

# STEPPING UP ACTION ON OCEANS AND SDG:s

MSC contribution to a more sustainable world.



**MARINE STEWARDSHIP COUNCIL**

# 1. STEPPING UP EFFORTS ON OCEAN ACTION AND THE SDG:5

The year 2020 will be an important year for biodiversity and climate action. Global environment and sustainability will be high on the agenda with several high-level conferences for both oceans, climate and biodiversity, and goals being revised and updated.

MSC, The Marine Stewardship Council, is an environmental organization and a standard setter for sustainable fisheries. We want to help consumers to make the best environmental choices by choosing the products labelled with the blue fish. Through our work we provide concrete actions and contribute to the fulfilment of the UN

Sustainable Development Goals, SDGs. In these challenging times we need both hope and action. MSC provides a solution-based approach where cooperation and climate action can be found throughout our value chain. Together with other nature-based solutions MSC can drive both climate mitigation and adaptation, and contribute to the achievement of the SDGs.

Here are some examples on how MSC work on fisheries and ocean health contributes to some of the SDGs, where the heaviest weight is based on delivering on SDG 14, life below water.



## ZERO HUNGER 2 RESPONSIBLE CONSUMPTION AND PRODUCTION 12



- Fish and marine resources are food for the future.
- Estimates of 9 billion people in 2050 means an increased demand for protein, and blue foods will be an important contributor.
- To meet future demands, it's essential that wild capture fisheries are sustainable, and that feed to aquaculture doesn't come from vulnerable wild fish-stocks.
- Transparency and traceability in supply chain.

## DECENT WORK AND ECONOMIC GROWTH 8



- No forced or child labour.
- Decent wages and working hours.
- Green investments into certified fisheries makes money flow in the right direction.

## CLIMATE ACTION 13



- Well managed fisheries are more resilient to climate change.
- The combined effects of climate change, habitat destruction and poor fisheries management are placing unprecedented pressure on our oceans That is why sustainable fishing practices can help mitigate effects of climate change.
- Changes in diets to more seafood have potential to reduce CO2 emissions.

### ABOUT MSC:

*Wild, traceable, sustainable: the blue fish label is only applied to wild fish or seafood from fisheries that have been certified to the MSC Fisheries Standard, a science-based set of requirements for sustainable fishing.*

*Each MSC certified fishery is independently assessed on its specific impacts to wild fish populations and the ecosystems they're part of.*

*All along the supply chain, from ocean to plate, MSC-*

## LIFE BELOW WATER 14



- Preserving fish stocks for future generations.
- Protection of marine mammals and ETP (endangered, threatened and protected species).
- Sector improvements needed to keep certification.
- Exclusion of IUU-fishing (illegal, unreported and undocumented fishing).
- Science-based management to conquer overfishing.
- Traceability and transparency in the supply chain minimizes risk for IUU and overfishing.

## ECOSYSTEMS AND BIODIVERSITY 15



- The MSC program is built on an ecosystem-based management approach.
- Fisheries are given conditions to fulfil and obliged to minimize their impact on the marine environment.
- ETP species (endangered, threatened and protected species) and the protection of these are an integrated part of the MSC-program.

## PARTNERSHIPS FOR THE GOALS 17



- MSC is an independent NGO which joins forces with science, industry, business and civil society, municipalities and the educational system to enhance the work on sustainable fishing and living oceans.
- The standard is continuously scrutinized and improved by stakeholders

*certified is clearly labelled so it can be traced to a certified sustainable fishery.*

*The MSC is the only wild-capture fisheries certification and ecolabelling program that meets best practice requirements set by both the United Nations Food and Agriculture Organization UNFAO, the global membership association for sustainability standards<sup>1</sup>. In March 2017, the MSC became the first global seafood certification program to be recognised for rigour and credibility by the Global Sustainable Seafood Alliance (GSSI)<sup>2</sup>.*

## 2. SUSTAINABLE OCEAN ECONOMY

Ocean health and climate change are intrinsically interconnected, and so is the connection between ocean health and the other 16 Development Goals. Business has a crucial role to play in delivering on the SDG-agenda, a task that the business community so far has been slow to respond to<sup>3</sup>. How ocean industries contribute towards the achievement of the global goals is dependent on their products or services, whether they have a local or global scope and where they operate in the world.

