouper <i>Mycteroperca jordani</i> IUCN Endangered Hong Kong grouper <i>Epinephelus akaara</i> IUCN Endangered Nassau grouper <i>Epinephelus striatus</i> IUCN Critically endangered Yellowfin grouper (Gulf of Mexico)** <i>Mycteroperca venenosa</i> IUCN Endangered
A ASC certified options are available for this species. To find a certified farm, visit asc-aqua.org/find-a-farm/	
GUITARFISH	Blackchin guitarfish <i>Rhinobatos cemiculus</i> IUCN Critically endangered CITES Appendix II Bowmouth guitarfish <i>Rhina ancylostoma</i> IUCN Critically endangered CITES Appendix II Brazilian guitarfish <i>Pseudobatos horkelii</i> IUCN Critically endangered Chola guitarfish <i>Pseudobatos percellens</i> IUCN Endangered Clubnose guitarfish <i>Glaucostegus thouin</i> IUCN Critically endangered CITES Appendix II Common guitarfish <i>Rhinobatos rhinobatos</i> IUCN Endangered Giant guitarfish <i>Rhynchobatus djiddensis</i> IUCN Critically endangered CITES Appendix II Greyspot guitarfish <i>Acroteriobatus leucospilus</i> IUCN Endangered Halavi guitarfish <i>Glaucostegus halavi</i> IUCN Critically endangered CITES Appendix II Ringed guitarfish <i>Rhinobatos hynnicephalus</i> IUCN Endangered Sharpnose guitarfish <i>Glaucostegus granulatus</i> IUCN Critically endangered CITES Appendix II Shortnose guitarfish <i>Zapteryx brevirostris</i> IUCN Endangered Stripenose guitarfish <i>Acroteriobatus variegatus</i> IUCN Critically endangered Widenose guitarfish <i>Glaucostegus obtusus</i> IUCN Critically endangered CITES Appendix II

*Due to the high volume of species, please refer to [IUCN Red List's Website](https://www.iucn.org/red-list) for a full list of endangered and critically endangered species to avoid.

**This species is not endangered throughout its range but is endangered or critically endangered in specific geographies.

APPENDIX (continued)

