



Transparency and Traceability:

# **TOOLS TO STOP ILLEGAL FISHING**



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# Executive Summary

The world’s oceans face a dire threat: illegal, unreported and unregulated (IUU) fishing. Across the globe, IUU fishing depletes marine resources, destroys habitats and can be a driver of forced labor and human rights abuses. IUU fishing is off the books and outside the rule of law, compromising responsible and effective fisheries management. IUU fishing hides in the shadows, beyond the horizon and thrives on a lack of transparency, limited enforcement and a complex global supply chain. This costs the global seafood industry as much as \$26 billion to \$50 billion every year.<sup>1</sup> The United States should take action to ensure all seafood is safe, legally caught, responsibly sourced and honestly labeled.

Up to 32% of the wild-caught seafood imported into the United States is a product of illegal or unreported fishing.<sup>2</sup> If IUU imports were prevented, honest U.S. fishermen could increase their income by an estimated 20%.<sup>3</sup> The opaque seafood supply chain can disguise the true origin of seafood, allowing IUU products to be sold to American consumers.

A lack of visibility and accountability on the open ocean allows bad actors to operate outside the rule of law, and in some cases, they use forced labor and engage in other human rights abuses. As a major seafood importer, the United States must ensure that U.S. dollars are not supporting these crimes at sea, which impact the economy, environment and human rights.

The U.S. government has taken some steps to combat IUU fishing, including adopting catch documentation and traceability requirements for some seafood at risk of IUU fishing and seafood fraud. While these measures were a good first step, they do not apply to all seafood and therefore provide loopholes for IUU products to continue entering the U.S. market. If the U.S. were to expand the current program to all seafood — requiring information about how, when and where seafood was caught or produced — and if that information followed the product from the fishing boat or farm to the dinner plate, consumers could be confident that their seafood is safe, legally caught and honestly labeled.

To expand transparency of fishing, public vessel tracking systems like the automatic identification system (AIS) — which broadcasts a vessel’s location, direction and speed — should be required on more fishing boats to shine a light on what is happening beyond the horizon. Adopting stronger requirements for imported seafood would also ensure that it is held to the same standards as seafood caught in the United States.

Taking action to combat IUU fishing, stop seafood fraud and expand transparency has strong bipartisan support. A recent Ipsos poll, commissioned by Oceana, found that 89% of registered voters agree that imported seafood should be held to the same standards as U.S. caught seafood. Nearly 90% of voters also agree that the government needs to do more to ensure consumers are purchasing properly labeled seafood. Seventy-seven percent of voters support requirements for all fishing vessels to be publicly trackable.<sup>4</sup>

IUU fishing and an opaque seafood supply chain threaten the U.S. economy, environment and human rights. The United States has an opportunity to build upon its past leadership on IUU fishing and seafood fraud, and adopt widely supported policy solutions that will ensure all seafood in the United States is safe, legally caught, responsibly sourced and honestly labeled.



# Introduction

Illegal, unreported and unregulated (IUU) fishing includes fishing without authorization, ignoring quotas, fishing in closed areas or with prohibited gear, catching unmanaged species or not reporting catch to proper authorities. These practices threaten food security, compromise the health of the oceans and fisheries, and undermine fishermen and seafood businesses that play by the rules. Until the government takes stronger measures to keep IUU products out of the United States, our dollars will continue to support the pillaging of the ocean through the seafood we buy.

The U.S. government has taken some steps to combat IUU fishing, including establishing the Seafood Import Monitoring Program (SIMP). SIMP requires some imported seafood at risk of IUU fishing and seafood fraud to be accompanied by catch documentation about where and how it was caught. SIMP also requires those products to be traced from the fishing boat or farm to the U.S. border. While SIMP was a good step forward, these rules currently only apply to 40% of the value and volume of U.S. imports, and products are no longer traced once they have entered the country. More is needed to ensure that all seafood sold in the United States is safe, legally caught, responsibly sourced and honestly labeled.<sup>5</sup> The United States has an opportunity — an obligation, even — to lead the charge and implement policies that meaningfully combat IUU fishing and block IUU products from entering the U.S. market.

Requiring more transparency in fishing can help remove the veil of secrecy on the high seas. Existing, easy-to-implement technologies — such as automatic

identification system (AIS) devices — would improve the transparency of commercial fishing if broadly adopted and required. As it stands, AIS requirements in the United States are limited, which reduces our ability to demand transparency globally.