An estimated third 30–35 per cent of fish stocks are fished unsustainably, and an additional 60 per cent are fully fished to the maximum of what can be sustained<sup>4</sup>. Overfishing poses a major health risk to much of the developing world, where substitutes for nutritionally rich fish are scarce<sup>5</sup>. While some collapsed stocks can recover following a moratorium, others cannot, meaning

a permanently affected ecosystem with huge impacts for livelihoods. Gaps in global governance can result in illegal fishing into areas with limited monitoring or enforcement capacity<sup>6</sup>. The need for appropriate governance is becoming even more pressing in the face of modern, more-efficient fishing methods.

The oceans and inland waters can supply the world with nutritious foods with a relatively low carbon footprint compared to other animal-based food production sectors (Goal 2 & Goal 13)<sup>7</sup>. According to the High-level Panel for a Sustainable Ocean Economy, there are clear mitigation gains from ocean-based industries. With strategic policy and investment actions to change how seafood is provided and increase its share in the collective human diet, seafood could contribute to potential mitigation of between 0.34 and 0.94 GtCO<sub>2</sub>e by 2030, and between 0.48 and



1.24 GtCO<sub>2</sub>e by 2050, relative to business-as-usual projections<sup>8</sup>.

Changing diets are one way, another way to reduce the carbon footprint of ocean-derived food production would be changing fuel sources in vessels. Technological advances in production techniques can reduce the emissions associated with seafood from both wild-caught fisheries and ocean-based aquaculture<sup>9</sup>. Using more sustainable production practices in the ocean can improve nutritious yields, and reduce the pressure on forests, freshwater, land use and soil quality (Goal 15). Artisanal fishing and small-scale aquaculture remain fundamental for the livelihoods of many coastal communities and the millions of people working directly or indirectly in the sector (Goal 8).

While ocean food contributes to meeting the world's food needs, there are some key barriers to sustainable growth. Companies who want keep pace know that a healthy ocean is the foundation for sustainable development. To strengthen environmental and social performance, the industry can pursue MSC-certification and engage in value-chain partnerships to raise the standard of the sector. Here the MSC-certification programme is by far the most widely spread and used, and the most reliable and ambitious one.

The use of sea plant species, such as kelp, in fish and shellfish aquaculture may contribute to mitigating climate

change impacts, specifically ocean acidification and carbon sequestration<sup>10</sup>. Species such as macroalgae may also contribute to more balanced ecosystems and better use of byproducts and organic waste from fish farming<sup>11</sup>. Integrated farming delivers several services to coastal populations, including food supply and job creation. For policymakers, there is great potential to stimulate markets for nutritious and sustainable food by achieving better integration of aquaculture into national food security and nutrition strategies<sup>12</sup>. MSC has together with ASC (Aquaculture Stewardship Council) developed a joint standard for seaweed aquaculture<sup>13</sup>. Seaweed absorbs significant amounts of CO<sub>2</sub> helping to regulate our climate, provide important habitats and protects coastlines from erosion. It is therefore essential that seaweed is harvested in a way that allows both communities and the environment to thrive. The new standard offers responsible seaweed producers an opportunity to earn international recognition for their efforts.

Food from the oceans, produced using best practices, can (with some notable exceptions) have some of the lowest GHG emissions per unit of protein produced of all protein sources<sup>14</sup>. Increasing the fraction of ocean-based food in the global diet, and reducing the share of animal-based foods, would contribute significantly to climate change mitigation.



## 3.

## CLIMATE CHANGE AND THE NEED FOR SUSTAINABLE FISHERIES MANAGEMENT

Climate change is having a profound impact on our oceans and marine life. Climate change is changing the distribution of fish stocks and their food. These changes are both geographical and structural, and they also vary over time and season<sup>15</sup>. Estimated potential catches are expected to decline considerably in the tropics and increase in regions with higher latitudes such as the North Atlantic and North Pacific<sup>16</sup>. A recent study showed that marine heat waves have increased by just over 54 percent in the past 30 years, and that these have been associated with declines in ocean life<sup>17</sup>. Changes in the distribution of fish populations in our oceans present a major challenge to businesses, economies and communities that rely on fishing as a source of income and nutrition. Shifting of fish populations and subsequent changes in the structure of marine communities will have significant implications for global fisheries catch<sup>18</sup>.

