4 June 2019, 4:57PM UTC
Chief Investment Office GWM
Investment Research

Life Below Water: World Oceans Day 2019

Sustainable investing

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- The UN estimates that coastal and marine resources contribute an estimated USD 28trn to the global economy each year. Unfortunately, the oceans are extremely vulnerable to environmental degradation, acidification, overfishing, climate change, and pollution.
- Shifting consumer preferences and an increase in legislative efforts have the potential to influence a range of ocean related industries, including waste management, transportation, and food production, among several others.
- Investors can potentially generate positive impact for the ocean by committing capital to investments that either directly or indirectly improve the ocean's health. This type of impact can generally be accomplished via explicit impact investing, or implicitly through typical investment in companies that can positively impact the ocean.

June 8th is World Oceans Day, a day of activities around the world coordinated by The Ocean Project to raise awareness of the ocean and its vital role in the wellbeing of humanity and our planet. The ocean generates oxygen, provides food and water, and regulates the earth's climate by absorbing heat and carbon dioxide from the atmosphere. It is also a key contributor to our economies – the ocean is the lifeblood for industries spanning from shipping and transportation to tourism and recreation. The UN estimates that coastal and marine resources contribute an estimated USD 28trn to the global economy each year. Unfortunately, the oceans are extremely vulnerable to environmental degradation, acidification, overfishing, climate change, and pollution.

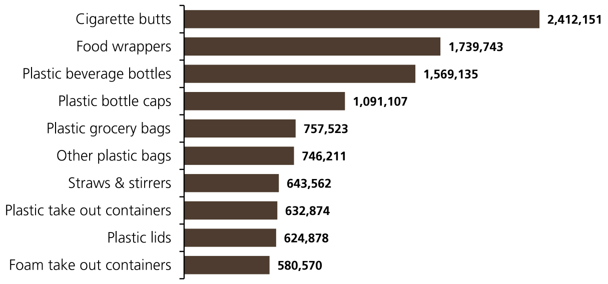
What does the state of our oceans mean for investors?

Until recently, investor attention has been seemingly directed less toward ocean conservancy and more towards other environmental matters such as fresh water scarcity, carbon emissions, or biodiversity – despite the oceans being inextricably linked to all of them. In 2015, the United Nations established a sustainable development goal specific to the issue: SDG14 – Life Below Water. The goal's targets are to reduce marine pollution, minimize ocean acidification and protect biodiversity, promote sustainable fishing, and protect coastal areas from flooding and erosion. Pollution and waste together make up one of the key sustainability topics that UBS takes into account when evaluating the sustainability of investments.

In the following we aim to highlight which industries ocean conservancy will likely impact in the years to come, and how investors can position for the resulting shift in industry trends. The ocean presents both risks and opportunities across a range of sectors that include waste management, transportation, and food production, among several others.

An USD 8 billion plastic problem
Plastic waste presents serious challenges for the oceans' health. According to Ocean Conservancy, plastic pollution that affects the tourism, fishing, and shipping industries carries an economist cost of at least USD 8 billion annually. Every year, about 8 million tons of plastic waste ends up in the ocean. For perspective, this is equivalent to dumping an entire garbage truck of plastic into the ocean every minute. If current usage trends persist, there could be more plastic than fish in the sea by 2050. Further, 90% of manufactured plastics are derived from fossil fuels, levying hefty environmental costs on marine ecosystems as fossil fuel production and consumption exacerbates rising sea levels and ocean acidification, among other mal-effects.[I] Looking at data from the 2017 International Coastal Cleanup, a global effort to fight ocean waste, the majority of the items collected were plastic products (Fig. 1).

