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A review of formal objections to Marine Stewardship Council fisheries certifications ☆

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ABSTRACT

The Marine Stewardship Council (MSC) was created as a conservation tool – intended to provide "the best environmental choice in seafood" to consumers and to create positive incentives that would improve the status and management of fisheries. During its 15 years, the MSC, which has an annual budget of close to US$20 million, has attached its logo to more than 170 fisheries. These certifications have not occurred without protest. Despite high costs and difficult procedures, conservation organizations and other groups have filed and paid for 19 formal objections to MSC fisheries certifications. Only one objection has been upheld such that the fishery was not certified. Here, we collate and summarize these objections and the major concerns as they relate to the MSC's three main principles: sustainability of the target fish stock, low impacts on the ecosystem, and effective, responsive management. An analysis of the formal objections indicates that the MSC's principles for sustainable fishing are too lenient and discretionary, and allow for overly generous interpretation by third-party certifiers and adjudicators, which means that the MSC label may be misleading both consumers and conservation funders.

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1. Introduction

The failure to control the three-way expansion of fishing in the oceans, i.e., further offshore, deeper, and for different species, has led to the serial depletion of many marine fish populations (Pauly et al., 2002). While fisheries regulations aim to control the harvest of wild fish on the basis of target species' capacity to cope with increased mortality, market-based efforts directed at consumers, such as eco-labeling, have emerged in an attempt to change demand and therefore reduce fishing pressure on overfished stocks (Jacquet et al., 2010a). Market-based efforts are designed to make consumers more aware of marine species depletion and other issues and, thereby, to shift consumer demand from unsustainable toward sustainable seafood and to improve management. The London-based Marine Stewardship Council (MSC) seeks to achieve this goal by labeling 'sustainable' seafood. With an annual budget of almost US$20 million, the MSC is the largest eco-labeling scheme for certified 'sustainable' fisheries. The MSC allows for objections to certification decisions, and evidence presented during those objection processes indicates that third-party certifiers and adjudicators generously interpret the MSC's certification principles in favor of certification, which the MSC appears to support.

The MSC was founded in 1997 as a joint project between World Wildlife Fund, one of the world's largest environmental organizations, and Unilever, which was one of the world's largest seafood processors and wanted to buy all of its fish from sustainable sources by 2005 (Unilever, 2002). Over the course of two years, a group of stakeholders – including representatives from public interest groups (environmental NGOs and academia) and commercial interests (seafood industry associations and seafood retailers) – designed a set of criteria by which to characterize sustainable and well-managed fisheries. Those criteria became the basis for the MSC eco-label, which is granted to fisheries by third-party certifiers that determine if the fisheries have met them.

☆ This paper represents the personal views of the authors.

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In March 2000, the MSC allowed its logo to be used on a fishery for the first time. A 2006 agreement with Walmart, a major food retailer that pledged to purchase all of its wild-caught fish from MSC-certified fisheries by 2011, put pressure on the MSC to certify large fisheries more quickly. According to the Walmart website, 73% of its seafood was certified as of January 2011, including farmed fish certified by a different institution. Recently, US retailer Kroger and Australian retailer Woolworths made similar MSC-related pledges.

Today, the MSC label is the most widely discussed fisheries certification, viewed by many as trustworthy: as of December 2012, a reported 183 marine fisheries were certified by the MSC, although only 141 had data available, accounting for just under 7 million tonnes of seafood per year. An additional 109 fisheries are going through the certification process, which, if successful could increase the total certified catch to almost 10 million tonnes, just over 10% of global reported catch.

The 2011 MSC annual budget was approximately US$20 million (of which the MSC only spent $15 million; MSC, 2011). MSC funding comes from approximately 40 donors, including the David and Lucile Packard Foundation and 30 smaller donors. In addition, licensing fees for use of the MSC logo have become an increasingly large share of the MSC budget, from 7% in 2006 (MSC, 2006) to 49.4% (US$10.2 million) in 2011 (MSC, 2011). License fees are required for companies that wish to use the MSC logo to advertise that they carry, sell, or serve MSC-certified products. Businesses in the supply chain pay to use the logo and the fee is based on the volume of seafood in question.

Certification and audit costs are borne by the fisheries and are dependent on the size and complexity of the fishery; the MSC estimates that most certifications cost between US$15,000 and $120,000. Former annual audits for the large Alaskan salmon fishery, for instance, cost $75,000. Third-party consultants (known as certification bodies), not the MSC, perform the actual assessments and audits to certify fisheries and, therefore, the MSC budget does not include revenue derived from these activities. The MSC annual budget also does not account for the potential cost of objecting to certification (currently ~US$8,000, and formerly $15,000), which is borne by the objector(s).

