




## WILD-CAUGHT SEAFOOD RATING METHODOLOGY

*The Safina Center's (formerly Blue Ocean Institute) founders developed the first authoritative and transparent seafood analysis to determine the environmental cost of eating fished and farmed seafood.* This analysis examined all aspects of the fishing or farming process, condensing vast amounts of scientific information into an easy-to-understand seafood report and rating; a concept that was quickly adopted by other marine organizations. These days, The Safina Center focuses on fished or wild-caught seafood to highlight the importance of healthy fish populations to our oceans, with analysis grouped into 5 major criteria:

1. **Life history** – species biology like growth rates and egg production
2. **Abundance** - comparing current fish numbers to fishery management goals
3. **Habitat quality and gear impacts** - what fishing method(s) is used and does it cause habitat damage?
4. **Management** - are there regulations in place that effectively protect the fish and their ecosystem?
5. **Bycatch** - are other fish or wildlife accidentally caught when fishing for the target fish?

The Safina Center uses a quantitative rating system to promote transparency for all seafood reports (and ratings). Each of the 5 criteria is given a low (1), medium (2) or high (3) score, which is adjusted up or down using additional questions, or “points of adjustment” (worth +0.25 or -0.25). These scores are averaged to generate a final score, ranging from 0-4, and color rating:

Final Score	Color
2.40 - 4.00	
1.60 - 2.39	
0.00 - 1.59	

Each seafood report takes about 2 months to research and write, is peer-reviewed by specialists to ensure scientific accuracy, and finally posted online. The following document lists all the questions examined when The Safina Center rates a wild-caught species.

### Wild-caught Fish Core Points and Points of Adjustment

#### Life History

##### *Core Points*

##### *Points Instructions and Footnotes*

If a value for intrinsic rate of increase ('r') is known, assign the score below based on this value. If no r-value is available, assign the score below for the correct age at 50% maturity for females if specified, or for the correct value of growth rate ('k'). If no estimates of r, age at 50% maturity, or k are available, assign the score below based on maximum age.

- 1.00    Intrinsic rate of increase <0.05; OR age at 50% maturity >10 years; OR growth rate <0.15; OR maximum age >30 years.

- 2.00 Intrinsic rate of increase = 0.05-0.15; OR age at 50% maturity = 5-10 years; OR a growth rate = 0.16–0.30; OR maximum age = 11-30 years.
- 3.00 Intrinsic rate of increase >0.16; OR age at 50% maturity = 1-5 years; OR growth rate >0.30; OR maximum age <11 years.

### **Points of Adjustment**

- 0.25 Species has special behaviors that make it especially vulnerable to fishing pressure (e.g., spawning aggregations; site fidelity; segregation by sex; migratory bottlenecks; unusual attraction to gear; etc.).
- 0.25 Species has a strategy for sexual development that makes it especially vulnerable to fishing pressure (e.g., age at 50% maturity >20 years; sequential hermaphrodites; extremely low fecundity).
- 0.25 Species has a small or restricted range (e.g., endemism; numerous evolutionarily significant units; restricted to one coastline; e.g., American lobster; striped bass; endemic reef fishes).
- 0.25 Species exhibits high natural population variability driven by broad-scale environmental change (e.g. El Nino; decadal oscillations).
- +0.25 Species does not have special behaviors that increase ease or population consequences of capture OR has special behaviors that make it less vulnerable to fishing pressure (e.g., species is widely dispersed during spawning).
- +0.25 Species has a strategy for sexual development that makes it especially resilient to fishing pressure (e.g., age at 50% maturity <1 year; extremely high fecundity).
- +0.25 Species is distributed over a very wide range (e.g., throughout an entire hemisphere or ocean basin; e.g., swordfish; tuna; Patagonian toothfish).
- +0.25 Species does not exhibit high natural population variability driven by broad-scale environmental change (e.g., El Nino; decadal oscillations).

### **Abundance**

#### **Core Points**

#### **Points Instructions and Footnotes**

Compared to natural or un-fished level, the species population is:

- 1.00 Low: Abundance or biomass is <75% of BMSY or similar proxy (e.g., spawning potential ratio).

- 2.00 Medium: Abundance or biomass is 75-125% of BMSY or similar proxy; OR population is approaching or recovering from an overfished condition; OR adequate information on abundance or biomass is not available.
- 3.00 High: Abundance or biomass is >125% of BMSY or similar proxy.

### **Points of Adjustment**

- 0.25 The population is declining over a generational time scale (as indicated by biomass estimates or standardized CPUE).
- 0.25 Age, size or sex distribution is skewed relative to the natural condition (e.g., truncated size/age structure or anomalous sex distribution).
- 0.25 Species is listed as "overfished" OR species is listed as "depleted", "endangered", or "threatened" by recognized national or international bodies.
- 0.25 Current levels of abundance are likely to jeopardize the availability of food for other species or cause substantial change in the structure of the associated food web.
- +0.25 The population is increasing over a generational time scale (as indicated by biomass estimates or standardized CPUE).
- +0.25 Age, size or sex distribution is functionally normal.
- +0.25 Species is close to virgin biomass.
- +0.25 Current levels of abundance provide adequate food for other predators or are not known to affect the structure of the associated food web.

### **Habitat Quality and Fishing Gear Impacts**

#### **Core Points**

#### **Points Instructions and Footnotes**

Select the option that most accurately describes the effect of the fishing method upon the habitat that it affects

- 1.00 The fishing method causes great damage to physical and biogenic habitats (e.g., cyanide; blasting; bottom trawling; dredging).
- 2.00 The fishing method does moderate damage to physical and biogenic habitats (e.g., bottom gillnets; traps and pots; bottom longlines).
- 3.00 The fishing method does little damage to physical or biogenic habitats (e.g., hand picking; hand raking; hook and line; pelagic long lines; mid-water trawl or gillnet; purse seines).

