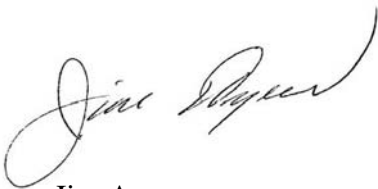


**FORMAL ADJUDICATION:  
MARINE STEWARDSHIP COUNCIL PROPOSED CERTIFICATION OF UNITED  
STATES AND CANADA PACIFIC HAKE FISHERY**

OBJECTORS' SUPPLEMENTARY DOCUMENTATION PURSUANT TO MSC  
OBJECTIONS PROCEDURE SECTION 4.7.4

Respectfully submitted this 8th day of September 2009,



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### PACIFIC HAKE ASSESSMENT AND MANAGEMENT DOCUMENTS

Attachment	Title
1	T.E. Helser et al., <i>Stock Assessment of Pacific Hake (whiting) in U.S. and Canadian Waters in 2006</i> (excerpt), Tech. Rep., Northwest Fisheries Science Center National Marine Fisheries Service Northwest Region, 2006. (“2006 Stock Assessment”)
2	PFMC, <i>Scientific and Statistical Committee Report on Pacific Whiting Management for 2006</i> , March 2006. (“2006 SSC Report”)
3	PFMC, <i>Groundfish Management Team Report Pacific Whiting Management for 2006</i> , March 2006. (“2006 GMT Report”)
4	Letter to Dr. William Hogarth, NMFS Administrator, from Robert D. Alverson, March 22, 2006. (“2006 Minority Statement”)
5	T.E. Helser and S. Martell, <i>Stock Assessment of Pacific Hake (whiting) in U.S. and Canadian Waters in 2007</i> (excerpt), Tech. Rep., Northwest Fisheries Science Center National Marine Fisheries Service Northwest Region, 2007. (“2007 Stock Assessment”)
6	PFMC, <i>Scientific and Statistical Committee Report on Pacific Whiting Harvest Specifications and Management Measures for 2007</i> , March 2007. (“2007 SSC Report”)
7	PFMC, <i>Groundfish Management Team Report on Pacific Whiting Harvest Specifications and Management Measures for 2007</i> , March 2007. (“2007 GMT Report”)
8	PFMC, <i>Enforcement Consultants (EC) Report on Consideration of Inseason Adjustments</i> , March 2007. (“2007 EC Report”)
9	NMFS, <i>Pacific Coast Groundfish Fishery; Biennial Specifications and Management Measures; Inseason Adjustments, Final Rule</i> , 72 Fed. Reg. 19,390 (April 18, 2007). (“2007 Final Rule”)
10	T.E. Helser et. al., <i>Stock Assessment of Pacific Hake, Merluccius productus (aka Whiting) in U.S. and Canadian Waters in 2008</i> (excerpt), Northwest Fisheries Science Center, NMFS Northwest Region, 2008. (“2008 Stock Assessment”)

11	PFMC, <i>Report of the 2008 U.S./Canada Pacific Hake (Whiting) Stock Assessment Review (STAR) Panel</i> , 2008. (“2008 STAR Panel Report”)
12	A. Sinclair et al., <i>Minority Report to the 2008 Pacific Hake STAR Panel Report</i> , 2008. (“2008 Minority Report”)
13	S. Martell, <i>Assessment and Management Advice for Pacific hake in U.S. and Canadian Waters in 2008</i> , University of British Columbia, Fisheries Center, (2008). (“Martell 2008”)
14	PFMC, <i>Scientific and Statistical Committee Report on Pacific Whiting Harvest Specifications and Management Measures for 2008</i> , March 2008. (“2008 SSC Report”)
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16	NMFS, <i>Pacific Coast Groundfish Fishery; Biennial Specifications and Management Measures, Final Rule</i> , 73 Fed. Reg. 26,325 (May 9, 2008). (“2008 Final Rule”)
17	O. S. Hamel and I. J. Stewart, <i>Stock Assessment of Pacific Hake, Merluccius productus, (a.k.a. Whiting) in U.S. and Canadian Waters in 2009</i> , Northwest Fisheries Science Center, NMFS, 2009 (excerpt). (“2009 Stock Assessment”)
18	PFMC, <i>Pacific Whiting, The Joint US-Canada STAR Panel Report</i> , February 2009. (“2009 STAR Panel Report”)
19	PFMC, <i>Scientific and Statistical Committee Report on Pacific Whiting Harvest Specification and Management Measures for 2009</i> , March 2009. (“2009 SSC Report”)
20	S. Martell, <i>Assessment and Management Advice for Pacific hake in U.S. and Canadian Waters in 2009</i> , University of British Columbia, Fisheries Center, 2009. (“Martell 2009”)
21	PFMC, <i>Groundfish Management Team Report on 2009 Pacific Whiting Specifications and Management Measures</i> , March 2009. (“2009 GMT Report”)
22	NMFS, Letter from Frank Lockhart, Assistant Regional Administrator, NMFS to Mr. Don Hansen, Chairman, PFMC, RE: Pacific Whiting shoreside fishery via EFPs (January 14, 2009). (“EFP Letter”)
23	PFMC, <i>Decisions of the 197<sup>th</sup> Session of the Pacific Fishery Management Council</i> , March 2009. (“2009 Decision Document”)