Ensuring healthy oceans and sustainable fisheries in a changing climate will require international cooperation

and careful management. Climate change means that fisheries managers need to adopt more precautionary approaches to secure future fish stocks. Effective fisheries management requires international cooperation – this is a significant challenge for many countries balancing economic and environmental interests. Some progress has been made, for example, in the Arctic, where climate change is likely to have a striking impact. In July 2015 an agreement was signed to prevent unregulated commercial fishing in high seas of the central Arctic Ocean<sup>19</sup>.

The ocean plays a fundamental role in regulating global temperatures. Not only does the ocean absorb 93 percent of the heat trapped by rising anthropogenic carbon dioxide (CO<sub>2</sub>), but it also absorbs approximately 25 to 30 percent of anthropogenic CO<sub>2</sub> emissions that would otherwise remain in the atmosphere and increase global warming<sup>20</sup>. The ocean also produces around 50 percent of the oxygen on the planet through the photosynthetic activity of marine plants and algae<sup>21</sup>.

## 4.

## MSC-CERTIFIED FISHERIES ARE WELL MANAGED AND MORE PREPARED FOR CLIMATE CHANGE

Sustainable, well managed fisheries, which have effective monitoring, regulation and management in place to respond to changes in fish stocks, are in a good position to adapt to climate change. MSC-certified fisheries take on board scientific advice to ensure that they catch fish at a sustainable rate, and that the fisheries are required to address cumulative impacts of their fishing activities alongside those of neighboring fisheries targeting the same stock. MSC-certified fisheries make improvements to ensure they continue to meet best practice in fisheries management, contributing to the resilience of fisheries in the face of climate change. These fisheries are helping to safeguard marine ecosystems, seafood supplies and livelihoods<sup>22</sup>.

Historical records and future predictions show that the distribution of the world's fish populations are changing. These changes have a knock-on effect on the structure and productivity of marine ecosystems and already now create significant challenges for fisheries managers.

The combined effects of climate change, overfishing, habitat destruction and poor fisheries management are placing unprecedented pressure on our oceans. Deoxygenation<sup>23</sup> is especially affecting commercially important top predators like tuna and swordfish, making them more susceptible to overfishing<sup>24</sup>. When the oceans are losing oxygen these big fish swim to the surface where oxygen is more abundant, and are then more easily targeted. As the ocean warms and more freshwater



is added to the surface layers through icemelt and precipitation, the ocean forms more stable layers, stratified by density. This means there is less mixing of the deeper, denser, and colder nutrient-rich layers. The mid-water layers known as "oxygen minimum zones", are the places where oxygen saturation in the water column is at its lowest<sup>25</sup>.

Tuna and billfish species are also known to be particularly sensitive to low oxygen levels with yellowfin tuna avoiding waters with moderate hypoxia<sup>26</sup>. In the tropical Northeast Atlantic, the decrease in the upper ocean layer is thought to amount to an annual habitat loss of ~15% per year between 1960 and 2010<sup>27</sup>.

Fish accounts for about 17 percent of the animal protein consumed by the global population<sup>28</sup>. More than half of internationally traded seafood comes from developing countries<sup>29</sup>. Seafood accounts for more than US \$130 billion international trade per year<sup>30</sup>, all this put together creates both an environmental and human challenge we cannot ignore.

The challenges of climate change put scientific advice and the knowledge of fish migration patterns at the core of any business. Governments and fisheries managers are struggling to reach consensus on how to manage ocean resources in a way which benefits both their economies and the environment. But it can and must be done if we are to continue to enjoy seafood and preserve marine life.

MSC-certified fisheries show that it's possible. These fisheries meet international standards for sustainability and currently represent 15 percent of the global seafood catch<sup>31</sup>. By ensuring that they have effective monitoring and management in place to reduce their impacts on the environment and only catch what is sustainable, they are balancing economic and environmental priorities to safeguard our oceans and seafood supplies. It will take many more fisheries to follow their lead if our oceans are to remain teeming with life for future generations.



# 5. THE BLUE GROWTH STRATEGY AND FISHERIES

The concept of “Blue Growth” has become the dominant theme in Ocean governance, which in turn is increasingly the framework used by international organizations in their approach to fisheries reforms. The most influential effort to implement a vision of blue growth has been led by the Food and Agriculture Organization of the United Nations (FAO), with its “Blue Growth Initiative”<sup>32</sup>. Within Africa, this concept is increasingly mentioned in relation to fisheries reforms led by the African Union. The current European Commission’s “Blue Growth Strategy” is, however, an anomaly, as it has virtually no focus on fisheries, something which gives cause for concern for European and international fishing communities.