The benefits to fishing companies and their marketers making the investment in certification include access to some markets and, in some cases, a price premium. After the MSC certified a US albacore tuna (*Thunnus alalunga*) fishery in the Pacific in 2007, the price fishermen received increased by 32% (Pope, 2009). However, unlike the organic food label, which also receives a price premium, the MSC label does not directly relate to human health concerns (e.g., through the absence of pesticides). Any price premium generated by the MSC label, therefore, results from the desire of consumers to do the right thing and their willingness to pay for a product marketed as "the best environmental choice in seafood."

The MSC has established three major principles that third-party certifiers interpret in determining whether a fishery is "sustainable" and may use the MSC label: sustainability of the target fish stock (Principle 1); low impacts on the ecosystem (Principle 2); and effective management (Principle 3). Under each of these principles are numerous 'performance indicators' that address specific aspects of the principle, such as the amount of information available on ecosystem impacts. Fisheries must achieve a minimum score of 60 (out of a possible 100) for each performance indicator and an average score of 80 or above for each principle. For any performance indicator scoring below 80 but above 60, the certifier can assign a condition that, if met, will raise the score to 80 over a specified period of time to a maximum of five years. Certifiers have an incentive to be generous in scoring (and indeed, there are instances of flagrant score inflation, e.g., the Faroese Pelagic Organization North-East Atlantic mackerel fishery by Det Norske Veritas). Fisheries not only choose their own certifiers and prefer those companies likely to produce a positive result, but a successful fisheries certification also means future work for the certifier in terms of annual monitoring and eventual re-assessment (Ward, 2008; Gulbrandsen, 2009; Jacquet et al., 2010b).

Stakeholders other than the fishery and certification body may participate in the certification by submitting comments at various stages of the process. If the certifier officially approves the fishery for certification, these outside organizations may file a formal objection to that certification decision. At present, a group wishing to lodge an objection must do so within 15 days of the release of the final certification report. The MSC then chooses an independent adjudicator (from a roster of adjudicators, typically lawyers, retained by the MSC) to review the objection and evaluate whether it should proceed. The adjudicator must determine whether the objection "has a reasonable chance of success" and whether the objector has committed to paying the objection fee. If the objection proceeds, then the certifier and stakeholders have a chance to provide a response to the objection. The adjudicator assesses whether the issues can be resolved between the objectors and the certifier. If not, the adjudicator will proceed to adjudication, which can involve an oral hearing. Many objectors decline the option for an oral hearing to avoid the expense and time commitment required, but one may be required if the certifier or fishery requests it (for further details on the objections process, see Appendix A).

Objectors and certifiers can submit further information before the hearing. The adjudicator then issues a decision, which can either validate the certification body's decision or take the form of a remand to the certifier to reconsider some or all of the aspects of the objection (stakeholders and objectors may comment on the remand). For an objection to be upheld, objectors must show that there was a serious procedural irregularity and that "the scoring decision was arbitrary or unreasonable in the sense that no reasonable certification body could have reached such a decision on the evidence available to it" (MSC, 2010). Even if all or part of an objection is upheld, the certifier ultimately decides whether to recommend certification for the fishery. An overview of the procedures used by the MSC to evaluate objections is provided in Appendix A. While it is likely that deficiencies in this process have contributed to the some of the problems identified in this article, we focus on the scientific underpinnings of the objections filed.

2. Objections to certification

Despite the bureaucracy and cost involved, conservation groups and other organization have formally objected to 19 MSC-certified fisheries to date. Many if not all of these groups support the idea that market-based incentives, where properly designed and implemented, can be important management tools. Two objections were filed against the fishery for New Zealand hoki, *Macruronus novaezelandiae*, and only one of the 19 objections, that to the Faroese Northeast Atlantic mackerel (*Scomber scombrus*) fishery, was upheld and the fishery's certification denied as a result. Therefore, 17 MSC-certified fisheries were certified although they received formal objections, which represent 12% of the 141 MSC-certified fisheries available in the MSC database. However, by tonnage, these contentious fisheries represent 35% of MSC-certified seafood (Fig. 1).

Here we summarize the main reasons for the objections, which relate to certified fisheries explicitly defying the MSC's three principles, and list the 19 specific objections (Table 1). This work highlights that, although certified, many fisheries are not seen as abiding by the MSC's certification principles.