### **Points of Adjustment**

- 0.25 Habitat for this species is so compromised from non-fishery impacts that the ability of the habitat to support this species is substantially reduced (e.g., dams; pollution; coastal development).
- 0.25 Critical habitat areas (e.g., spawning areas) for this species are not protected by management using time/area closures, marine reserves, etc.
- 0.25 No efforts are being made to minimize damage from existing gear types OR new or modified gear is increasing habitat damage (e.g., fitting trawls with roller rigs or rockhopping gear; more robust gear for deep-sea fisheries).
- 0.25 If gear impacts are substantial, resilience of affected habitats is very slow (e.g., deep water corals; rocky bottoms).
- +0.25 Habitat for this species remains robust and viable and is capable of supporting this species.
- +0.25 Critical habitat areas (e.g., spawning areas) for this species are protected by management using time/area closures, marine reserves, etc.
- +0.25 Gear innovations are being implemented over a majority of the fishing area to minimize damage from gear types OR no innovations necessary because gear effects are minimal.
- +0.25 If gear impacts are substantial, resilience of affected habitats is fast (e.g., mud or sandy bottoms) OR gear effects are minimal.

## **Management**

### **Core Points**

#### **Points Instructions and Footnotes**

Select the option that most accurately describes the current management of the fisheries of this species.

- 1.00 Regulations are ineffective (e.g., illegal fishing or overfishing is occurring) OR the fishery is unregulated (i.e., no control rules are in effect).
- 2.00 Management measures are in place over a major portion over the species' range but implementation has not met conservation goals OR management measures are in place but have not been in place long enough to determine if they are likely to achieve conservation and sustainability goals.
- 3.00 Substantial management measures are in place over a large portion of the species range and have demonstrated success in achieving conservation and sustainability goals.

### **Points of Adjustment**

- 0.25 There is inadequate scientific monitoring of stock status, catch or fishing effort.
- 0.25 Management does not explicitly address fishery effects on habitat, food webs, and ecosystems.

- 0.25 This species is overfished and no recovery plan or an ineffective recovery plan is in place.
- 0.25 Management has failed to reduce excess capacity in this fishery or implements subsidies that result in excess capacity in this fishery.
- +0.25 There is adequate scientific monitoring, analysis and interpretation of stock status, catch and fishing effort.
- +0.25 Management explicitly and effectively addresses fishery effects on habitat, food webs, and ecosystems.
- +0.25 This species is overfished and there is a recovery plan (including benchmarks, timetables and methods to evaluate success) in place that is showing signs of success OR recovery plan is not needed.
- +0.25 Management has taken action to control excess capacity or reduce subsidies that result in excess capacity OR no measures are necessary because fishery is not overcapitalized.

## **Bycatch**

### **Core Points**

#### **Points Instructions and Footnotes**

Select the option that most accurately describes the current level of bycatch and the consequences that result from fishing this species. The term, "bycatch" used in this document excludes incidental catch of a species for which an adequate management framework exists. The terms, "endangered, threatened, or protected," used in this document refer to species status that is determined by national legislation such as the U.S. Endangered Species Act, the U.S. Marine Mammal Protection Act (or another nation's equivalent), the IUCN Red List, or a credible scientific body such as the American Fisheries Society.

- 1.00 Bycatch in this fishery is high (>100% of targeted landings), OR regularly includes a "threatened, endangered or protected species."
- 2.00 Bycatch in this fishery is moderate (10-99% of targeted landings) AND does not regularly include "threatened, endangered or protected species" OR level of bycatch is unknown.
- 3.00 Bycatch in this fishery is low (<10% of targeted landings) and does not regularly include "threatened, endangered or protected species."

#### **Points of Adjustment**

- 0.25 Bycatch in this fishery is a contributing factor to the decline of "threatened, endangered, or protected species" and no effective measures are being taken to reduce it.
- 0.25 Bycatch of targeted or non-targeted species (e.g., undersize individuals) in this fishery is high and no measures are being taken to reduce it.

- 0.25 Bycatch of this species (e.g., undersize individuals) in other fisheries is high OR bycatch of this species in other fisheries inhibits its recovery, and no measures are being taken to reduce it.
- 0.25 The continued removal of the bycatch species contributes to its decline.
- +0.25 Measures taken over a major portion of the species range have been shown to reduce bycatch of "threatened, endangered, or protected species" or bycatch rates are no longer deemed to affect the abundance of the "protected" bycatch species OR no measures needed because fishery is highly selective (e.g., harpoon; spear).
- +0.25 There is bycatch of targeted (e.g., undersize individuals) or non-targeted species in this fishery and measures (e.g., gear modifications) have been implemented that have been shown to reduce bycatch over a large portion of the species range OR no measures are needed because fishery is highly selective (e.g., harpoon; spear).
- +0.25 Bycatch of this species in other fisheries is low OR bycatch of this species in other fisheries inhibits its recovery, but effective measures are being taken to reduce it over a large portion of the range.
- +0.25 The continued removal of the bycatch species in the targeted fishery has had or will likely have little or no impact on populations of the bycatch species OR there are no significant bycatch concerns because the fishery is highly selective (e.g., harpoon; spear).

Please contact [admin@safinacenter.org](mailto:admin@safinacenter.org) with any questions related to the seafood rating process.