The EU’s Blue Growth Strategy has been developed since 2010. In 2012 the study “Scenarios and drivers for Sustainable Growth from the Oceans, Seas and Coasts” was published<sup>33</sup>. Based on the study’s main findings, the EU Commission published its first Communication on Blue Growth<sup>34</sup>. The Blue Growth Agenda should be understood

in the light of global financial crisis, climate change and its consequences, the loss of agricultural land and water scarcity. The “Blue Economy” came up as an answer to dwindling resources on land, a need for more protein to feed a growing population, and a “Planet B” when the first planet is being exhausted. There are already many actors operating at sea and investments could easily be moved from one sector to another. Three key factors were highlighted in the Blue Growth Strategy:

- 1) Technological developments have opened up to big business opportunities.
- 2) Marine ecosystems are under large-scale threat, meaning that future investments in the blue economy need to be sustainable.
- 3) The maritime sector can be crucial in reducing greenhouse gas-emissions since shipping is considered cleaner than, for example, transporting goods by land. But there is also a big potential for offshore wind and tidal power<sup>35</sup>.



The EU’s Blue Growth Strategy focuses on five core areas: blue energy, aquaculture, coastal and maritime tourism, blue biotechnology and sea-bed mining. The most obvious area lacking in the EU’s current strategy for blue growth is that while fisheries is obviously a key sector in the blue economy, fisheries is not considered a sector that needs assistance for growth or development. The EU Commission’s role in managing and regulating fisheries is considered as separate, both in terms of funding and policies, from its Blue Growth Strategy. This is problematic because the small-scale fisheries sector is such an integral part of many developing nations’ livelihoods, although it might not render a high economic value. It’s well recognized that the small-scale fishing sector is chronically underfunded, which limits its ability to realize

its potential for supporting livelihoods and contributing to food security. What is even more striking is that in many countries, small-scale fishers are marginalized due to their weak financial status.

Small-scale fisheries should be a part of any serious blue growth strategy, also taking into account the work on reaching the Sustainable Development Goals by 2030. The SDGs stipulates a move away from a silo mentality and a focus on integrating different development perspectives. When it comes to small-scale fisheries and other marine resources, over 3 billion people are estimated to depend on fish as their main source of protein<sup>36</sup>. That is why fisheries must be included in blue growth strategies: they provide food-security in both in mainly poor coastal states and are essential for socio-economic well-being.

*The Ocean Stewardship Fund is part of the MSC’s wider commitment to engage fisheries responsible for 20 percent of the world’s wild caught seafood in the MSC program by the end of 2020, and 30 percent by 2030 in line with the UN’s Sustainable Development Goal 14 (SDG14)<sup>37</sup>.*

*Through the Ocean Stewardship Fund, the MSC aims to support fisheries transitioning towards sustainability, particularly small-scale fisheries and those in the Global South. In its first year, the Transition Assistance Fund will support the fisheries in Indonesia, Mexico and South Africa which are already participating in the MSC-run Fish For Good project<sup>38</sup> aimed at*

*helping fisheries develop sustainable practices and engaged in MSC’s pilot program for fisheries in transition into certification.*

*The Science and Research Fund will award grants to research projects that will benefit fisheries in the MSC program. For the 2019-2020 funding round the MSC will particularly welcome projects that focus on ghost gear or endangered, threatened and protected (ETP) species. Fisheries who have maintained MSC certification for at least 10 years and are making long term commitments to sustainability can use The Recertification Assistance Fund which will contribute to the cost of recertification.*



# 7.

## RAISING CAPITAL FOR OCEAN SUSTAINABILITY

Seychelles was the first island state to issue a “Blue Bond”, framing it as the first promising example of financing marine protection through the issuance of bonds, raising private capital to pay for marine conservation. Blue bonds are presumed to create a win-win situation. National governments get significant financial resources to invest in natural resources that support their economies. Local communities, in turn, see their livelihoods and cultural heritage protected; and the donors who provided the original funding realize incredible leverage on their philanthropic investments, a multiplier of up to 40 times according to estimates<sup>39</sup>.

The idea of “blue bonds” is booming in popularity, alongside the idea of “green bonds” as an alternative to investments in fossil fuels or mining. The promising ideas of blue bonds or a trading scheme for blue carbon come from the desire of private companies and individuals to “green” their investments and at the same time offer cash flow for marine conservation to poor island or coastal states.