24	NMFS, <i>Pacific Coast Groundfish Fishery; Biennial Specifications and Management Measures, Final Rule</i> , 74 Fed. Reg. 20,620 (May 5, 2009). (“2009 Final Rule”)
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Attachment	Title
25	Jeffrey T. Fujioka, <i>A Model For Evaluating Fishing Impacts on Habitat and Comparing Fishing Closure Strategies</i> , 63 Can. J. Fish. Aquat. Sci. 2330 (2006). (“Fujioka 2006”)
26	R. Hilborn et al., <i>Exploitation Rate Reference Points for West Coast Rockfish: Are They Robust and Are There Better Alternatives?</i> 22(1) North American Journal of Fisheries Management 365 (2002). (“Hilborn et al. 2002”)
27	J.A. Hutchings, <i>Collapse and Recovery of Marine Fishes</i> , 406 Nature 882 (2000). (“Hutchings 2000”)
28	J.A. Hutchings and J.D. Reynolds, <i>Marine Fish Population Collapses: Consequences for Recovery and Extinction Risk</i> , 54(4) Bioscience 297 (2004). (“Hutchings and Reynolds 2004”)
29	S. Martell et al., <i>Parameterizing age-structured models from a fisheries management perspective</i> , 65 Can. J. Fish. Aquat. Sci. 1586 (2008). (“Martell et al. 2008”)
30	R.A. Myers et al., <i>Why do fish stocks collapse? The Example of Cod in Atlantic Canada</i> , 7(1) Ecological Applications 91 (1997). (“Myers et al. 1997”)
31	National Research Council, <i>Effects of Trawling and Dredging on Seafloor Habitat</i> (excerpt), 2002. (“NRC 2002”).
32	A.E. Punt, <i>Evaluating the efficacy of managing West Coast groundfish resources through simulations</i> , 101 Fish. Bull. 860 (2003). (“Punt 2003”)
33	S. Ralston, <i>The groundfish crisis — What went wrong? Ecosystem Observations for the Monterey Bay National Marine Sanctuary 2002</i> , Monterey Bay NMS, NOAA, 299 Foam St., Monterey, CA, pp. 19-20 (2003). (“Ralston 2003”)
34	S.A. Reeves and M.A. Pastoors, <i>Evaluating the science behind the management advice for North Sea cod</i> , 64 ICES Journal of Marine Science, 671 (2007). (“Reeves and Pastoors 2007”)

35	S.A. Shertzer and M.H. Prager, <i>Delay in fishery management: diminished yield, longer rebuilding, and increased probability of stock collapse</i> , 64 ICES Journal of Marine Science, 149–159 (2007). (“Shertzer and Prager 2007”)
36	C. Walters and J. Maguire, <i>Lessons for stock assessment from the northern cod collapse</i> , 6 Reviews in Fish Biology and Fisheries 125-137 (1996). (“Walters and Maguire”)

