



Issue Paper: Sustainable Seafood

The Impact of How We Eat

The oceans cover more than 70% of the Earth's surface, representing 99% of the living space on our planet, by volume. More than three billion people depend on marine and coastal biodiversity for their livelihoods, and their primary source of protein.

Today, however, the oceans are under severe threat from climate change, toxic pollution and unsustainable fishing practices. These factors threaten both the continued availability of fish for consumption as well as the healthiness of the fish we consume.

The idea that the supply of fish in the ocean is limitless has contributed to all of us taking it for granted. It is estimated that two-thirds of the world's fish stocks are either fished at their limit or overfished, and Greenpeace reports that fish at the top of the food chain, such as tuna, are disappearing quickly. Additionally, the World Bank estimates that the economic losses due to overfishing are approximately \$50 billion per year.



Seafood differs substantially from other animal-based industrial agriculture. While it is easy to track and manage livestock, there isn't a single scientific authority that can conclusively answer the question of how many fish are in the sea, or even how many species of life the oceans support. According to the United Nations, our oceans contain nearly 200,000 species, but actual numbers may lie in the millions.

Companies that depend on the seafood supply chain have a host of issues to manage, including overfishing, destructive fishing practices, and labor rights abuses. The field of sustainable seafood is complex, with a bewildering array of acronyms, certification systems and open questions to consider. We hope that this essay will help to clear up some of that confusion and give you a good sense of what some companies in our portfolios are doing to address these key challenges. We also provide some resources that you, as a consumer, can use to make smarter seafood choices.



The Cost of Modern Fishing

Seafood is the last major food source that is still caught in the wild, but the oceans cannot replenish fish at the rate we are pulling them out. Currently, about half of the world's seafood is wild-caught and, as discussed below, farmed fish depend heavily on wild-caught feed. Modern fishing fleets are capable of catching larger quantities of fish at a time, but do not always efficiently target their nets to ensure they avoid accidentally catching other species (these non-target species are known as "bycatch"). According to Greenpeace, 100 million sharks, 300,000 whales and dolphins and 100,000 albatrosses are inadvertently caught and killed every year in nets or on fishing lines. In addition, some fishing practices — like bottom trawling — destroy habitats, including coral formations.

Illegal, unreported and unregulated fishing is also a substantial problem, accounting for an estimated 19% of the global catch. One-third of all fish sold in the United States is believed to be caught illegally. Not only do poachers ignore catch quotas established by governments, they also use outlawed equipment, including nets stretching 15 miles or more that scoop up everything in their path. The Wall Street Journal reports that "the most critical area for poaching is off the coast of West Africa, where illegal, unauthorized and unregulated fishing accounts for an estimated 40% of fish caught." Illegal fishing threatens marine ecosystems and food security in some of the world's poorest countries.

The Hope for Sustainable Aquaculture

The other half of the world's seafood is produced via aquaculture, or fish farming, a practice that dates back thousands of years. Today, the vast majority of aquaculture production comes from Asia, with China alone accounting for 60% of the global aquaculture output. Aquaculture has grown in response to rising consumer demand and declining stocks of wild fish. According to experts, farmed fish production may surpass wild catches by 2019.

As the production of farmed fish increases, so do its side effects. The most common type of aquaculture consists of farming in net pens or cages anchored to the sea floor in the ocean or near the coast. As with many other types of farming practices, aquaculture presents challenges. In some fish farms, densely packed pens can lead to high disease rates, which producers try to avoid with the liberal use of antibiotics. Infectious diseases among farmed fish can also spread to native populations, introducing non-native diseases into the environment or facilitating disease through unsanitary conditions. When farmed fish escape their pens, they pose a threat to wild fish populations.



Another issue with farmed fish is their feed. Fish species like salmon and tuna are carnivorous and require a diet high in fat. To feed and sustain these kinds of farmed fish, other fish species, such as sardines or mackerel, must be harvested from the ocean. Producers use fish meal, which combines fish oil, wheat products, and chemicals into pellets which are then fed to cultivated fish. The National Oceanic and Atmospheric Administration (NOAA), a U.S. government agency, reports that one pound of farmed salmon uses the fish oil from about five pounds of wild fish and fish meal from 1.3 pounds of fish. If we accept that large scale aquaculture is here to stay, we must ensure that it is done sustainably.