HAKE	Senegalese hake <i>Merluccius senegalensis</i> IUCN Endangered
<p>M MSC certified options are available for this species. To find a certified fishery, visit fisheries.msc.org</p>	
HALIBUT	Atlantic halibut <i>Hippoglossus hippoglossus</i> IUCN Endangered
<p>M MSC certified options are available for this species. To find a certified fishery, visit fisheries.msc.org</p>	
PORGY	Threadfin porgy <i>Eynniss cardinalis</i> IUCN Endangered
PUFFERFISH	<p>Balaasop beauty <i>Chelonodon pleurospilus</i> IUCN Endangered</p> <p>Bluebelly toby <i>Canthigaster cyanetron</i> IUCN Endangered</p> <p>Chinese puffer <i>Takifugu chinensis</i> IUCN Critically endangered</p> <p>Pufferfish <i>Tetraodon pustulatus</i> IUCN Endangered</p> <p>St. Helena sharpnose pufferfish <i>Canthigaster sanctaehelenae</i> IUCN Endangered</p>
RAY	<p>Atlantic (Lesser) devil ray <i>Mobula hypostoma</i> IUCN Endangered CITES Appendix II</p> <p>Bentfin devil ray (Smoothtail mobula) <i>Mobula thurstoni</i> CITES Appendix II</p> <p>Caribbean electric ray (Bancroft's numbfish) <i>Narcine bancroftii</i> IUCN Critically endangered</p> <p>Chilean devil ray <i>Mobula tarapacana</i> CITES Appendix II</p> <p>Chinese stingray <i>Hemirhynchus sinensis</i> IUCN Endangered</p> <p>Colares stingray <i>Fontitrygon colarensis</i> IUCN Critically endangered</p> <p>Devil ray (Spinetail mobula) <i>Mobula japanica</i> CITES Appendix II</p> <p>Eagle ray (Longhorned mobula) <i>Mobula eregoodootenkee</i> CITES Appendix II</p> <p>Giant devil ray <i>Mobula mobular</i> IUCN Endangered CITES Appendix II</p> <p>Giant manta ray <i>Mobula birostris</i> / <i>Manta birostris</i> IUCN Endangered CITES Appendix II</p> <p>Groovebelly stingray <i>Dasyatis hypostigma</i> IUCN Endangered</p> <p>Honeycomb whipray <i>Himantura undulata</i> IUCN Endangered</p> <p>Large-eye stingray <i>Hypanus marianae</i> IUCN Endangered</p> <p>Lesser Guinean devil ray <i>Mobula rochebrunei</i> CITES Appendix II</p> <p>Longhead eagle ray <i>Aetobatus flagellum</i> IUCN Endangered</p> <p>Longhorned pygmy devil ray <i>Mobula eregoodootenkee</i> IUCN Endangered CITES Appendix II</p> <p>Mottled eagle ray <i>Aetomylaeus maculatus</i> IUCN Endangered</p> <p>Ocellate eagle ray <i>Aetomylaeus milvus</i> IUCN Endangered</p> <p>Ornate eagle ray <i>Aetomylaeus vespertilio</i> IUCN Endangered</p> <p>Pincushion ray <i>Fontitrygon ukpam</i> IUCN Endangered</p> <p>Pygmy (Munk's) devil ray <i>Mobula munkiana</i> CITES Appendix II</p> <p>Reef manta ray <i>Manta alfredi</i> CITES Appendix II</p> <p>Reticulate round ray <i>Urotrygon reticulata</i> IUCN Critically endangered</p> <p>Roughnose stingray <i>Pastinachus solocirostris</i> IUCN Endangered</p> <p>Round whipray <i>Maculabatis pastinacoides</i> IUCN Endangered</p> <p>Shortfin devil ray <i>Mobula kuhlii</i> IUCN Endangered CITES Appendix II</p> <p>Sicklefin devil ray <i>Mobula tarapacana</i> IUCN Endangered CITES Appendix II</p> <p>Smalleye round ray <i>Urotrygon microphthalmum</i> IUCN Critically endangered</p> <p>Thorny whipray <i>Fontitrygon ukpam</i> IUCN Critically endangered</p> <p>Venezuelan round ray <i>Urotrygon venezuelae</i> IUCN Endangered</p> <p>Whitenose whipray <i>Pateobatis uarnacoides</i> IUCN Endangered</p> <p>Whitespotted whipray <i>Maculabatis gerrardi</i> IUCN Endangered</p> <p>Wingfin stingray <i>Fontitrygon geijskesi</i> IUCN Critically endangered</p>
REDFISH & ROCKFISH	<p>Acadian (Atlantic) redfish <i>Sebastes fasciatus</i> IUCN Endangered</p> <p>Beaked redfish (Europe)** <i>Sebastes mentella</i> IUCN Endangered</p> <p>Bacaccio rockfish <i>Sebastes paucispinus</i> IUCN Critically endangered</p>
<p>M MSC certified options are available for this species. To find a certified fishery, visit fisheries.msc.org</p>	

**This species is not endangered throughout its range but is endangered or critically endangered in specific geographies.

APPENDIX (continued)