OTHER AUTHORITIES

Attachment	Title
37	NMFS, Final Environmental Impact Statement for Essential Fish Habitat Identification and Conservation in Alaska, Appendix B, NMFS Alaska Region, Juneau, Alaska, 2005 (excerpt). (“Alaska EFH EIS”)
38	NMFS, Pacific Coast Groundfish Fishery Management Plan, Essential Fish Habitat Designation and Minimization of Adverse Impacts, Final Environmental Impact Statement, NMFS Northwest Region, Seattle, Washington, 2005 (excerpt). (“Pacific Coast EFH EIS”)
39	NMFS, Pacific Coast Groundfish Fishery Management Plan through Amendment 19, Pacific Fishery Management Council, July 2008 (excerpt). (“Groundfish FMP”)
40	Letter from Oceana, to TAVEL, Inc., RE: Pacific Hake Trawl Fishery Marine Stewardship Council Sustainability Certification (July 25, 2008). (“Oceana Letter 2008”)
41	Letter from Objector Monterey Bay Aquarium, to MSC, RE: Supplemental Comments Regarding Pacific Hake Objection (July 8, 2009). (“Aquarium Letter 2009”)
42	Letter from Objectors Oceana and Monterey Bay Aquarium, RE: Objectors’ Request to Complete Record Pursuant to MSC Objections Procedure Section 4.7.5(a) (September 2, 2009). (“Objectors Letter 2009”)
43	MSC, Pollock Assessment Tree. (“Pollock Assessment Tree”)

## INTRODUCTION

The Marine Stewardship Council (MSC) has proposed certifying as “sustainable” the United States and Canadian Pacific hake fisheries. Objectors Oceana and Monterey Bay Aquarium have submitted a formal objection to that certification decision and hereby submit this document and attachments pursuant to MSC Objections Procedure Section 4.7.4. This information supplements the evidence presented in Objectors’ Notice of Objection and comments to the Certification Body during the assessment process.

The most recent information about the Pacific hake stock and management decisions affecting it show that the stock is in significant decline, likely to be overfished, and at substantial risk of collapse. The assessments of the stock are characterized by significant uncertainty, which has manifested itself in changing parameters, disagreement among modelers and scientists, and a cycle in which current assessments show that previous ones were highly inaccurate.

Nonetheless, the Certification Body has determined that the Pacific hake fishery is being managed in a sustainable manner. It has done so without considering the best and most recent information. The Certification Body also made a series of significant errors in scoring this fishery, which led to artificially high scores for important Performance Indicators relevant to the status of the stock and the impact of the fishery on the ecosystem. Similarly, the certification decision was based on a set of Performance Indicators that did not ensure compliance with the MSC Principles.

These omissions and errors had a material impact on the certification determination and, accordingly, necessitate remand. *See* MSC Objection Procedure §§ 4.2.3, 4.8.2 (“Obj. Proc.”). Given the current status of the stock and management, certification is not warranted.<sup>1</sup>

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<sup>1</sup> As explained below, Objectors have not received the complete record. A portion of that record was delivered to Objectors only on the date of this submission. *See infra* pp. 10-11. Accordingly, references in this document are to the sources themselves and the Attachments provided.

## BACKGROUND

### I. THE MSC HAS PROPOSED CERTIFYING AS “SUSTAINABLE” A FISHERY THAT IS IN DECLINE AND AT SUBSTANTIAL RISK OF COLLAPSE.

The MSC process is intended to recognize as “sustainable” those fisheries that meet a set of Principles and Criteria. *See* MSC Principles and Criteria for Sustainable Fishing at 1-2 (“MSC Principles”). In that process, the MSC defines a “sustainable fishery” as one that is conducted in such a way that:

- It can be maintained indefinitely at a reasonable level;
- It maintains and seeks to maximise ecological health and abundance;
- It maintains the diversity, structure and function of the ecosystem on which it depends as well as the quality of its habitat, minimising the adverse effects that it causes;
- It is maintained and operated in a responsible manner, in conformity with local, national, and international laws and regulations;
- It maintains present and future economic and social options and benefits;
- It is conducted in a socially and economically fair and responsible manner.

*Id.* at 2. The stock assessment information and record of management decisions show that, rather than being managed in a sustainable manner, the Pacific hake stock is in sharp decline. The population status and current management decisions demonstrate a direct parallel to fisheries that have collapsed.

#### A. Management of the U.S. Pacific Hake Fishery.

A full understanding of the status of the Pacific hake fishery and the significance of the available information requires a brief description of the relevant management structure in the United States. The National Marine Fisheries Service (NMFS) is the ultimate regulatory authority for U.S. federal fisheries management. The Pacific Fishery Management Council (PFMC) is given responsibility to oversee West Coast fisheries and provide recommendations to NMFS for management decisions and implementation. Several committees, advisory bodies, and management teams assist the PFMC by preparing and reviewing information as well as providing input to assist the Council in making its decisions. The Science and Statistical Committee (SSC) is a group of scientists from state and federal agencies, academic institutions, and elsewhere that advises the PFMC on scientific issues and reviews and evaluates statistical,

biological, economic, social, and other scientific information, including Fishery Management Plans (FMP) and stock assessments.