Open ocean aquaculture can be part of the solution, but it should only be used to cultivate species that are native in open water systems. Open ocean aquaculture entails moving pens into the open ocean where the water is pristine and currents are strong enough to continually flush the farms of fish waste and pests. The open ocean also provides fish with more consistent salinity and temperature. That means the fish are less stressed and vulnerable to disease, which promotes better growth and minimizes the need for antibiotics or vaccines.

For the cultivation of non-native species, land-based tank systems can be used. Due to the high costs of operation, however, tank-based systems currently represent just half a percent of total industry production. The best land-based closed systems are capable of recycling 99% of their water. In addition, the water can be monitored continuously, which lessens the risk of disease and the need for antibiotics.

Plant-based feeds may also be a sustainable option for fish farms. Efforts to replace proteins from fish meal with grains and oilseeds started many years ago. Today, entrepreneurs are working on alternative feeds like algae and large corporations like Cargill (not currently approved for the Domini Funds) are investing in genetically modified oilseeds. In addition, researchers are trying to determine whether popular carnivorous fish like trout, yellowtail, walleye, and Atlantic salmon can survive on vegetarian and fish-free diets. If so, fish farmers would be able to drastically reduce their use of fish meal.

Currently, there are no publicly traded aquaculture companies that meet Domini's standards for investment. Farmed fish, however, is part of the supply chain of many companies in the food industry, including food manufacturers, distributors, and retailers that meet Domini's standards for investment.



Labor Rights in The Seafood Supply Chain

Labor rights are a major concern throughout the seafood supply chain, whether it's wild-caught or farmed. In "Protecting Migrant Workers," an essay in the Domini Funds' most recent Semi-Annual Report, we described how our research department identified the enslavement of migrant workers as a high risk in the seafood supply chain. **Costco, Sysco, William Morrisons** and other major companies have joined the Seafood Task Force (www.seafoodtaskforce.global), a multi-stakeholder alliance that aims to tackle forced labor and human trafficking in seafood production. Domini continues to work with other investors and companies on these and other challenges facing migrant workers.

Certifications and Traceability

Companies depend upon global supply chains that can be complex, multi-tiered and opaque. However, we cannot hope to ensure that our seafood is truly sustainably sourced without end-to-end traceability, meaning that each unit of seafood sold to a consumer can be traced all the way back to its point of harvest at sea or on a farm. Traceability of supply chains also supports compliance with restrictions on illegal, unreported and unregulated fishing. Traceability is a daunting logistical task, but rapid advances are being made in the development of affordable tracking systems. Companies are increasingly using a variety of certifications, as well as joining multi-stakeholder task forces and industry associations, to advance the dialogue on sustainable seafood sourcing practices.

The Marine Stewardship Council (MSC), originally formed out of a collaboration between the World Wildlife Fund (WWF) and Unilever (at the time, one of the world's largest producers of frozen seafood), offers one of the most widely used sustainable seafood certification systems for wild-catch fisheries. The MSC Fisheries Standard is based on three pillars: sustainable fish stocks, minimizing environmental impact, and effective management. It is important to view MSC as a process, rather than a "seal of approval." Many MSC-certified fisheries have significant room to improve. If a fishery meets the standard for certification, the fishery then must submit an action plan on how it will improve its performance and must undergo surveillance audits on an annual basis. The certification must be renewed every five years. MSC also offers a Chain of Custody standard, which ensures that seafood is traceable to an MSC-certified fishery.

The Aquaculture Stewardship Council (ASC) standards were developed by NGOs, marine scientists and the salmon industry. ASC certifies twelve species of farm-raised seafood against standards that focus on both the environmental and social impacts of farming.



Two other initiatives we are watching closely include the Ocean Disclosure Project and Fish Tracker. **The Ocean Disclosure Project**, launched by the **Sustainable Fisheries Partnership (SFP)**, prompts companies to publicly disclose extensive information about the wild-caught seafood they buy. **William Morrison Supermarket (UK)** was one of the five initial signatories when it launched in 2015 and remains the project's only publicly traded participant. We are also optimistic about the launch of **Fish Tracker**, an initiative by Investor Watch, to align capital markets with sustainable fisheries management. Though these initiatives are in their early stages, Domini values these resources to further our research and engagement activities.