The seafood supply chain is opaque and complex, with fish often crossing borders and many hands before reaching your plate. Nearly 30% of the seafood sampled by Oceana in the United States was mislabeled, meaning consumers were falling victim to a bait-and-switch.<sup>6</sup> To truly be effective, SIMP must be expanded to all seafood, and traceability requirements should be extended through the full supply chain from boat to plate. Without catch documentation, transparency and traceability requirements applying to all seafood, fish illegally caught around the world will continue to enter the U.S. market.





## WHAT IS AIS?

AIS is an **automatic identification system** device that broadcasts vessel identity and location information (e.g., coordinates, speed and direction) as frequently as once every few seconds. Many large vessels — including tankers, shipping vessels and industrial fishing boats — rely on AIS data to safely navigate our waters. AIS signals can be picked up by other vessels and by land-based receivers and satellites. The **public availability** of AIS data allows governments, non-governmental organizations, researchers and the public to **monitor fishing vessels and other ships**. The current requirements for AIS in the United States only apply to vessels greater than 65 feet and only require vessels to broadcast AIS out to 12 nautical miles from shore.



## AIS IS COST-EFFECTIVE

AIS is a cost-effective tool for increasing transparency in the global seafood industry. A Class A AIS transponder is a one-time expense, typically costing anywhere from **\$749 to \$3,500**, and does not require a monthly service fee.<sup>7</sup>



## AIS PROMOTES TRANSPARENCY AND ACCOUNTABILITY

When vessels are required to use AIS, fisheries managers, governments and other stakeholders can use tools like the **Global Fishing Watch (GFW)** map. This cutting-edge technology **empowers anyone to view or download data and investigate global fishing activity in near real-time, for free**, to see when and where boats are fishing. This tool is most useful if it has a complete picture of fishing activity, **powered by AIS and other vessel tracking systems**. If the data are available, government agencies can use tools like the GFW map to better understand what is happening at sea, including fishing, transshipments and suspicious activity, and respond appropriately.



## WHAT IS IUU FISHING?

### ILLEGAL

**Illegal** fishing can include fishing without authorization, ignoring quotas, fishing in closed areas or fishing with prohibited gear.

### UNREPORTED

**Unreported** fishing is when catch is not reported to fishery managers or other authorities.

### UNREGULATED

**Unregulated** fishing occurs in areas or for species that are unmanaged.



## WHAT IS GLOBAL FISHING WATCH?

Global Fishing Watch is an independent, international nonprofit organization founded by **Oceana** in partnership with **Google** and **SkyTruth**. The publicly available GFW mapping platform **increases the transparency of commercial fishing activities worldwide**, empowering Oceana and others to expose problems that were once out of sight, far from our coasts. Oceana analysts use the GFW map to **proactively monitor and investigate** commercial fishing activities, shine a light on suspicious activities at sea and advocate for **increased transparency** to protect the world's oceans.



# IUU Fishing Impacts

The impacts from IUU fishing go far beyond fisheries management concerns. In addition to the unsustainable exploitation of fish populations and ocean ecosystems, IUU fishing can threaten food security, compete with legal fisheries and drive forced labor and other human rights abuses.

## U.S. Economy

Honest fishermen are consistently undercut by IUU fishing, since illegally obtained products compete with those that are legally caught. Gluts of illegally caught fish flooding the market drive prices down. Estimates put these losses to the global seafood industry at \$26 billion to \$50 billion per year.<sup>8</sup> If the flow of IUU seafood into the United States was stopped, our fishermen could see roughly a 20% increase in their income.<sup>9</sup>

## Human Rights

Human rights abuses are alive and well on the high seas, and many Americans may be unwittingly supporting these crimes with their seafood purchases. Human trafficking is the fastest-growing criminal enterprise in the world, enslaving nearly 22 million people.<sup>10</sup> Fisheries are no exception: Some vessel captains exploit vulnerable migrant workers, using violence, threats or debt bondage to keep them trapped at sea, thousands of miles from their families, in inhumane conditions.<sup>11</sup> No matter where in the world these abuses happen, the seafood caught or processed as a result of human trafficking and forced labor can still make its way to our shores, our grocery stores and our plates.

We need to demand more transparency and traceability for the seafood we import, and we need to be able to take actions against countries that allow IUU fishing, forced labor and human rights abuses to continue in their fleets. The good news is that the United States has the tools and authority necessary to address these issues, but success will require strong leadership and coordination across government agencies.