SAWFISH	<p>Dwarf sawfish <i>Pristis clavata</i> IUCN Endangered CITES Appendix I Green (Longcomb) sawfish <i>Pristis zijsron</i> IUCN Critically endangered CITES Appendix I Largetooth sawfish <i>Pristis pristis</i> IUCN Critically endangered CITES Appendix I Narrow sawfish <i>Anoxypristis cuspidata</i> IUCN Endangered CITES Appendix I Smalltooth sawfish <i>Pristis pectinata</i> IUCN Critically endangered CITES Appendix I</p>
SEA CUCUMBER	<p>Black teatfish <i>Holothuria nobilis</i> IUCN Endangered Black teatfish <i>Holothuria whitmaei</i> IUCN Endangered Brown sea cucumber <i>Isostichopus fuscus</i> IUCN Endangered CITES Appendix II Golden sandfish <i>Holothuria lessoni</i> IUCN Endangered Golden sandfish, Sandfish <i>Holothuria scabra</i> IUCN Endangered Japanese spiky sea cucumber <i>Apostichopus japonicus</i> IUCN Endangered Prickly redfish <i>Thelenota ananas</i> IUCN Endangered White teatfish <i>Holothuria fuscogilva</i> CITES Appendix II</p>
<p>M MSC certified options are available for this species. To find a certified fishery, visit fisheries.msc.org</p>	
SEA HORSE	<p>Sea horse <i>Hippocampus spp.</i> CITES Appendix II</p>
SEA TURTLE	<p>Flatback turtle <i>Natator depressus</i> CITES Appendix I Green turtle <i>Chelonia mydas</i> IUCN Endangered CITES Appendix I Hawksbill turtle <i>Eretmochelys imbricata</i> IUCN Critically endangered CITES Appendix I Kemp's ridley turtle <i>Lepidochelys kempii</i> IUCN Critically endangered CITES Appendix I Leatherback turtle <i>Dermochelys coriacea</i> CITES Appendix I Loggerhead turtle** <i>Caretta caretta</i> CITES Appendix I Olive ridley turtle <i>Lepidochelys olivacea</i> CITES Appendix I</p>
SEABREAM/STEENBRA	<p>Daggerhead seabream <i>Chrysoblephus cristiceps</i> IUCN Critically endangered Red steenbras <i>Petrus rupestris</i> IUCN Endangered Red stumpnose seabream <i>Chrysoblephus gibbiceps</i> IUCN Endangered Seventy-four seabream <i>Polysteganus undulosus</i> IUCN Critically endangered White steenbras <i>Lithognathus lithognathus</i> IUCN Endangered</p>
<p>A ASC certified options are available for this species. To find a certified farm, visit asc-aqua.org/find-a-farm/</p>	
SHARK	<p>African spotted catshark <i>Holohalaelurus punctatus</i> IUCN Critically endangered Angular angel shark <i>Squatina guggenheim</i> IUCN Endangered Argentine angelshark <i>Squatina argentina</i> IUCN Critically endangered Basking shark <i>Cetorhinus maximus</i> IUCN Endangered CITES Appendix II Bigeye thresher shark <i>Alopias superciliosus</i> CITES Appendix II Blackfin gulper shark <i>Centrophorus isodon</i> IUCN Endangered Blackspotted catshark <i>Halaelurus buergeri</i> IUCN Endangered Bonnethead shark <i>Sphyrna tiburo</i> IUCN Endangered Borneo shark <i>Carcharhinus borneensis</i> IUCN Endangered CITES Appendix II Bramble shark <i>Echinorhinus brucus</i> IUCN Endangered Broadfin shark <i>Lamiopsis temminckii</i> IUCN Endangered Chilean angelshark <i>Squatina armata</i> IUCN Critically endangered Common thresher shark <i>Alopias vulpinus</i> CITES Appendix II Daggernose shark <i>Isogomphodon oxyrhynchus</i> IUCN Critically endangered Dusky shark <i>Carcharhinus obscurus</i> IUCN Endangered Dwarf gulper shark <i>Centrophorus atromarginatus</i> IUCN Critically endangered Ganges shark <i>Glyphis gangeticus</i> IUCN Critically endangered Great white shark <i>Carcharodon carcharias</i> CITES Appendix II Grey reef shark <i>Carcharhinus amblyrhynchos</i> IUCN Endangered Hammerhead shark <i>Sphyrna mokarran</i> IUCN Critically endangered CITES Appendix II Harrison's dogfish (Dumb gulper shark) <i>Centrophorus harrissoni</i> IUCN Endangered Hidden angelshark <i>Squatina occulta</i> IUCN Critically endangered Honeycomb izak <i>Holohalaelurus favus</i> IUCN Endangered</p>

**This species is not endangered throughout its range but is endangered or critically endangered in specific geographies.

APPENDIX (continued)

SHARK (continued)