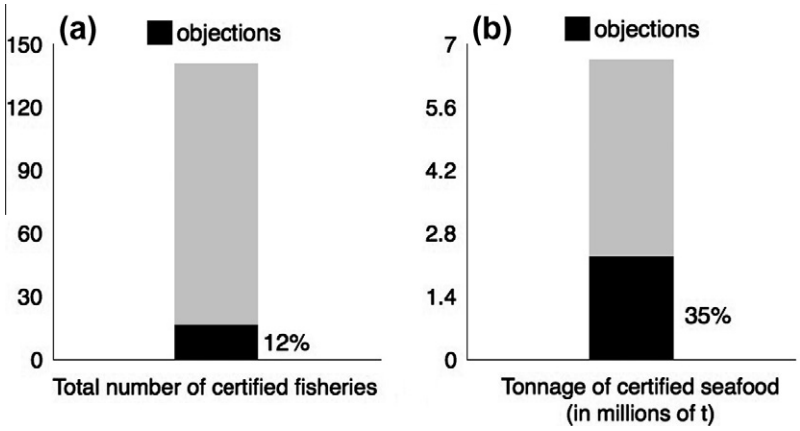

Fig. 1. (a) Number of MSC-certified fisheries that have received formal objections as a percentage of total MSC-certified fisheries; (b) percent of MSC-certified seafood (expressed in millions of tonnes) that received formal objections. This shows that some of the biggest MSC-certified fisheries have been the most contentious.

2.1. Signs of overfishing

According to MSC Principle 1, certified fisheries "must be conducted in a manner that does not lead to overfishing or depletion of the exploited populations and for those populations that are depleted, the fishery must be conducted in a manner that demonstrably leads to their recovery." A recent analysis of MSC-certified fish stocks showed that 31% were overfished, which, according to the authors of the study, means the stock biomass B is below B_{MSY} (the biomass that could produce the maximum sustainable yield). Furthermore, the analysis reported that overfishing is currently occurring in 30% of certified stocks for which data were available, i.e. fishing mortality F is larger than F_{MSY} (the removal rate that could produce the maximum sustainable yield; Froese and Proelss, 2012). Agnew et al. (2013) agree with the study's use of the term overfishing, but contend that the internationally accepted definition of overfished is actually for B below a proportion of B_{MSY}, usually about 0.5. The MSC considers the case where a fishery is between 0.5 B_{MSY} and B_{MSY} to be depleted, and in need of rebuilding, but not overfished (Agnew et al., 2013). Yet even according to the MSC's own assessment, 16% of the 45 MSC-certified fish stocks are subject to overfishing and 27% are 'depleted' (Froese and Proelss, 2013). In any case, the reason for many of the formal objections to MSC certification is due to signs of overfishing in the target species (Table 1).

For instance, the MSC certified the US & Canada fishery for Pacific hake (*Merluccius productus*), the stock of which has declined sharply since peak levels in the mid-1980s. The fishery is supposed to be managed according to a 40:10 rule, which states that long-term yields from the stock will be maximized if the hake population is maintained at 40% of the unfished biomass. When the population falls below this level, the catch levels are supposed to be reduced linearly. If the population reaches 10% of the unfished biomass, the fishery will be closed. At the time the assessment began in 2007, the fishery was below the 40% level, and the overall stock assessment trend continued to decline. Parallel stock assessments, conducted in 2008 by US and Canadian scientists, provided a number of different plausible biomass estimates, with associated catch limits. One of the Canadian assessments, which gave the more conservative outlook for Pacific hake, was not fully considered by the review panel, which instead opted for the more liberal biomass estimates, allowing for higher catches. In 2008, catch limits were set at their highest levels ever, prompting the Canadian scientists to take the unusual step of writing a minority report disagreeing with the 2008 quota on the basis of low biomass and low predicted recruitment. According to the report, "Prudent management suggests catches should be reduced under these circumstances, not increased" (Sinclair et al., 2008).

The 2009 stock assessment, issued during the MSC certification process, verified the minority view that the stock was at greater risk than previously determined. The objectors to the hake certification asserted that the certification body did not properly consider the 2009 stock assessment, which indicated that the hake stock was at an unacceptably high risk of being overfished under current catch levels. The adjudicator ruled that under MSC procedures, the decision of the certification body not to consider the 2009 stock assessment because it was released during the assessment process—though before the peer review was completed—was appropriate. According to the adjudicator, even if the 2009 assessment had been considered, it only *predicted* that the stock would decline to the level of the limit reference point. Therefore, it was acceptable under MSC standards to certify a stock at significant risk of overfishing.