The Council also utilizes Advisory subpanels, like the PFMC's Groundfish Advisory Subpanel (GAP), which represents the commercial and recreational fishing industry, the public, and conservation interests. The GAP advises the Council on fishery management issues (such as annual management measures, FMPs, and amendments) and provides input into fishery management planning. The Council also has a Groundfish Management Team (GMT), which is a working group of state, federal, tribal, and nongovernmental biologists and economists. The GMT monitors fisheries, prepares stock assessments as well as impact analyses. It also may monitor catch rates and management impacts, recommend harvest limits, develop rebuilding plans, or conduct other tasks assigned by the Council. The joint U.S. and Canada Stock Assessment Review Panel (STAR Panel) reviews stock assessment documents, data inputs, and analytical models. The STAR Panel is ultimately responsible for completing a detailed evaluation of the results of a stock assessment.

These managers are responsible for ensuring that fisheries, like the U.S. Pacific hake fishery proposed for certification, are managed in compliance with U.S. law. As part of that process, they must identify optimum yield (OY) for the fishery, which is the level of fishing that "will provide the greatest overall benefit to the US." Attachment 39 at 9 (Groundfish FMP). OY is prescribed "on the basis of the maximum sustainable yield [MSY]" from the fishery as reduced by "any relevant economic, social, or ecological factor[s]." *Id.* MSY is the largest average catch that can be continuously taken from a stock. *See id.* at 7. The SSC recommends the Allowable Biological Catch (ABC), which is the amount of fish that may be harvested from the fishery without jeopardizing the resource, and is used every year as the upper limit of the annual catch. *See id.* at 7. The PFMC and NMFS then set the coast-wide (U.S. and Canada) OY catch level equal to or less than the ABC. In so doing, managers are required to ensure that fisheries are not "overfished."

For Pacific hake, managers attempt to meet those obligations using the "40:10 control rule." Pursuant to that rule, "SB<sub>40%</sub>" (40% of the stock's unfished biomass) has been established as the target level at which the stock is estimated to be able to maintain MSY over time. *See id.* at 18. Managers also have established "SB<sub>25%</sub>" (25% of the stock's unfished biomass) as the level below which the stock is considered overfished. Pursuant to U.S. law, an "overfished"

stock requires protection and rebuilding. The “40:10 rule” requires that, at 40% of unfished biomass, OY is set equal to ABC, and at 10% unfished biomass, the OY is set at zero. *See id.* at 23. OY is reduced in a linear fashion between those two endpoints. Significant concern has been expressed about whether the “40:10 rule” is sufficiently precautionary to sustain the Pacific hake stock and ensure compliance with the law. *See infra* pp. 20-21.

Management decisions regarding OY, MSY, and ABC are based on stock assessments prepared for the PFMC. Generally, these stock assessments are based on age-structured models and produce the best scientific estimates on the status of the stock. For Pacific hake, however, there is substantial uncertainty in the assessment and disagreement with regard to the model used. This disagreement has led to minority opinions from a PFMC member in 2006 and members of the STAR panel in 2008. *See* Attachments 4, 12. In addition, alternate assessments, using different models were presented to the PFMC in 2008 and 2009. *See* Attachments 13, 20. Moreover, more recent models demonstrate that previous assessments were highly inaccurate. *See supra* pp. 5, 8. Changes in the model parameters, uncertainty, and substantial disagreement have characterized the assessment process for Pacific hake.

#### B. The Pacific Hake Stock Is In Significant Decline.

The Pacific hake stock has declined sharply from its peak in 1984. *See* Hake Certification Final Report at 32-34 (“Final Report”) (showing decline from a peak spawning biomass of 4.6 million mt). Despite a slight increase in 2003 (due to the strong 1999 year class), the stock continues to decline “as both the U.S. and Canadian fisheries exploit this dominant year class,” and it is significantly lower than the peak biomass. *Id.* at 33. In 2006, the spawning biomass was estimated to be 1.18 million mt, and in 2007, the estimate declined further to 1.15 million mt. *See* Attachment 1 at 4 (2006 Stock Assessment); Attachment 5 at 4 (2007 Stock Assessment). These values correspond to 31% and 32%, respectively, of the estimated unfished biomass. In those years, the stock assessment scientists and managers warned that catch levels could drive the stock to a level below the overfished limit (SB<sub>25%</sub>). *See infra* p. 16.