The failure of the United States to fully use its authorities — coupled with its treatment of IUU fishing, seafood fraud and human rights as separate issues to be tackled piecemeal — have allowed bad actors to continue profiting from forced labor. American consumers, whether they know it or not, are financially supporting these activities and incentivizing the perpetrators to continue.

## Environmental Destruction

IUU fishing depletes fisheries and destroys marine habitats. The effects of this destruction ripple throughout the ocean food web, harming everything from forage fish that feed other wildlife to prized red snapper to majestic whales.





## ADVERSE IMPACTS OF IUU FISHING

- IUU fishing costs the global seafood industry as much as **\$26 billion to \$50 billion** per year.<sup>12</sup>
- Up to **32% of wild-caught seafood** imported into the United States is illegal or unreported.<sup>13</sup>
- IUU fishing can be a **driver of forced labor** and associated with other crimes at sea like trafficking firearms, migrants, drugs and other contraband across borders.<sup>14</sup>



## IUU FISHING KILLS WILDLIFE

- At the peak of their illegal use in the Mediterranean, driftnets captured up to 10,000 dolphins, porpoises and whales each year.<sup>15</sup>
- Unregulated squid fishing in the Indian Ocean **grew 850% in just five years**, threatening those populations but also the populations of animals, like tuna, that feed on them.<sup>16</sup>
- Sharks are vital predators that keep ecosystems in balance and are also important for tourist economies.<sup>17</sup> These critical fish are especially vulnerable to IUU fishing due to the high value of their fins. Estimates of the total shark catch tied to IUU fishing **range from 132,000 to 312,000 metric tons annually**.<sup>18</sup>

Studies estimate that half of global fish stocks are overexploited; another 40% are fully exploited and have no room for additional capacity.<sup>19</sup> Additionally, AIS data shows that a significant amount of fishing activity occurs outside of national and regional jurisdictional boundaries and exploits unmanaged stocks.<sup>20</sup> Because we cannot account for vessels that fail to use tracking devices like AIS, the reality may be even more dire than the current data shows. IUU fishing is already pushing these fragile ecosystems to the brink. If allowed to continue unchecked, we could see irreversible damage.

## Consumer Health and Safety

Lax restrictions and limited traceability for the majority of seafood means that U.S. consumers often cannot be sure of the true origins of their seafood or what fish they are actually eating. Seafood's complex and opaque path from boat to plate can have weak links, offering opportunities for illegal fish to enter the supply chain and gain a new identity. Oceana found that nearly one out of every three fish tested — in grocery stores and restaurants alike — were mislabeled. In many of these cases, consumers were served a lower-value fish than the one they thought they paid for.<sup>21</sup> In some cases, the mislabeling potentially even hid health risks to consumers.

Oceana found that high-mercury-content fish on the Food and Drug Administration's "Do Not Eat" list for sensitive groups, including pregnant women and young children, were sold as safer choices.<sup>22</sup> In another instance, cholera sickened U.S. consumers who ate illegally smuggled seafood imports from South America.<sup>23</sup> The catch from illegal fishing vessels can include "small species, juvenile and putrefied fish unfit for human consumption," which, in the absence of transparency, stronger regulations and enforcement, makes its way to the legal market by way of fish processing plants that turn the IUU products into fishmeal.<sup>24</sup>

These examples illustrate the complex and often opaque seafood supply chain that lies between the ocean and the average American's dinner plate. Some fish change hands and cross borders multiple times before arriving at the seafood counter or a sushi restaurant, and every single link in that chain is an opportunity for a bait-and-switch. Seafood fraud will continue to be a threat until all products are traced from the boat or farm to the plate.



## EPIDEMIC OF EXPLOITATION

In 2006, Vannak Anan Prum left his home in Cambodia to find work in Thailand. He had planned to be gone for two months. He was **gone for five years**. He was promised a lot of money as a fisherman but was instead sold into slave labor on a fishing boat. He was **only allowed to sleep four hours a day** and was regularly beaten and abused.<sup>25</sup>