While the MSC criteria allow for depleted fisheries to be certified, they do require that rebuilding is underway. The Pacific hake fishery is an example of a depleted stock that was certified, and where managers ignored scientific advice about rebuilding the stock. More recent estimates indicate that the stock is still below the target level (40% of unfished biomass; Stewart et al., 2012). Although the stock does not appear to be in danger of collapse, it has also not recovered to optimal levels. Examples such as this undermine the credibility of the MSC label. Stocks should demonstrate recovery before being declared "sustainable."

2.2. Negative impacts on ecosystems

According to MSC Principle 2, "fishing operations should allow for the maintenance of the structure, productivity, and diversity of the ecosystem (including habitat and associated dependent and ecologically related species) on which the fishery depends." Maintenance of the structure of the ecosystem, including high levels of bycatch, was a concern during the MSC's re-certification of New Zealand hoki (*Macruronus novaezelandiae*), which are harvested using mid-water and bottom trawls. Most forms of bottom trawling are unsustainable (Watling and Norse, 1998; Althaus et al., 2009; Thrush and Dayton, 2002) because the gear is indiscriminate and causes significant damage to the life and structure on the seafloor, as do mid-water trawls, which can spend almost half the time fishing on the bottom (NMFS, 2005; Dew and McConnaughey, 2005). The hoki trawl fishery, for instance, collects as bycatch both deep-sea corals and sponges (New Zealand Ministry of Fisheries, 2008), which provide important habitat for many

Table 1
List of formal objections to MSC fishery certifications. Tonnages here are based on documents available from the MSC in December 2012.

No.	Fishery and scientific name	Gears used	Certified tonnage	Objection date	Major concerns	Objecting Organization(s)	Result
1/2	New Zealand Hoki (*Macruronus novaezelandiae*)	Mid-water and bottom trawl	121,748	April 2001; October 2006	Impact of trawling on seafloor, high levels of seabird bycatch (and some fur seal bycatch)	Royal Forest and Bird (first objection); Royal Forest and Bird, WWF-NZ (second objection)	Certification upheld both times
3	South Georgia Toothfish (*Dissostichus eleginoides*)	Bottom set longline	1843	April 2003	Lack of data on the toothfish population and on the impact of fishing on the ecosystem	National Environmental Trust, The Antarctica Project	Certification upheld
4	Gulf of Alaska Pollock (*Theragra chalcogramma*)	Pelagic trawl	79,805	August 2004	Low stock size; impact on pollock-dependent predators, high salmon bycatch	Alaska Oceans Program, Greenpeace, National Environmental Trust	Certification upheld
5	Bering Sea and Aleutian Islands Pollock (*Theragra chalcogramma*)	Pelagic trawl	1,219,000	September 2004	Inadequate information on pollock stock size; fishery managers in violation of the law on several occasions	Alaska Oceans Program, Greenpeace, National Environmental Trust, Oceana	Certification upheld
6	Pacific Hake Mid-water Trawl (*Merluccius productus*)	Pelagic trawl	217,075	June 2009	Hake stock in decline but catch limits set at historically high levels	Oceana, Monterey Bay Aquarium	Certification upheld
7	Denmark Blue Shell Mussel (*Mytilus edulis*)	Mussel dredge	22,407	October 2009	Ecosystem impacts of dredging and mussel removal (i.e., loss of filtration by mussels)	Danish Society for Nature Conservation	Certification upheld, objection withdrawn by objectors due to cost
8	Aker BioMarine Antarctic Krill (*Euphausia superba*)	Pelagic trawl	39,578	December 2009	Impact of catches on krill-dependent predators	Antarctic and Southern Ocean Coalition	Certification upheld
9	Ross Sea Toothfish (*Dissostichus mawsoni*)	Bottom set longline	1461	December 2009	Uncertainty about toothfish life history characteristics, and fishery impacts on the ecosystem	Antarctic and Southern Ocean Coalition	Certification upheld
10	British Columbia Sockeye Salmon (*Oncorhynchus nerka*)	Seine, gillnet, troll, beach seine, wheels, weirs, dip nets	1316	March 2010	Low abundance of the Fraser River stock and lack of information for the causes of this low abundance	Watershed Watch Salmon Society, David Suzuki Foundation, Skeena Wild Conservation Trust, (separate objection) Gitksan Watershed Authorities (withdrew later)	Certification upheld
11	Faroese Pelagic Organization NE Atlantic Mackerel (*Scomber scombrus*)	Pelagic trawl	17,450	July 2010	Stock in question is a straddling stock but Faroe Islands withdrew from international negotiations and unilaterally set catch limits	Marine Scotland	Objection upheld, fishery not certified
12	Gulf of California Mexico – Sardine (*Sardinops sagax*)	Purse seine	138,068	April 2011	Concerns about long-term stock health, bycatch levels, high percentage of sublegal size of sardines caught and lack of public scrutiny of fishery data	Comunidad y Biodiversidad Sonora, Mexico	Objector and client reached agreement before conclusion of objection, certification upheld
13	Danish Fishermen's Producer Organization North Sea plaice (*Pleuronectes platessa*)	Set gill and trammel net, Danish seine, demersal trawl	7266	February 2011	Impacts of trawling on benthic habitats and species	WWF Netherlands, North Sea Foundation, WWF Denmark, WWF Germany	Certification upheld
14	New Zealand albacore tuna troll (*Thunnus alalunga*)	Troll	3265	March 2011	Fishery's RFMO (WCPFC) has not developed an appropriate harvest strategy	International Seafood Sustainability Foundation (ISSF)	Certification upheld
15	Suriname Atlantic seabob shrimp (*Xiphopenaeus kroyeri*)	Twin rig otter trawl	10,000	July 2011	Insufficient data to support harvest strategy; bycatch strategy unsupported by data; lack of evidence that fishery does not harm ecosystem	WWF Smart Fishing Initiative	Certification upheld
16	PNA Western and Central Skipjack Tuna (*Katsuwonus pelamis*)	Purse seine	422,921	August 2011	Fishery's RFMO has not developed an appropriate harvest strategy; other significant weaknesses in management	EUROTHON, ISSF, Organización de Productores Asociados de Grandes Atuneros Congeladores (OPAGAC)	Certification upheld
17	Southeast US North Atlantic Swordfish (*Xiphias gladius*)	Pelagic longline and hand gear buoy line	200	August 2011	High levels of sea turtle bycatch	Turtle Island Restoration Network	Certification upheld
18	North West Atlantic Canada longline swordfish (*Xiphias gladius*)	Longline	999	September 2011	High levels of bycatch of endangered or threatened sharks and turtles	David Suzuki Foundation, Ecology Action Centre, Oceana, and Sea Turtle Conservancy	Certification upheld