Fig. 1: Top 10 trash items collected on International Coastal Cleanup Day 2017
# of items collected



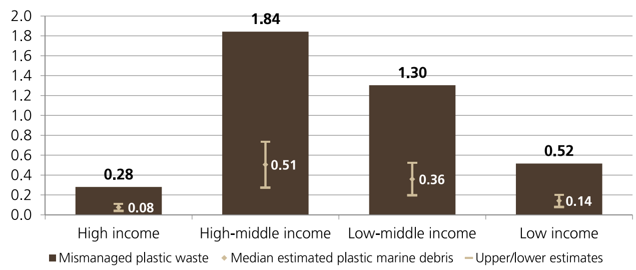
Source: Ocean Conservancy

According to the EPA, less than 10% of the plastic generated is recycled, but traditional plastics such as PET remain popular due to their lightweight and relatively inexpensive cost of production. Several countries and U.S. states have already placed restrictions on single use plastic, varying in severity, and both companies and activists have formed coalitions aimed at reducing plastic waste. As social pressures and regulations that seek to reduce plastic consumption gain traction, consumer-oriented companies will likely incur costs related to transitioning to more sustainable packaging materials and recycling processes.

Large chemical companies have begun researching alternative plastics, commonly referred to as bioplastics. They are often derived from natural or bio-based polymers. Some natural polymers such as lignin and cellulose for example, are both biodegradable and compostable in certain facilities.[II] Unfortunately, the decreased cost efficiency of alternatives relative to PET will likely act as a headwind for these solutions in the near term, though shifting consumer preferences and increased legislation could potentially accelerate adoption rates.

Aside from direct alternatives, recycling can be a viable way to manage and repurpose waste – but many recycling plants today are unable to properly sort through different types of plastic, sending some to landfill and leaving others with contaminants that reduce recycled plastic's second-use capabilities. Perhaps if recycling technology was more scalable and ubiquitous, less plastic would be introduced to marine ecosystems. In general, higher GDP corresponds with higher recycling ratios, though this relationship is not linear. This is shown in Figure 2 where, on an absolute basis, the coastal populations of high-income countries produced the least amount of mismanaged plastic waste with the least amount of plastic entering marine ecosystems as plastic debris. Interestingly, low-income countries produced the second least amount of mismanaged plastic waste and plastic marine debris with upper- and lower-middle income countries producing the most of both. However, low-income levels tend to generate less waste in general. Middle income countries may need to improve recycling and infrastructure to keep pace with higher rates of waste generation.[III]

Fig. 2: Enhanced recycling practices can result in less mismanaged waste and marine plastic debris
Mismanaged plastic waste and plastic marine debris by country GNI segment, in million metric tonnes per year



Sources: Jambeck et al., UBS
Note: Data is for the top 20 countries ranked by mass of coastal (within 50km of coast) mismanaged plastic waste

Innovation in marine transportation
In the coming years, the maritime transport sector is set to undergo a regulation-driven evolution. The International Maritime Organization (IMO) and national authorities have recently established more stringent regulations that target

air and water pollution created as byproducts of the shipping industry's regular operations. These regulations establish a standard for fuel sustainability which should lead to clean tech investment. Starting in January 2020, all ocean-going ships will have to reduce their level of sulfur emissions. This can be done by using low-sulfur fuel with a maximum sulfur level of 0.5%, down from the current limit of 3.5%, or by using exhaust scrubbers that capture the sulfur emissions from burning high-sulfur fuel. There is debate whether global supply for low sulfur fuel will meet demand, and shippers are already rushing to install scrubbers – creating a potential opportunity for equipment suppliers.

Ballast water treatment equipment will also need to be installed. Ballast water is water that cargo vessels take on to balance their weight and improve their maneuverability. Intake at the source port often includes bacteria, algae, and sea organisms that are eventually released at the destination harbor, which can harm the biodiversity in the local environment. This problem has worsened in recent years and has triggered subsequent legislative action.

Overfishing & growing demand for food

In the food supply chain, fish and other seafood consumption trends are on the rise. Fish and fishery products make up 16% of animal and 6% of overall protein consumption globally, but overfishing has led to a drastic reduction in global fish stocks. Although capped fishing quotas have helped to alleviate strained fish stocks, more efficient capture methods still make overfishing a global crisis.