Looking at the latest Global risk report 2020<sup>40</sup> issued by World Economic Forum, climate change is clearly on top of that risk assessment. So this is on top of the global corporate agenda and on every CEO’s mind. The report presents the results of latest Global Risks Perception Survey, in which nearly 1,000 decision-makers from the public sector, private sector, academia and civil society assess the risks facing the world.

“This year’s risks landscape is green. The urgency of climate change dominates everything: all five of the top risks by likelihood and three by impact are climate related. The backdrop of geopolitical and geo-economic tensions in 2019 sparked unease as the world grappled with “challenges” such as environmental degradation and technological disruption. Fast forward to 2020, and there is a climate emergency.”<sup>41</sup>

This has made the financial markets respond in an overwhelming way. Just to mention one figure: 8 trillion USD worth of value promised for divestment only by companies in 2019<sup>42</sup>.

*The trend in green investments can be summarized as follows:*

- 1) **Credibility.** Real sustainability that is verified through data.
- 2) **Values.** Investments should reflect values, and help the world become a better place.
- 3) **Impact.** The majority of cases translates into fulfilment of the SDGs (UN Sustainable Development Goals)<sup>43</sup>.

*Crucial for the cooperation is trustworthiness, that there is a second opinion validating sustainability claims and that progress can be reported back.*

*The financing gap for marine protection is very real. The inability of governments to ensure that marine ecosystems are used in a sustainable way is not simply due to a lack of*

*resources and money, the root cause in most places is political in nature<sup>44</sup>.*

*There are now many reports that claim that the wealth from the oceans is massively under-valued, and that if developing countries could implement better management and deal with illegal fishing (and sell blue carbon credits), then governments could make millions of dollars in extra taxes and levies<sup>45</sup>.*

*These projections for the enormous wealth potential of the oceans have often been based on poor statistics, it is very important that investments are based on verifiable claims, and that Fisheries Improvement Projects (FIP:s) are continuously pressured to improve and raise the bar.*



# 8.

## GREENING PRIVATE SECTOR FINANCE

The financial sector provide seafood companies with loans, credit facilities and many other financial services, including investments in return for equity (stocks/shares). These are increasingly interested and willing to deliver services such as “green loans”, and “green investments” which may include benefits for seafood harvesting and processing companies, e.g. lower discount rates and/or longer payback times. Capital for such green financial services comes from investors directly, as well as indirectly from green investment funds, green bonds, or a combination. Green bonds represent an increasingly sizable share of the 100 trillion US\$ global bond market. Based on financial corporate commitments to demonstrate progress against the SDGs and to contribute to implementing the Paris Climate Agreement, sustainable investment is rapidly growing. Green bond issuance in the first half of 2019 added up to \$90 billion US according to climatebonds.net, one of the main trackers of green bonds<sup>46</sup>.

Financials deliver green services because of a changing financial climate as described above. Climate change is a real pressure to reduce reduced risk. Green bonds (providing funding for the green-loan capital) may easier attract capital, at a lower cost, because such bonds are better rated by rating agencies compared to normal bonds. What is “green” remains poorly defined and regulated, and the finance sector are so far allowed to be rather creative in using all sorts of references to

substantiate their green credentials including self-claims and 2nd party-controlled claims. An EU-regulation is emerging covering energy sources such as forestry or nuclear power, but so far fisheries and marine resources have not been covered in that regulation<sup>47</sup>.

The finance sector are not fisheries sustainability specialists, and they depend on reliable credible external benchmarks and assurance systems, such as MSC (for wild capture), or ASC, GGap, GAA (Aquaculture), to be able to make credible claims. For instance, a financial institution issuing a green-bond, has to report back to the investment community on the impacts of that green bond. They then need information about the loans they issued with the capital to the seafood industry, the fisheries which drive that seafood industry and the sustainability credentials of these fisheries measured by a recognized yardstick, and the proportion of turnover of their customers’ total business which met that yardstick in a certain time period.

As the issuance value of green bonds is increasing fast, the financial sector interest in independent credible certification of sustainability of fisheries is now growing rapidly. The financial sector evidently needs assistance in assessing seafood sustainability. The most developed example is the green bond issued by the Norwegian Sparebank 1 SMN where MSC-certified fisheries is an integrated part of the bank’s green bond framework. A bond valued at €500 million euro was issued in the fall of 2019<sup>48</sup>.