A change in the model for the 2008 stock assessment was used to justify optimism about the stock and allow for an increased catch level. *See infra* pp. 17-18. In 2009, however, improvements to that model show that the downward trend continues. The Pacific hake spawning biomass is at the lowest level ever observed and is projected to decline even further in

coming years. The stock has been depleted below the target level - Bmsy ( $SB_{40\%}$ ) - to an estimated 32% of unfished spawning stock biomass ( $SB_{zero}$ ).

The recent trajectory and relevant references are summarized in the following table:

Year (as in that year's assessment) <sup>2</sup>	Current Biomass ( $SB_{current}$ )(million mt)	Unfished Biomass ( $SB_{zero}$ )(million mt)	Relative Depletion ( $SB_{40\%}$ is target biomass)	Overfished Limit ( $SB_{25\%}$ ) (million mt)
2006	1.178 (0.857 – 1.491)	3.81 (3.46 -4.16)	30.9% (24.7 – 36.9)	0.95
2007	1.146 (0.790 – 1.502)	3.57 (3.14 – 4.0)	32.1% (24.3 – 39.7)	0.89
2008	1.097 (0.419 – 1.775)	2.89 (1.556 – 2.50)	37.9% (21.9 – 53.9)	0.72
2009	0.43 (0.20 – 0.67)	1.37 (1.22 – 1.51)	32% (15 – 49)	0.34

Thus, biomass estimates are declining sharply, and the 2009 estimated biomass is below all previous estimates of the overfished threshold.

The table also demonstrates the significant uncertainty associated with managing this fishery. The estimates of unfished biomass ( $SB_{zero}$ ) have been revised downward each year. Because the estimate of unfished biomass ( $SB_{zero}$ ) is the basis for the overfished limit ( $SB_{25\%}$ ) and target biomass ( $SB_{40\%}$ ), lowering the estimate of  $SB_{zero}$  has the effect of lowering the reference points each year and, thereby, creating significant uncertainty. In addition, the numbers in parentheses are the 95% confidence interval for each biomass estimate. The relative width of these intervals is expanded each year from 2006-08, which depicts the growing uncertainty about the stock. As an example of this uncertainty, the entire 95% confidence interval for the 2009 assessment is outside (below) the 95% confidence intervals for each previous year. There is also evidence showing that uncertainty in the stock models prior to 2008 was underestimated. *See Attachment 13 at 5, 32-34 (Martell 2008).*

In spite of this precipitous decline and growing uncertainty, managers are increasing allowable catch limits. In 2008, managers set the ABC at 400,000 mt and OY at 364, 842 mt, which were both higher than any catch amount since the fishery commenced in the early 1960s. *See Attachment 10 at 9 (2008 Stock Assessment).* This pattern of unsustainable management continued in 2009, when managers adopted a catch level of 184,000 mt. *See Attachment 24 at 4-5 (2009 NMFS Decision); Attachment 23 at 4 (2009 PFMC Decision).* As explained below, the estimates prepared for the PFMC and NMFS show that this catch level leads to a 50% likelihood

<sup>2</sup> *See Attachment 1 at 4, 7 (2006 Stock Assessment); Attachment 5 at 4, 7 (2007 Stock Assessment); Attachment 10 at 4, 6 (2008 Stock Assessment); Attachment 17 at 5-6 (2009 Stock Assessment).*

that the Pacific hake stock will be at the overfished level in 2010 and below it in 2011. *See infra* pp. 14-19.