Another man, Rahat, was lured from his home in Thailand into a fishing crew with promises of high wages. He was held against his will in workers' lodging, taken downriver and put on a cargo vessel that carried him out to sea. There, he was eventually transferred to a fishing boat in Indonesia, where he was forced to work. Within days, the fresh food ran out, driving Rahat and his fellow **forced laborers to eat boiled fish for every meal**. They were even **forced to work when they were sick**. By the time Rahat made it home, he had been at sea for nearly four years.<sup>26</sup> Vannak and Rahat are just two of the thousands who go looking for work in Thailand and are exploited by its rapacious fishing industry.<sup>27</sup>







## EUROPEAN UNION BLUEPRINT

The EU is the largest importer of seafood in the world, taking in billions of dollars' worth of fish every year.<sup>28</sup>

Before the adoption of the IUU Regulation in 2008, approximately 500,000 tons of illegal fisheries imports were entering the EU annually.<sup>29</sup> To address this, the EU established a system to prevent, deter and eliminate the import of IUU fish products. The EU IUU Regulation includes three key tenets:<sup>30</sup>

- 1. A catch certification scheme:** Imported seafood must be accompanied by a catch certificate that outlines who caught the fish, how it was caught, where and when it was caught, etc. The EU market is limited to fishery products that carry a catch certificate, which certifies compliance with fishery laws and conservation measures.
- 2. A carding process:** The regulation enables the EU to enter into dialogue with non-EU countries that are not effectively combating IUU fishing. If countries fail to put in place the required reforms, they can be “carded,” like the penalties in a soccer game, and sanctions can be imposed. Receiving a yellow card (a warning) or red card (blocking seafood imports from that country), has proven to be a strong incentive for countries to improve the management and oversight of their fleets.
- 3. Penalties for EU nationals:** EU nationals who are caught engaging in or supporting IUU fishing anywhere in the world face substantial fines proportionate to the value of their catch.

In addition to these policies, in 2014 the EU required all boats above 15 meters (roughly 50 feet, compared to current requirements in the United States, which only apply to vessels over 65 feet) to carry AIS devices and broadcast continuously.<sup>31</sup>

After a little more than a decade, policies in the EU have led to a meaningful reduction in IUU fishing, particularly among the world's worst offenders. Multiple countries that have been “carded” by the EU due to illegal fishing practices have improved their practices to comply with EU regulations.<sup>32</sup> If major seafood importing nations adopted stronger import controls to ensure that only legally caught fish enter their countries, the market access for illicitly sourced seafood would decline, cutting off the profits for pirate fishermen.

Oceana recommends that the United States follow the EU's blueprint by expanding SIMP to require catch documentation for all seafood, adopting a carding system like the one used by the EU for nations engaged in IUU fishing, increasing penalties for those engaged in IUU fishing and expanding transparency of fishing.



# Solutions

The United States has an opportunity to take swift action to ensure that all seafood is safe, legally caught, responsibly sourced and honestly labeled. The government has tools to address the issues outlined in this report, but fails to use them effectively. By expanding existing programs to include all seafood products, increasing transparency, requiring traceability and using data to drive action, the United States can protect the oceans and those who depend on them – including consumers, fishermen and seafood businesses.

## Expand Transparency

Expanding transparency is critical in the fight against IUU fishing. If the United States requires more transparency for its own fishing vessels, then it can demand more transparency from other fishing nations as a condition of market access. AIS can offer transparency at sea, but requirements for its use in the U.S. fishing fleet fall short. Currently, vessels are only required to transmit AIS signals while operating within 12 nautical miles of the shore, allowing them to legally “go dark” from public tracking systems for extended periods. Oceana’s analysis of AIS data found that, on average, U.S. fishing vessels have their AIS turned off for more than 40% of their active hours.

The majority of U.S. fishing vessels are smaller than 65 feet in length and are therefore not currently required to carry AIS. Oceana determined that 85% of the U.S. fishing fleet — nearly 15,000 commercial fishing vessels — are not subject to any AIS requirements. All U.S. fishing vessels can opt to use a weaker, less consistent Class B transponder to meet AIS requirements. These transponder signals are not always picked up by satellites, particularly in areas of higher vessel density, making the data far less useful for fisheries managers and others.

More transparency of fisheries provides the government with more information to drive smarter, data-driven risk screening and enforcement actions. If lawmakers are serious about combating IUU fishing and reversing the damage done in recent decades, key changes must be made to AIS regulations in the United States:

- **Require** any vessel 49 feet or greater to transmit AIS for the entire duration of its voyage, regardless of the boat’s distance from shore.
- **Require** U.S. flagged vessels to notify the Coast Guard within four hours of halting their AIS transmission.
- **Establish** a publicly accessible vessel registry that has up-to-date information on all vessels with active commercial fishing permits.
- **Require** AIS transmission as a condition of import for fishing vessels of comparable size to the U.S. requirement.
- **Improve** AIS signal strength by strongly encouraging, if not mandating, the use of Class A transponders rather than weaker Class B transponders.