# 9. GLOBAL SUSTAINABILITY, FROM NORTH TO THE GLOBAL SOUTH

The MSC program is built on the idea that market recognition and rewards for MSC certified seafood incentivises fisheries to obtain and maintain MSC-certification. To do so these fisheries need to make improvements in their management and operations. This theory of change works and evidently delivers good impacts<sup>49</sup>. MSC-uptake is impressive in itself, but haven't come out of niche in the context of global (wild) seafood consumption value. At present, some 15 percent of global catch volume is certified. These were/are the well managed fisheries<sup>50</sup>.

Irrespective, MSC is widely regarded as the most credible standard for sustainable fishing. There is a large group of fisheries interested in MSC certification, and management authorities in many countries are starting to use the MSC standard as a useful benchmark; as guidance in the design of their management systems. With a large proportion of catch certified in the more developed countries, where Norway, Iceland, New Zealand, the USA, Australia, the EU and Russia all have significant MSC uptake (between 35% and 95% of catch volumes), by and large the opportunity for MSC to catalyze reductions in environmental impacts has moved to the Global South.

Fisheries in the Global South represent some 75 per cent of global harvest, but only a fraction of these fisheries have been able to meet the MSC standards. Market

leverage is lower, but the biggest barrier comes from limited institutional capacity in science, management, monitoring-surveillance-control, fisheries sector organization, and in limited financial resources<sup>51</sup>.

In response, the MSC wants to strengthen its ambition to scale-up engagement in the Global South, to accelerate its impacts and improvement in fisheries which have a bigger gap towards MSC performance levels. The MSC aims to have 30 per cent of global wild capture fisheries engaged by 2030.

Building a research capacity in a country, establishing functioning control and enforcement institutions and systems, establishing functioning transparent fisheries management institutions, these are usually projects funded via public development cooperation actors. These public finance institutions are key in developing the environment in which sustainable fisheries can develop.

MSC is a credible global FAO "Code of Conduct"-based sustainability standard and offers a useful tool to determine if progress has been delivered. In other words, the performance against the MSC standards can be used to verify "progress delivered". To credibly measure the baseline and the progress, a pre-assessment, the benchmarking tool, and credible verification of progress via audits of experts, are needed. MSC on the ground support capacity building. Local engagement is an additional fundamental component.



# 10. CONCLUSIONS

If not us, who? If not now, when? The famous saying raises the question of responsibility and action to address difficult and common challenges with determination. Climate change is putting real pressure and risk on livelihoods, communities, cultures, businesses and the world as we currently know it. Cooperation will be crucial to address all the difficulties and to fulfil the SDG-agenda set out by the UN on the 17 development goals.

This report describes how oceans and fisheries are put into the equation of climate action and sustainable development, and how business needs to step up efforts to lead the fulfilment of the SDG-agenda. Oceans and fisheries have previously been largely excluded from

the climate debate, but with new high-level policy and scientific reports making the connections, more knowledge is gained that oceans not only provide us with climate mitigation, but also with many solutions for the future.

The knowledge of how quickly ecosystems and oceans are changing due to climate change, is a scary but essential fact. What we need above all in these troubling times, is hope and solutions. This report is an attempt to bring forward the work of MSC and some new ideas of addressing climate action whilst at the same time increasing the possibilities of sustainable fisheries, for livelihoods and the benefit of all.

## FOR FURTHER DISCOVERIES

<sup>1</sup> ISEAL, global membership organisation for credible sustainability standards, members: [www.isealliance.org/community-members/marine-stewardship-council/msc](http://www.isealliance.org/community-members/marine-stewardship-council/msc)

<sup>2</sup> Global Sustainable Seafood Alliance Initiative: <https://www.ourgssi.org/>

<sup>3</sup> Global Goals, Ocean Opportunities 2019 UN Global Compact Action Platform for Sustainable Ocean Business <https://www.unglobalcompact.org/docs/publications/Global-Goals-Ocean-Opportunities.pdf>

<sup>4</sup> The State of the World's Fisheries and Aquaculture 2018: <http://www.fao.org/state-of-fisheries-aquaculture> <http://www.fao.org/state-of-fisheries-aquaculture>

<sup>5</sup> Golden et al., 2016 "Fall in fish catch threaten human's health" <https://www.nature.com/news/nutrition-fall-in-fish-catch-threatens-human-health-1.20074>