(*continued on next page*)

Table 1 (*continued*)

No.	Fishery and scientific name	Gears used	Certified tonnage	Objection date	Major concerns	Objecting Organization(s)	Result
19	Isefjord and East Jutland Danish blue shell mussel (*Mytlius edulis*)	Mussel dredge	4737	November 2011	Lack of knowledge of stock status; impact of dredging on dependent species and habitat	Allan Hansen, a local citizen concerned about environmental impacts of fishery	Certification upheld, objection fee was not paid

benthic species. Objectors additionally pointed out that the certifier accepted the client's proposed level of seabird bycatch even though a government panel had declared that level to be unacceptably high in 2004 (WWF-NZ, 2006).

As another example, the Gulf of Alaska and Bering Sea pollock (*Theragra chalcogramma*) fisheries had a history of extremely high salmon bycatch and were still taking large numbers of Chinook salmon (*Oncorhynchus tshawytscha*) at the time that certification assessments began in 2001. The bycatch in the Gulf of Alaska fishery was equal to almost 10% of the total Alaskan Chinook catch. Observer estimates indicate that bycatch of Chinook salmon in the Gulf of Alaska has exceeded the legal limit several times (Marz and Stump, 2002). In 2007, over 35,000 Chinook salmon were caught as bycatch in the Gulf of Alaska pollock fishery (Rice et al., 2010). This is less than the 2001 level, but represented almost 6% of the total targeted Chinook catch for that year. Furthermore, in the Bering Sea pollock fishery, more than 120,000 Chinook were caught in 2007 (NOAA, 2012). These examples contradict MSC's claim of continuous improvement, as bycatch was identified as a problem in the 2004 objections to both the Gulf of Alaska and the Bering Sea pollock fisheries.