## AMERICANS SUPPORT TRANSPARENCY AND TRACEABILITY

Policies that would improve transparency and combat IUU fishing have **popular bipartisan support**, according to a recent Ipsos poll commissioned by Oceana:

89%

of American voters agree that imported seafood should be held to the same standards as U.S. caught seafood.

Nearly  
90%

of American voters agree that seafood caught using human trafficking and slave labor should not be bought and sold in the United States.

More than  
75%

of American voters want to know that the seafood they purchase was legally caught, with a majority of respondents even saying they are willing to pay more to ensure that their seafood was not caught illegally.

81%

of American voters say they support policies that prevent seafood from being sold in the U.S. that was caught using human trafficking and slave labor.

92%

of American voters agree that consumers should be confident in the seafood they eat, including that it is safe, legally caught, responsibly sourced and honestly labeled.

Nearly  
90%

of American voters agree the government should do more to ensure that consumers are purchasing properly labeled seafood.

77%

of American voters support requirements for all fishing vessels to be publicly trackable.

83%

of American voters agree that all seafood should be traceable from the fishing boat to the dinner plate.

These sentiments were shared equally among **Republicans and Democrats**, with no significant difference in responses based on party affiliation.<sup>33</sup>

## Catch Documentation and Seafood Traceability

Catch documentation provides information to demonstrate that a fish was legally caught or sourced. Information such as who caught the fish, where it was caught, and how and when it was caught provides the key data elements needed to verify the legality of the catch. Seafood traceability — tracking fish from boat to plate — ensures the integrity of the full seafood supply chain. Any efforts to address IUU fishing must also be paired with catch documentation and full-chain traceability for all seafood. To accomplish this, the United States should:

- **Expand** the existing Seafood Import Monitoring Program to include all imported seafood.
- **Improve** catch documentation required under SIMP to ensure the right information is collected in a format that allows for data driven, risk-based screening and enforcement.
- **Require** full-chain traceability for all seafood from the boat or farm to the plate.
- **Provide** consumers with more information about the seafood they purchase, including what fish it is, where and how it was caught or whether it was farmed.

With more information, Americans can be confident that their seafood purchases are not funding illegal fishing, forced labor or human rights abuses.



# Conclusion

The United States should demand that all seafood sold in the U.S. be safe, legally caught, responsibly sourced and honestly labeled.

Americans support actions to fight IUU fishing, stop seafood fraud and expand transparency. Implementing these measures would protect fishermen and consumers, restore healthy oceans and level the playing field for responsible seafood businesses that play by the rules.

The risk of not acting to address IUU fishing and seafood fraud would have far-reaching implications for human rights, health and safety, and the economic futures of many Americans. The good news is the U.S. has the tools and resources to fix these issues. The solutions recommended in this report will drive greater transparency of fishing, and just as importantly, they will hold U.S. seafood imports to the same standards required of domestic fishermen, making our nation more effective in the fight against IUU fishing across the globe.