<sup>6</sup> Blasiak, 2015 "Balloon effects reshaping global fisheries" [https://www.researchgate.net/publication/274375283\\_Balloon\\_effects\\_reshaping\\_global\\_fisheries](https://www.researchgate.net/publication/274375283_Balloon_effects_reshaping_global_fisheries)

<sup>7</sup> UN Global Compact Report 2019: 21: <https://www.unglobalcompact.org/docs/publications/Global-Goals-Ocean-Opportunities.pdf>

<sup>8</sup> High-Level Panel on Sustainable Ocean Economy Report 2019: 60: [https://dev-oceanpanel.pantheon-site.io/sites/default/files/2019-09/19\\_HLP\\_Report\\_Ocean\\_Solution\\_Climate\\_Change\\_final.pdf](https://dev-oceanpanel.pantheon-site.io/sites/default/files/2019-09/19_HLP_Report_Ocean_Solution_Climate_Change_final.pdf)

<sup>9</sup> High-Level Panel on a Sustainable Ocean Economy Report 2019: 59: [https://dev-oceanpanel.pantheon-site.io/sites/default/files/2019-09/19\\_HLP\\_Report\\_Ocean\\_Solution\\_Climate\\_Change\\_final.pdf](https://dev-oceanpanel.pantheon-site.io/sites/default/files/2019-09/19_HLP_Report_Ocean_Solution_Climate_Change_final.pdf)

<sup>10</sup> UN Global Compact Report 2019: 22: <https://www.unglobalcompact.org/docs/publications/Global-Goals-Ocean-Opportunities.pdf>

<sup>11</sup> High-Level Panel on Sustainable Ocean Economy Report 2019: 59: [https://dev-oceanpanel.pantheon-site.io/sites/default/files/2019-09/19\\_HLP\\_Report\\_Ocean\\_Solution\\_Climate\\_Change\\_final.pdf](https://dev-oceanpanel.pantheon-site.io/sites/default/files/2019-09/19_HLP_Report_Ocean_Solution_Climate_Change_final.pdf)

<sup>12</sup> High-Level Panel on Sustainable Ocean Economy Report 2019: 59: [https://dev-oceanpanel.pantheon-site.io/sites/default/files/2019-09/19\\_HLP\\_Report\\_Ocean\\_Solution\\_Climate\\_Change\\_final.pdf](https://dev-oceanpanel.pantheon-site.io/sites/default/files/2019-09/19_HLP_Report_Ocean_Solution_Climate_Change_final.pdf)

<sup>13</sup> MSC and ASC joint seaweed standard: <https://www.msc.org/en-au/media-centre/anz/media-releases/asc-and-msc-release-joint-seaweed-standard-2020-01-08>

<sup>14</sup> High-Level Panel on Sustainable Ocean Economy Report 2019: 59: [https://dev-oceanpanel.pantheon-site.io/sites/default/files/2019-09/19\\_HLP\\_Report\\_Ocean\\_Solution\\_Climate\\_Change\\_final.pdf](https://dev-oceanpanel.pantheon-site.io/sites/default/files/2019-09/19_HLP_Report_Ocean_Solution_Climate_Change_final.pdf)

<sup>15</sup> William L.V. Vicky W. Y. Lam, Jorge L. Sarmiento, Kelly Kearneys, Reg Watson, Dirk Zeller and Daniel Pauly 2009: "Large-scale redistribution of maximum fisheries catch potential in the global ocean under climate change".

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<sup>16</sup> IPCC: 2019: The global scale biomass of marine animals across the food-web and the maximum catch potential of fisheries are projected to decrease by 15+/- 5.9% (very likely) and 16.2-15.5% by 2100 under RCP 8.5\* [ = a likely emissions scenario] [https://report.ipcc.ch/srocc/pdf/SROCC\\_FinalDraft\\_Chapter5.pdf](https://report.ipcc.ch/srocc/pdf/SROCC_FinalDraft_Chapter5.pdf)

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<sup>17</sup> IPCC 2019 Oceans and Cryosphere, chapter 5 "Changing Oceans, Ecosystems and dependent communities" [https://report.ipcc.ch/srocc/pdf/SROCC\\_FinalDraft\\_Chapter5.pdf](https://report.ipcc.ch/srocc/pdf/SROCC_FinalDraft_Chapter5.pdf)

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