This comes at a time when demand for food is set to increase alongside a growing population. Every day, an additional 200,000 people need to be fed. While nutrition can be found in sources other than seafood, food production must become more efficient in order to meet rising calorie consumption, and methods such as fish farming could help to alleviate some of the potential shortages caused by overfishing. Aquaculture for example, is a practice where marine life is cultivated in controlled environments, and it appears to be gaining traction. Aquaculture's share in global fish and seafood consumption has climbed from 18% in 1990 to 50% in 2014, and it is estimated to reach 57% by 2025.[IV] This must be carefully implemented though, as certain fish farming methods or agricultural practices have documented negative environmental impacts.

Ocean conservancy & longer term investments

For investors focused on liquid public markets, our CIO longer term investment themes *Waste Management and Recycling*, *Water Scarcity*, *and* *Agricultural Yield* all touch on some of the key issues discussed here and the technological innovations that can potentially drive change in these industries. Additionally, CIO's *Longer Term Investments: Renewables* report discusses the potential to generate electricity from the oceans' tides.

Oceans, as well as freshwater related themes, are also commonly addressed by more broad-based sustainable investments, either through investment in companies that are actively reducing their negative impact on the oceans, or those that are explicit and thematically oriented to address specific ocean-related issues. Generally, thematic investments that are directly linked to ocean health are relatively niche and are typically found in private markets, especially in the direct investments space.

Generating positive impact

Investors increasingly want to know what impact their invested capital is generating, and those who indicate a preference for ocean conservancy can be best served by targeting investments that can improve the oceans' health, whether directly or indirectly. This can be accomplished via impact investing, typically through private equity, private debt, or direct investments that generate intentional, measurable, and verifiable positive impact. Frameworks exist around measurement in this regard – for example, the Global Impact Investing Network's IRIS+ measurement catalogue lists a number of factors that can be measured to track impact. For any of these measurements to accurately gauge impact, it must be proven that what is measured 1) contributes to the intended impact of the investment, and 2) that without invested capital, this impact would not have been achieved. For instance, an impact assessment of the impact a hypothetical innovative waste management company has on the ocean should illustrate that enhanced recycling technologies and better managed waste reduces the amount of plastic that ends up in the ocean, that having less plastic in the ocean positively impacts ocean's health, and that this impact would not have occurred without the invested capital.

Investment in public markets is more difficult to deem as 'true impact,' however, engagement with public companies exposed to the marine sector, or with particularly heavy packaging footprints could qualify as 'true impact investing' if the above criteria are met. Traditional investment in public companies that are thematically aligned with positive outcomes for the ocean can still drive positive change, though investing in them would not be considered impact investing.

Any of the solutions and trends discussed including recycling, aquaculture and developments in marine transport sustainability represent impactful areas of investment, albeit dependent on a universe of investable products or deals and investor suitability constraints. By investing in these areas, positive impact can potentially be achieved through marine life preservation, heightened awareness of issues concerning the oceans, sustainable resource consumption, and lower pollution rates, among other things.

A deeper dive is still needed…

Ocean health has wide reaching effects – drawing attention from regulators, companies, and individuals alike. With oceans covering a large majority of the Earth, we have barely scratched the surface of opportunities related to ocean conservancy, and we intend to monitor how the investment environment adapts moving forward. If current trends continue, many of the issues we've discussed are likely to become increasingly burdensome alongside a rapidly growing population. Mounting concerns regarding ocean conservancy and, more broadly, climate change have the potential to influence industry and consumer behaviors globally as we attempt to navigate towards a more sustainable future. For more information on sustainable investing, please go to www.ubs.com/sustainableinvesting.

[I] World Economic Forum, Ellen MacArthur Foundation and McKinsey & Company, The New Plastics Economy — Rethinking the future of plastics (2016, http://www.ellenmacarthurfoundation.org/publications).

[II] United Nations Environment Programme (2017). Exploring the potential for adopting alternative materials to reduce marine plastic litter.

[III] Jambeck, J. Geyer, R. Wilcox, C. Siegler, T. Perryman, M. Andrady, A. Narayan, R. Law, K. "Plastic waste inputs from land into the ocean." Sciencemagazine.org, 2015.

[IV] Food and Agriculture Organization of the United Nations

Appendix

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Version 04/2019. CIO82652744