**RESTORE OUR OCEANS**

**STOP ILLEGAL FISHING**





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# References

- <sup>1</sup> Sumaila UR, Zeller D, Hood L, et al. (2020) Illicit trade in marine fish catch and its effects on ecosystems and people worldwide. *Science Advances*. 6: eaaz3801. doi: 10.1126/sciadv.aaz3801.
- <sup>2</sup> Pramod G, Nakamura K, Pitcher TJ and Dela-gran L (2014) Estimates of illegal and unreported fish in seafood imports to the USA. *Marine Policy*. 48: 102–113. doi: 10.1016/j.marpol.2014.03.019.
- <sup>3</sup> World Wildlife Fund (2016) An Analysis of the Impact of IUU Imports on U.S. Fishermen. World Wildlife Fund. 16p. Available: <https://www.worldwildlife.org/publications/an-analysis-of-the-impact-of-iuu-imports-on-u-s-fishermen>. Accessed Feb 1, 2021.
- <sup>4</sup> Oceana (2021) American Voters Want to End Illegal Fishing & Seafood Fraud. Oceana USA. 31p. Available: <https://usa.oceana.org/american-voters-want-end-illegal-fishing-seafood-fraud>. Accessed Feb 1, 2021.
- <sup>5</sup> National Ocean Council Committee on IUU Fishing and Seafood Fraud (2019) Final Rule Traceability. In: National Oceanographic and Atmospheric Administration. Available: <https://www.iuufishing.noaa.gov/RecommendationsandActions/RECOMMENDATION1415/FinalRuleTraceability.aspx>. Accessed Feb 1, 2021.
- <sup>6</sup> Warner K, Mustain P, Lowell B, Geren S and Talmage S (2016) Deceptive Dishes: Seafood Swaps Found Worldwide. Oceana USA. 24p. Available: <https://usa.oceana.org/publications/reports/deceptive-dishes-seafood-swaps-found-worldwide>. Accessed Feb 1, 2021.
- <sup>7</sup> United States Coast Guard (2020) SHIPBORNE AIS CLASS COMPARISON. In: United States Coast Guard. Available: [https://www.navcen.uscg.gov/pdf/AIS\\_Comparison\\_By\\_Class.pdf](https://www.navcen.uscg.gov/pdf/AIS_Comparison_By_Class.pdf). Accessed Feb 1, 2021.
- <sup>8</sup> Sumaila et al. (2020).
- <sup>9</sup> World Wildlife Fund (2016).
- <sup>10</sup> International Labor Organization (2014) Profits and Poverty: The Economics of Forced Labour (Forced labour, modern slavery and human trafficking). International Labor Organization. 66p. Available: <https://www.ilo.org/global/topics/forced-labour/publications/profits-of-forced-labour-2014/lang-en/index.htm>. Accessed Feb 1, 2021.
- <sup>11</sup> Oceana (2019) Illegal Fishing and Human Rights Abuses at Sea. Oceana USA. 25p. Available: <https://usa.oceana.org/publications/reports/illegal-fishing-and-human-rights-abuses-sea>. Accessed Feb 1, 2021.
- <sup>12</sup> Sumaila et al. (2020).
- <sup>13</sup> Pramod et al. (2014).
- <sup>14</sup> United States Department of State (n.d.) Illegal, Unreported, and Unregulated Fishing. In: United States Department of State. Available: [https://www.state.gov/key-topics-office-of-marine-conservation/illegal-unreported-and-unregulated-fishing/#:~:text=Illegal%2C%20unreported%2C%20and%20unregulated%20\(communities%20that%20depend%20on%20them](https://www.state.gov/key-topics-office-of-marine-conservation/illegal-unreported-and-unregulated-fishing/#:~:text=Illegal%2C%20unreported%2C%20and%20unregulated%20(communities%20that%20depend%20on%20them). Accessed Feb 19, 2021.
- <sup>15</sup> European Commission (2016) Control technologies. In: Fisheries - European Commission. Available: [https://ec.europa.eu/fisheries/cfp/control/technologies\\_en](https://ec.europa.eu/fisheries/cfp/control/technologies_en). Accessed Feb 1, 2021.
- <sup>16</sup> World Wildlife Fund and Trygg Mat Tracking (2020) Unregulated fishing on the high seas of the Indian Ocean. WWF. 29p. Available: [https://www.wwf.eu/wwf\\_news/publications/?uNews-ID=1014116](https://www.wwf.eu/wwf_news/publications/?uNews-ID=1014116). Accessed Feb 1, 2021.
- <sup>17</sup> Fedler AJ (2018) The Economic Impact of Shark Diving in Florida. Oceana USA. 29p. Available: [https://usa.oceana.org/sites/default/files/economic\\_impact\\_of\\_shark\\_diving\\_in\\_florida\\_report.pdf](https://usa.oceana.org/sites/default/files/economic_impact_of_shark_diving_in_florida_report.pdf). Accessed Feb 1, 2021.