The certification of the longline swordfish (*Xiphias gladius*) fishery in Canada prompted perhaps the most strenuous objections under Principle 2 to date. This fishery has high levels of bycatch of sharks and turtles, some of which include endangered or threatened species: blue (*Prionace glauca*; IUCN Red List status: near threatened), porbeagle (*Lamna nasus*; IUCN Red List status: vulnerable, decreasing) and shortfin mako sharks (*Isurus oxyrinchus; IUCN Red List status: vulnerable, decreasing*), as well as endangered loggerhead (*Caretta caretta*; IUCN Red List status: endangered) and leatherback sea turtles (*Dermochelys coriacea;* IUCN Red List status: critically endangered, decreasing). The targeted catch of 20,000 swordfish per year results in bycatch of approximately 100,000 sharks (Campana et al., 2009), 1200 loggerhead (COSEWIC, 2010) and 170 leatherback turtles (COSEWIC, 2001). Mortality rates for discarded sharks and turtles are uncertain, but it is estimated that a significant portion do not survive. A public campaign called "Friends of Hector" (Hector being a cartoon blue shark) was launched and urged consumers to contact the MSC directly and complain about the certification process and its effect on sharks and sea turtles.

The objection to the Canadian swordfish fishery focused on its failure to implement proven bycatch reduction measures used in other longline fisheries and the unjustifiably high scores awarded for Principle 2 (ecosystem) indicators. Objectors pointed to serious problems such as low observer coverage (5%); no bycatch limits or gear restrictions for protecting turtles; no bycatch limits for blue sharks; and inadequate knowledge of the fishery's impacts on bycatch species. However, the MSC standard allows certifiers to award generous scores to fisheries that have high levels of bycatch and do not use all proven mitigation methods. MSC standards focus only on "avoiding serious or irreversible harm" to officially recognized endangered or threatened species. This amorphous definition sets a much lower level of protection for bycatch species than for commercial target species. In practice, this means that a fishery can be certified as long as it is not the only one impacting a threatened species and that other fisheries contribute to the decline. Moreover, for many bycatch species (and other types of ecosystem impacts), including the sharks commonly caught in the Canadian fishery, researchers have not fully determined the extent to which individual fisheries are responsible. Since scoring guidelines are not based on the fishery achieving any specific outcomes, the certifier has wide latitude in interpreting available evidence and deciding whether impacts are serious. However, consumers are unlikely to be aware of these subtleties, and are likely to expect that certified fisheries have minimal bycatch and do not regularly catch endangered species.

These overly generous certifier interpretations not only lead to questionable certifications, but also mislead consumers and may eliminate market advantages for truly sustainable fisheries. There is a harpoon component of the Canadian swordfish fishery that has zero bycatch and was certified with no objection, yet it will carry the same label as the longline fishery. The longline fishery barely passed on Principle 2 and had 6 Principle 2-related conditions imposed while the harpoon fishery received a perfect Principle 2 score with no conditions. In fact, harpoon fishermen initially sought certification to help them communicate their superior sustainability to consumers and possibly convince the government to give them a larger share of the overall swordfish quota (Rigney, 2008). Although MSC claims to be trying to drive consumer preferences in a more sustainable direction, this will clearly not be the case for swordfish.

Another ecosystem concern involves removing the small pelagic species at the base of the food chain. The MSC has certified these small pelagic fisheries all over the world, including Antarctic krill (*Euphausia superba*), Norway spring spawning herring (*Clupea harengus*), Gulf of California sardine (*Sardinops sagax*) and Argentine anchovy (*Engraulis anchoita*). These forage species are important in the diets of seabirds, marine mammals and larger finfish and therefore the overfishing of forage fish can lead to declines in their predators (Matthiessen, 2007; Tacon and Metian, 2009, Vieyra et al. 2009, Cury et al., 2011, Piroddi et al., 2011). When sardines are available in the Gulf of California, they comprise up to 97% of the diet of some seabird species (Velarde et al., 1994). Despite the importance of these small pelagic fish in supporting healthy ecosystems, few forage fisheries are managed in an appropriately precautionary fashion. A recent report (Pikitch et al., 2012) recommended cutting catches of forage fish in half in many ecosystems, thereby doubling the minimum biomass of forage fish that must be left in the water.

2.3. Ineffective management

According to MSC Principle 3, "the fishery [must be] subject to an effective management system that respects local, national, and international laws and standards and incorporates institutional and operational frameworks that require use of the resource to be responsible and sustainable." When criticized (e.g., Jacquet et al., 2010b), the MSC's public response has been that its methods comply with the UN FAO's Code of Conduct for Responsible Fisheries (FAO, 1995; MSC, 2012a). However, Article 2 of the Code requires managers to "promote the contribution of fisheries to food

security and food quality, giving priority to the nutritional needs of local communities" and Article 11.1.9 establishes that "states should encourage the use of fish for human consumption and promote consumption of fish whenever appropriate." Yet several MSC-certified fisheries, such as Scottish herring (*Clupea harengus*) and Antarctic krill (*Euphausia superba*) are destined for fishmeal, which is an unsustainable and wasteful end-use of seafood (Duarte et al., 2009; Diana, 2009). In the case of the MSC-certified fishery for Pacific sardine (*Sardinops sagax*) in the Gulf of California, 85% of the total catch goes to industrial fishmeal, which was one reason for the objection (Table 1).