Indian swellshark | *Cephaloscyllium silasi* | IUCN Critically endangered
 Indonesian angelshark | *Squatina legnota* | IUCN Critically endangered
 Irrawaddy river shark | *Glyphis siamensis* | IUCN Critically endangered
 Leafscale gulper shark | *Centrophorus squamosus* | IUCN Endangered
 Little gulper shark | *Centrophorus uyato* | IUCN Endangered
 Long nosed (Pondicherry) shark | *Carcharhinus hemiodon* | IUCN Critically endangered
 Longfin mako shark | *Isurus paucus* | IUCN Endangered | CITES Appendix II
 Monkfish, Angel shark | *Squatina squatina* | IUCN Critically endangered
 Narrownose smoothhound | *Mustelus schmitti* | IUCN Endangered
 New Guinea river shark | *Glyphis garricki* | IUCN Critically endangered
 Oceanic whitetip shark | *Carcharhinus longimanus* | IUCN Critically endangered | CITES Appendix II
 Ocellated angel shark | *Squatina tergocellatoides* | IUCN Endangered
 Pelagic thresher shark | *Alopias pelagicus* | IUCN Endangered | CITES Appendix II
 Porbeagle shark | *Lamna nasus* | CITES Appendix II
 Reticulated swellshark | *Cephaloscyllium fasciatum* | IUCN Critically endangered
 Sawback angelshark | *Squatina aculeata* | IUCN Critically endangered
 Scalloped hammerhead | *Sphyrna lewini* | IUCN Critically endangered | CITES Appendix II
 Scoophead shark | *Sphyrna media* | IUCN Critically endangered
 Sharpfin houndshark | *Triakis acutipinna* | IUCN Endangered
 Shortfin mako shark | *Isurus oxyrinchus* | IUCN Endangered | CITES Appendix II
 Shorttail nurse shark | *Pseudoginglymostoma brevicaudatum* | IUCN Critically endangered
 Sikly shark | *Carcharhinus falciformis* | CITES Appendix II
 Smalleye hammerhead shark | *Sphyrna tudes* | IUCN Critically endangered
 Smalltail shark | *Carcharhinus porosus* | IUCN Critically endangered
 Smooth hammerhead shark | *Sphyrna zygaena* | CITES Appendix II
 Smoothback angelshark | *Squatina oculata* | IUCN Critically endangered
 Smoothtooth blacktip | *Carcharhinus leiodon* | IUCN Endangered
 Speartooth shark | *Glyphis glyphis* | IUCN Endangered
 Straight-tooth weasel shark | *Paragaleus tengi* | IUCN Endangered
 Striped smoothhound shark | *Mustelus fasciatus* | IUCN Critically endangered
 Taiwan angelshark | *Squatina formosa* | IUCN Endangered
 Whale shark | *Rhincodon typus* | IUCN Endangered | CITES Appendix II
 Whitecheek shark | *Carcharhinus dussumieri* | IUCN Endangered
 Whitefin swellshark | *Cephaloscyllium albipinum* | IUCN Critically endangered
 Whitefin topeshark | *Hemistriakis leucoperiptera* | IUCN Endangered
 Whitenose shark | *Nasolamia velox* | IUCN Endangered
 Winghead shark | *Eusphyra blochii* | IUCN Endangered
 Zebra shark | *Stegostoma fasciatum* | IUCN Endangered

M MSC certified options are available for this species. To find a certified fishery, visit [fisheries.msc.org](https://www.fisheries.msc.org)

SKATE

Common skate | *Dipturus batis* | IUCN Critically endangered
 Eyespot skate | *Atlantoraja cyclophora* | IUCN Endangered
 Graytail skate | *Bathyraja griseocauda* | IUCN Endangered
 Grey skate | *Dipturus canutus* | IUCN Endangered
 Korean skate | *Hongoe koreana* | IUCN Critically endangered
 La Plata skate | *Atlantoraja platana* | IUCN Endangered
 Longnose skate | *Dipturus confusus* | IUCN Critically endangered
 Maltese skate | *Leucoraja melitensis* | IUCN Critically endangered
 Maugean skate | *Zearaja maugeana* | IUCN Endangered
 Mennis skate | *Dipturus mennii* | IUCN Critically endangered
 Mottled skate | *Beringraja pulchra* | IUCN Endangered
 Rough skate | *Raja radula* | IUCN Endangered
 Sandy skate | *Leucoraja circularis* | IUCN Endangered

APPENDIX (continued)