Finally, the **Monterey Bay Aquarium's Seafood Watch** program has developed science-based standards for fisheries and aquaculture to help distinguish between which species are sustainable options and which seafood would be best to avoid ("red-rated") due to concerns with overfishing or destructive fishing or farming practices. Similarly, Greenpeace maintains its own "Red List" which highlights species of seafood the organization believes should not be made commercially available due to various risks such as overfishing or illegal fishing practices.

The Corporate Response

Corporate sustainable seafood policies generally rely upon a mix of certification standards, including MSC, ASC and others, as well as, species-specific policies. As you will see from the brief profiles below, among our Funds' current holdings with exposure to seafood, there are a range of policies and approaches to the difficult issues companies face.

In the United States, **Whole Foods** was the first retailer to sell MSC-certified products back in 2000. For three consecutive years, Whole Foods has received the top ranking in Greenpeace's "Carting Away the Oceans" report, which annually ranks supermarket chains on their approach to seafood sourcing. Whole Foods prohibits the sale of red-rated seafood, and states that it will not sell seafood that is overfished, poorly managed, or caught in ways that cause harm to habitats or other wildlife. In March 2017, the company announced that it was establishing sustainability and traceability requirements for canned tuna. Whole Foods also requires suppliers to track each lot of tuna from the boat to the cannery. In addition, the company requires that farm-raised seafood be third-party verified to meet its Responsibly Farmed Standards, which prohibits the use of antibiotics. In August, Amazon.com acquired Whole Foods. We will be watching closely to see whether Amazon maintains Whole Foods' long-term commitment to sustainable seafood.

Sainsbury's, the second largest British supermarket chain, has also been sourcing MSC-certified fish since 2000 and, according to MSC, is considered a global leader in



sustainable seafood. In 2016, 76% of its wild-caught seafood was MSC-certified and the company is working towards having all fish it sells certified sustainable by 2020.

Unlike Whole Foods, which will not carry “red-rated” species under any circumstances, **Costco’s** seafood sourcing policy states that it will not sell certain wild species that have been identified as at great risk, unless sources are certified by the MSC. Rather than simply avoid fish from fisheries that fail to meet MSC standards, the company is working with a group of WWF sponsored Fishery Improvement Projects (FIP) designed to bring fisheries up to MSC standards. Costco’s major canned tuna suppliers are participants in the International Seafood Sustainability Foundation, which is undertaking “science-based initiatives for the longterm conservation and sustainable use of tuna stocks, reducing bycatch and promoting ecosystem health.” The company works to source farmed fish from suppliers that are ASC-certified and has participated in the implementation of ASC dialogues that include salmon, shrimp, tilapia, and pangasius. Domini has been in dialogue with Costco on seafood issues since 2010, most recently around its involvement in addressing human rights issues in the supply of shrimp from Thailand.

U.S. supermarket chain **Kroger** reports that 69% of its total seafood volume came from MSC-certified fisheries. The company states that traceability and the removal of illegally sourced seafood is a critical component of a comprehensive sustainable seafood policy and commitment. Since 2009, Kroger has reportedly supported 23 FIPs through sourcing, letters to stakeholders, and/or direct funding.

Metro AG is the third-largest retailer in Germany and one of Europe’s leading fish wholesalers. Metro has a sustainable fish selection that includes a wide range of MSC and ASC-certified products. By 2020, Metro is seeking to offer 80% of its twelve best-selling types of fish and seafood from sustainably certified sources. Currently, Metro reports that 90% of its aquaculture seafood is certified. The company also works with small-scale fishermen in support of more sustainable practices. To address the substantial pressure on fish stocks in Japan, Metro’s subsidiary Metro Cash & Carry Japan is working with a local university to raise fish from fertilized fish eggs to ensure a fully traceable and sustainable aquaculture process.

Sysco, a food distribution company that supplies restaurants, hotels, hospitals and schools, reports that as of 2015, 9 of its top 10 Sysco Brand seafood products came from certified fisheries or fisheries engaged in a comprehensive FIP. Sysco is also collaborating with WWF to improve its seafood procurement practices.