Another reason for the Pacific sardine objection was the fuel subsidies the fishery receives, which allows it to expand its fishing range northward into the Midriff Island Region, which is an important recruitment area for sardines and an area where several seabird species breed (Velarde et al., 2005). Under Principle 3, the MSC does not allow capacity-enhancing or "bad" subsidies to be in place for a certified fishery (MSC PI 3.1.4) – and fuel subsidies are an obvious capacity-enhancing subsidy (Sumaila et al., 2008, 2010). The existence of these subsidies should automatically cause the fishery to score below 60 and fail certification. The sardine fishery also reportedly does not respect current no-take zones and temporal closures, having asked for permission to fish in a protected area along the Baja California coast (C. Godinez, Director of Reserva de la Biosfera Bahía de los Ángeles, pers. comm.).

In the Gulf of Alaska pollock fishery, objectors noted that scoring did not appropriately consider the fact that several court rulings had determined that the fishery was not in compliance with national law. MSC standards require "respect for laws" (MSC, 2010). In response to the issues raised by objectors, the MSC later clarified: "Respect for laws is different to compliance with laws and this part of the indicator does not require that a fishery management system be in perfect minute-to-minute compliance with every single piece of substantive or procedural law that may govern a fishery." (MSC, 2010), which points to support within the MSC for lax interpretation of its own principles.

The MSC has also certified the Patagonian toothfish (*Dissostichus eleginoides*) fishery off South Georgia, even though a study from 2008 suggested 16% of the 2007 toothfish trade was illegal, unreported, and unregulated (IUU) (Lack, 2008). The MSC had no intention of certifying IUU toothfish, but a recent DNA analysis of 36 MSC-certified toothfish samples showed that some did not originate from the certified South Georgia sub-population. In fact, three of the 36 sampled fish were not even Patagonian toothfish, but another species altogether (Marko et al., 2011). This called into question not only toothfish management and chain of custody, but also the credibility of MSC traceability standards.

3. Discussion

As the number of MSC-certified fisheries has grown over the last five years, so has the criticism of the MSC process and its effectiveness (e.g., Jacquet and Pauly, 2007; Ward, 2008; Gulbrandsen, 2009; Jacquet et al., 2010b; Marko et al., 2011; Froese and Proelss, 2012; Ruddle, 2012). The third-party scoring process has been highly subjective (Ward, 2008) and certifiers have had too much discretion and too many incentives to inflate scores (Jacquet et al., 2010b; Stokstad, 2011). The MSC process also favors large-scale industrial fisheries over more sustainable, small-scale ones (Jacquet and Pauly, 2008; Gulbrandsen, 2009; Ponte, 2012) and the MSC lacks leadership from developing countries on its Board of Directors (Jacquet et al., 2010b).

Here, we compile all formal objections to MSC certifications (Table 1), which represent only the most serious concerns, because many groups cannot afford the high cost of objecting formally (for many years the cost was US$15,000 and is now approximately US$8000). By tonnage, more than one-third of MSC-certified seafood has received formal objections. Only 1 of 19 formal objections has been upheld. Combined, this points to a problem of weakly written principles that are capable of loose and subjective interpretation, both by third-party certifiers and adjudicators. Many groups (Table 1) disagree that the MSC is a conservation solution and are, in fact, willing to pay to say so.

Over the course of the MSC's existence, fishery clients have spent between US$2.3 and US$18.7 million on certification alone, not including the cost of annual audits and re-certifications (or the costs of each objection). This estimate is based on the number of fisheries certified so far and the MSC's estimated assessment costs for each fishery of between US$15,000 and US $120,000. Investors interested in conservation must ask what the returns have been on these costs and whether these returns are justified by the annual budget of the MSC (around $20 million in 2011). For example, the US$35 million annual management cost for the Great Barrier Reef network of marine reserves returns nearly 100 times the costs in revenues from tourism, fishing, and other recreational uses, and has demonstrated many ecosystem and conservation benefits (McCook et al., 2010).

Furthermore, the weaknesses in MSC standards that allow controversial fisheries to be certified are not communicated to consumers. All MSC-certified seafood is eligible to use an MSC logo with the words "certified sustainable seafood." Furthermore, MSC markets its seafood as "the best environmental choice." Given existing concerns, these statements could mislead consumers about the sustainability and environmental friendliness of many MSC-certified products.