SKATE (continued)	Spotback skate <i>Atlantoraja castelnaui</i> IUCN Critically endangered Undulate skate <i>Raja undulata</i> IUCN Endangered White skate <i>Rostroraja alba</i> IUCN Endangered Winter skate <i>Leucoraja ocellata</i> IUCN Endangered Yellownose skate <i>Dipturus chilensis</i> IUCN Endangered
M MSC certified options are available for this species. To find a certified fishery, visit fisheries.msc.org	
STURGEON	Adriatic sturgeon <i>Acipenser naccarii</i> IUCN Critically endangered CITES Appendix II Alabama sturgeon <i>Scaphirhynchus suttkusi</i> IUCN Critically endangered CITES Appendix II Amu Darya sturgeon <i>Pseudoscaphirhynchus kaufmanni</i> IUCN Critically endangered CITES App. II Amur sturgeon <i>Acipenser schrenckii</i> IUCN Critically endangered CITES Appendix II Atlantic sturgeon <i>Acipenser sturio</i> IUCN Critically endangered CITES Appendix I Beluga (or Giant and European) sturgeon <i>Huso huso</i> IUCN Critically endangered Chinese paddlefish <i>Psephurus gladius</i> IUCN Critically endangered Chinese sturgeon <i>Acipenser sinensis</i> IUCN Critically endangered CITES Appendix II Dwarf sturgeon <i>Pseudoscaphirhynchus hermanni</i> IUCN Critically endangered CITES Appendix II Kaluga <i>Huso dauricus</i> IUCN Critically endangered Pallid sturgeon <i>Scaphirhynchus albus</i> IUCN Endangered CITES Appendix II Persian sturgeon <i>Acipenser persicus</i> IUCN Critically endangered CITES Appendix II Russian sturgeon <i>Acipenser gueldenstaedtii</i> IUCN Critically endangered CITES Appendix II Sakhalin sturgeon <i>Acipenser mikadoi</i> IUCN Critically endangered CITES Appendix II Ship sturgeon <i>Acipenser nudiventris</i> IUCN Critically endangered CITES Appendix II Shortnose sturgeon <i>Acipenser brevirostrum</i> CITES Appendix I Siberian sturgeon <i>Acipenser baerii</i> IUCN Endangered CITES Appendix II Stellate sturgeon <i>Acipenser stellatus</i> IUCN Critically endangered CITES Appendix II Syr Darya sturgeon <i>Pseudoscaphirhynchus fedtschenkoi</i> IUCN Crit. endangered CITES App. II Yangtze sturgeon <i>Acipenser dabryanus</i> IUCN Critically endangered CITES Appendix II
TILEFISH	Golden (or Great Northern) tilefish <i>Lopholatilus chamaeleonticeps</i> IUCN Endangered
TOTOABA	Totoaba, Drum <i>Totoaba macdonaldi</i> IUCN Critically endangered CITES Appendix I
WEDGEFISH	African wedgefish <i>Rhynchobatus luebberti</i> IUCN Critically endangered CITES Appendix II Bottlenose wedgefish <i>Rhynchobatus australiae</i> IUCN Critically endangered CITES Appendix II Broadnose wedgefish <i>Rhynchobatus springeri</i> IUCN Critically endangered CITES Appendix II Clown wedgefish <i>Rhynchobatus cooki</i> IUCN Critically endangered CITES Appendix II Eyebrow wedgefish <i>Rhynchobatus palpebratus</i> CITES Appendix II False shark ray <i>Rhynchobatus mauritaniensis</i> IUCN Critically endangered CITES Appendix II Smoothnose wedgefish <i>Rhynchobatus laevis</i> IUCN Critically endangered CITES Appendix II Taiwanese wedgefish <i>Rhynchobatus immaculatus</i> IUCN Critically endangered CITES Appendix II Whitespotted wedgefish <i>Rhynchobatus djiddensis</i> IUCN Critically endangered CITES Appendix II
WHALES	Antarctic minke whale <i>Balaenoptera bonaerensis</i> CITES Appendix I Arnoux's beaked whale <i>Berardius arnuxii</i> CITES Appendix I Baird's beaked whale <i>Berardius bairdii</i> CITES Appendix I Beluga whale <i>Delphinapterus leucas</i> CITES Appendix II Blue whale <i>Balaenoptera musculus</i> IUCN Endangered CITES Appendix I Bowhead whale <i>Balaena mysticetus</i> CITES Appendix I Bryde's whale <i>Balaenoptera edeni</i> CITES Appendix I Dwarf sperm whale <i>Kogia sima</i> CITES Appendix II Fin whale <i>Balaenoptera physalus</i> CITES Appendix I Gray whale <i>Eschrichtius robustus</i> CITES Appendix I Humpback whale <i>Megaptera novaeangliae</i> CITES Appendix I Minke whale <i>Balaenoptera acutorostrata</i> CITES Appendix I North Pacific right whale <i>Eubalaena japonica</i> IUCN Endangered CITES Appendix I Northern Atlantic right whale <i>Eubalaena glacialis</i> IUCN Critically endangered CITES Appendix I Northern bottlenose whale <i>Hyperoodon ampullatus</i> CITES Appendix I

APPENDIX (continued)

WHALES (continued)	Omura’s whale <i>Balaenoptera omurai</i> CITES Appendix I Perrin’s beaked whale <i>Mesoplodon perrini</i> IUCN Endangered Pygmy right whale <i>Caperea marginata</i> CITES Appendix I Pygmy sperm whale <i>Kogia breviceps</i> CITES Appendix II Sei whale <i>Balaenoptera borealis</i> IUCN Endangered CITES Appendix I Southern bottlenose whale <i>Hyperoodon planifrons</i> CITES Appendix I Southern right whale <i>Eubalaena australis</i> CITES Appendix I Sperm whale <i>Physeter macrocephalus</i> CITES Appendix I
WRASSE	Humphead wrasse <i>Cheilinus undulatus</i> IUCN Endangered CITES Appendix II Mardi Gras wrasse <i>Halichoeres burekai</i> IUCN Endangered Social wrasse <i>Halichoeres socialis</i> IUCN Endangered



For all other marine species such as dolphins, porpoises, and seals, please refer to IUCN and CITES assessments to identify threatened populations.