The seafood supply chain does not only affect food for human consumption. The Canadian retailer, Loblaw, for example, offers MSC-certified dog and cat food products across over 1,000 supermarkets.

Tiger Brands, South Africa’s largest food and consumer healthcare company, has a 42% ownership in Oceana Group Ltd, which is the only direct exposure to a fishery in the Domini Funds’ portfolios. Oceana, a black-owned company, publishes reports on its environmental and social impact and has partnered with WWF to advance ecosystem-focused fisheries management practices.

Looking Ahead

On September 25, 2015, the United Nations announced its new global sustainability agenda, in the form of seventeen Sustainable Development Goals (SDGs). SDG 14 is to “Conserve and sustainably use the oceans, seas and marine resources.” Each goal is accompanied by a set of targets.

We believe that it is critical for the private sector, including corporations, investors and consumers, to play an active role in promoting the SDGs and delivering on their ambitious targets. This is an imperative if we are to serve the needs of a rapidly growing human population while respecting planetary limits.

Human civilization cannot survive without healthy ecosystems. Financial returns, of course, are also at stake, as corporations depend upon dwindling natural resources to deliver value to shareholders. You’ll be hearing more from Domini on how our work aligns with the SDGs and how we intend to strengthen those efforts, including efforts to improve the sustainability of seafood.





WHAT CAN CONSUMERS DO?

Don't underestimate your effectiveness as a consumer — you have the power to change entire industries with your choices and collective voice. Here are some fish-buying tips and resources:



1. Diversify the species of seafood you consume.

Shrimp, salmon, tuna, tilapia, and pollock are among the most widely consumed seafood in the United States. Environmental organizations warn that the overconsumption of certain species can lead to various risks for consumers and the environment.

NRDC: *The Smart Seafood Buying Guide* helps consumers diversify the types of seafood they eat, avoid species high in mercury, buy seafood sourced from countries with strong regulations and support local community fisheries.

<https://www.nrdc.org/stories/smart-seafood-buying-guide>

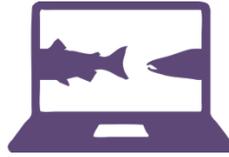


2. Be picky about where you shop.

You can choose to shop at retailers that have made a concerted effort to offer more certified and sustainable seafood. You can request to talk to the manager of the seafood department or reach out to the corporate office to inquire about what it would take for the store to support more sustainable seafood options. If you notice that your local grocery store is doing a poor job communicating their policies or consistently performing low in reports such as Greenpeace's annual Carting Away the Oceans, don't be afraid to speak up.

Greenpeace: *Carting Away the Oceans* provides annual rankings of food retailers that can help consumers make educated decisions on where to shop for seafood.

<http://cato.greenpeaceusa.org>. See also Greenpeace's Sustainable Seafood Consumer Hub at <http://seafood.greenpeaceusa.org/>



3. Choose your fish wisely.

Take advantage of available consumer resources and guides — they exist to help empower consumers to make sustainable seafood choices, whether you are shopping at your local grocery store or if you are out to dinner.

Monterey Bay Aquarium: Seafood Watch highlights which species of fish are “Best Choices” (green), “Good Alternatives” (yellow), or ones to “Avoid” (red). The aquarium also offers national, regional and state guides on their website and as a smartphone app.

<http://www.seafoodwatch.org>

NOAA: FishWatch: The National Oceanic and Atmospheric Administration publishes *FishWatch U.S. Seafood Facts*, a comprehensive online resource where you can view profiles of over 100 species of U.S. farmed or U.S. wild-caught species of seafood that include information on population, fishing rates, habitat impacts, as well as health and nutrition facts. <http://www.fishwatch.gov>

About Domini Impact Investments

Domini Impact Investments manages mutual funds for individual and institutional investors who wish to create positive change in society by integrating social and environmental standards into their investment decisions.

Visit www.domini.com or call 1-800-582-6757 to learn more



With the exception of Cargill, which is not currently approved for investment, the holdings discussed above can be found in the portfolios of the Domini Funds, available online at www.domini.com. The composition of the Funds' portfolios is subject to change.

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