More recently, the MSC has communicated a more nuanced role as an organization that provides incentives for fisheries to improve. According to the MSC, it does so largely through the conditions generated when scores for performance indicators fall below 80, which MSC considers to be "global best practice" (MSC, 2012b). At the same time this "very consciously allows fisheries to qualify for MSC certification without meeting the 80 level on all indicators" because the MSC believes "the movement of fisheries from the 60 to 80 levels is a positive outcome for the world's fisheries and directly in line with the MSC's vision" (MSC, 2012c).

However, a consistent trend of fisheries improvements is difficult to identify. In 2011, the MSC commissioned a study from MRAG, one of the MSC third-party certifiers, to examine whether MSC-certification improved fisheries. The study reported that 9% of fisheries initially scoring 80 or above on a stock status performance indicator declined below 80 upon re-assessment or by the final yearly audit at the end of the certification period, and only 9% increased from below 80 to 80 or greater (MRAG et al., 2011). MRAG attributed the declines to "revisions of the assessment methodology" after the initial certification (MRAG et al., 2011), which indicates that the stocks would have received lower scores from the outset of certification if the certification process had started later. It appears that the most significant potential for change occurs during the pre-assessment period, when fisheries try to meet minimum MSC standards for certification (MRAG et al., 2011). Once these minimums are achieved, and as long as a fishery meets the required standard for each criterion there is no requirement for improvements (MRAG et al., 2011). The MSC requires full re-assessments 5 years after a certification; if the standards were able to evolve quickly and increase in stringency through that time period, then maintaining certification might actually improve management. However, it does not appear that this occurs often or that the MSC structure would allow it.

Thus, the MSC finds itself between a proverbial rock and hard place of its own design. All incentives point toward certification, which has led the MSC to write and interpret its principles of

sustainability in an intentionally ambiguous way (e.g., "respect for laws") and has led third-party certifiers to generously interpret those principles, as well as generously assign high scores. As a result, and contrary to MSC claims, MSC-certified fisheries are not all sustainable, and certified fisheries are also not necessarily improving. At least one study shows that not all products with the MSC-logo are MSC certified (Marko et al., 2011). This combination puts the responsible consumer in the position of buying certified seafood that is not actually guilt-free. "The best environmental choice in seafood" may not protect the fish stocks or their ecosystems, but it does damage the credibility of the certification process. The question remains whether the MSC will overcome these problems, or if seafood eco-labeling will be, in the end, characterized as 'bluewashing'.

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Appendix A. The MSC objections process

The objection process is governed by a document issued by the MSC entitled "Objections Procedure." It provides some basic guidance while allowing for substantial discretion on the part of the Independent Adjudicator. The procedure has been changed significantly since the MSC first began using it. Nonetheless, numerous problems remain, including little guidance about the substantive standards to be used by the adjudicator, minimal rules for the oral hearing, and no clear requirements for how the certification body should respond to an upheld objection.

The procedure allows for the Independent Adjudicator to remand all or part of the assessment back to the certifier for reconsideration before making a determination on whether to uphold the objection. In some instances additional remands have been issued by Adjudicators before a final determination is reached although this is not part of official procedure. It is likely that this process has come about because the Objections Procedure does not explain the process that would result from an upheld objection, merely stating "[t]he certification decision of the certification body shall be made with reference to the decision of the Independent Adjudicator."

There are several circumstances in which an Independent Adjudicator can issue a remand. MSC's Objections Procedure states:

"The Independent Adjudicator shall remand the Determination to the certification body if he or she determines that:

(a) there was a serious procedural or other irregularity in the fishery assessment process that made a material difference to the fairness of the assessment; or
(b) the score given by the certification body in relation to one or more performance indicators cannot be justified, and the effect of the score in relation to one or more of the particular performance indicators in question was material to the outcome of the Determination, because:
  i. the certification body made a mistake as to a material fact; or
  ii. the certification body failed to consider material information put forward in the assessment process by the fishery or a stakeholder; or
  iii. the scoring decision was arbitrary or unreasonable in the sense that no reasonable certification body could have reached such a decision on the evidence available to it; or
(c) it is necessary to remand the Determination in order to enable to certification body to consider additional information described in Section 4.7.5(b) and described in the notice of objection. In such a case, the remand shall be limited to a request to the certification body to consider the impact of the additional information on its original Determination and to provide a response in accordance with Section 4.9.2." (MSC, 2010).

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