- <sup>18</sup> Worm B, Davis B, Kettmer L, et al. (2013) Global catches, exploitation rates, and rebuilding options for sharks. *Marine Policy*. 40: 194–204. doi: 10.1016/j.marpol.2012.12.034.
- <sup>19</sup> Costello et al. 2016; Pauly & Zeller 2015; Sea Around Us. Available: <http://www.seaaroundus.org/daniel-paulys-publications-with-pdfs>. Accessed Feb 1, 2021.
- <sup>20</sup> Jablonicky C, McCauley D, Kroodsma D, Boerder K and Dunn D (2016) POLICY BRIEF: Satellite tracking to monitor area-based management tools & identify governance gaps in fisheries beyond national jurisdiction. Nereus Program. 4p. Available: <https://nereusprogram.org/reports/policy-brief-satellite-tracking-to-monitor-area-based-management-tools-identify-governance-gaps-in-fisheries-beyond-national-jurisdiction/>. Accessed Feb 1, 2021.
- <sup>21</sup> Warner et al. (2016).
- <sup>22</sup> Warner K, Timme W, Lowell B and Hirshfield M (2013) Oceana Study Reveals Seafood Fraud Nationwide. Oceana USA. 69p. Available: <https://usa.oceana.org/reports/oceana-study-reveals-seafood-fraud-nationwide>. Accessed Feb 1, 2021.
- <sup>23</sup> Stiles M, Kagan A, Shaftel E and Lowell B (2013) Stolen Seafood | The Impact of Pirate Fishing on Our Oceans. Oceana USA. 28p. Available: <https://oceana.org/reports/stolen-seafood-impact-pirate-fishing-our-oceans>. Accessed Feb 1, 2021.
- <sup>24</sup> Environmental Justice Foundation (2015) Thailand's Seafood Slaves. In: Environmental Justice Foundation. Available: <https://ejfoundation.org/reports/thailands-seafood-slaves>. Accessed Feb 1, 2021.
- <sup>25</sup> Dow S (2019) "Such brutality": tricked into slavery in the Thai fishing industry. *The Guardian*. Available: <https://www.theguardian.com/world/2019/sep/21/such-brutality-tricked-into-slavery-in-the-thai-fishing-industry>. Accessed Feb 1, 2021.
- <sup>26</sup> Smith N, Wagner B, Marttin F and Tajit A (2016) TZh 10 - Trapped at Sea: The fight against slavery in the fishing industry. In: Food and Agriculture Organization of the United Nations. Available: <http://www.fao.org/news/podcast/slavery-at-sea/en/>. Accessed Feb 1, 2021.
- <sup>27</sup> Prum VA (2018) The Dead Eye and the Deep Blue Sea. New York City, New York: Seven Stories Press. Available: <https://www.sevenstories.com/books/3915-the-dead-eye-and-the-deep-blue-sea>. Accessed Feb 1, 2021.
- <sup>28</sup> European Commission (n.d.) Illegal fishing. In: Fisheries - European Commission. Available: [https://ec.europa.eu/fisheries/cfp/illegal\\_fishing\\_en](https://ec.europa.eu/fisheries/cfp/illegal_fishing_en). Accessed Feb 1, 2021.
- <sup>29</sup> Oceana Europe (2018) The impact of the EU IUU Regulation on seafood trade flows. Oceana Europe. 100p. Available: <https://europe.oceana.org/en/publications/reports/impact-eu-iuu-regulation-seafood-trade-flows>. Accessed Feb 1, 2021.
- <sup>30</sup> Oceana Europe (2016) The EU IUU Regulation. Oceana Europe. 11p. Available: <https://oceana.org/publications/reports/eu-iuu-regulation>. Accessed Feb 1, 2021.
- <sup>31</sup> European Commission (n.d.).
- <sup>32</sup> Oceana Europe (2015) EU Regulation to combat illegal fishing Third country carding process. IUUWatch.eu. 2p. Available: [http://www.iuu-watch.eu/wp-content/uploads/2015/06/Case-Study1.2pp.FIN\\_1.pdf](http://www.iuu-watch.eu/wp-content/uploads/2015/06/Case-Study1.2pp.FIN_1.pdf). Accessed Feb 1, 2021.
- <sup>33</sup> Oceana (2021).



#StopIllegalFishing

[usa.oceana.org/StopIllegalFishing](http://usa.oceana.org/StopIllegalFishing)

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Oceana is the largest international advocacy organization dedicated solely to ocean conservation. Oceana is rebuilding abundant and biodiverse oceans by winning science-based policies in countries that control one-third of the world's wild fish catch. With more than 225 victories that stop overfishing, habitat destruction, pollution, and the killing of threatened species like turtles and sharks, Oceana's campaigns are delivering results. A restored ocean means that 1 billion people can enjoy a healthy seafood meal, every day, forever. Together, we can save the oceans and help feed the world. Visit [usa.oceana.org](http://usa.oceana.org) to learn more.