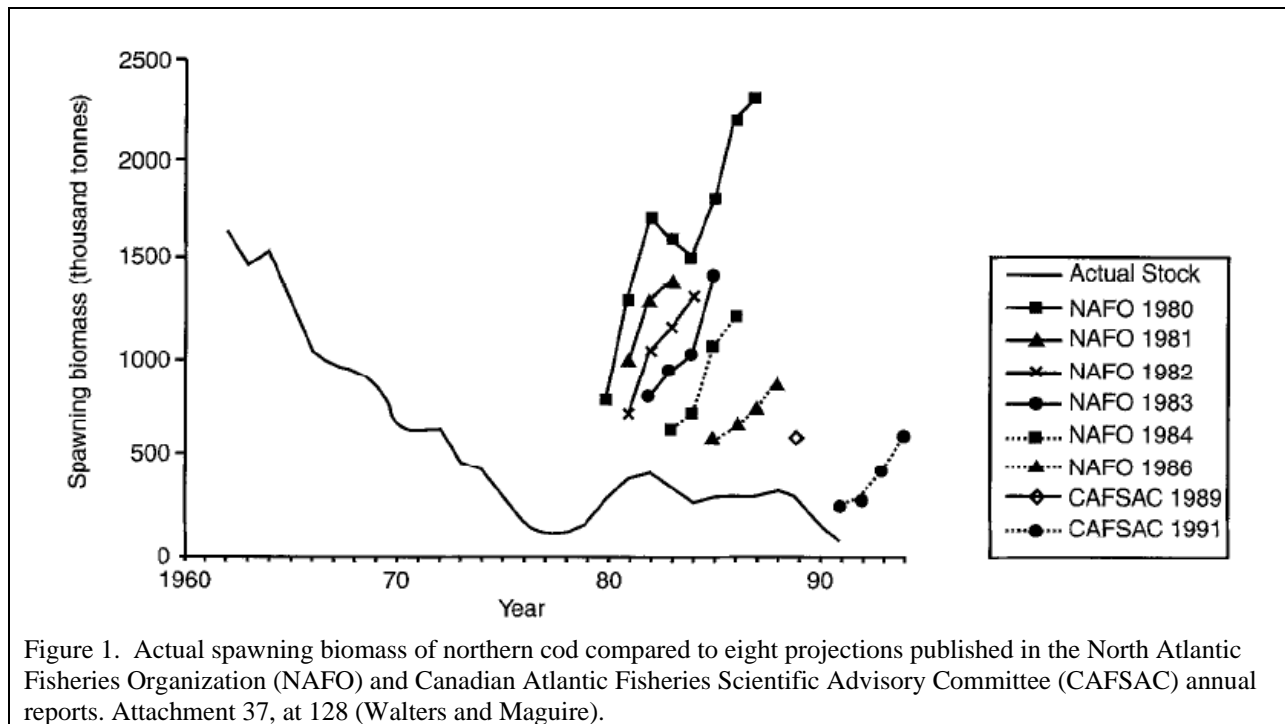
Additional evidence, also presented to the managers, demonstrates that even these estimates are overly optimistic and that that overfishing is occurring in 2009. *See* Attachment 20 at iii (Martell 2009). The Certification Body relies on the 2008 stock assessment accepted by the PFMC for information about the status of the stock. In fact, alternate stock assessments for 2008 contradict that information. The alternate assessment prepared by Steven Martell, who co-authored the 2007 stock assessment, included data showing that the Pacific hake stock was continuing to decline in 2008 and warned that the OY set by the PFMC in 2008 would likely result in overfishing. *See* Attachment 13 at 2 (stating that “catch options in excess of 300,000 mt result in a fairly significant probability of overfishing”). While this document is referenced in the Certification Body’s Final Report, this alternative evidence is not considered or discussed. Mr. Martell prepared an alternate stock assessment for 2009 as well. That assessment confirmed that overfishing occurred in 2008 and warned of a significant probability of overfishing in 2009 for catch levels greater than 100,000 mt. *See* Attachment 20 at iii (Martell 2009).

Thus, the MSC has proposed certification for a fishery for which there is substantial uncertainty and evidence showing that overfishing either will occur or is happening already.

### C. The Decline Of The Pacific Hake Stock Is Directly Parallel To Fish Stocks That Have Collapsed.

The collapse of fisheries once thought too productive to be overfished has become an all-too-common cautionary tale in fisheries management. Today, managers of the Pacific hake fishery appear poised to repeat the mistakes that led to disastrous declines in the Atlantic cod fisheries. In the early 1990s, increasing fishing pressure on declining stocks caused cod populations to collapse throughout the North Atlantic. For six cod stocks in the North Atlantic, the collapse exposed a combination of failed science behind the stock assessments and a failure of managers to be precautionary given the warning signs. For these stocks, high scientific uncertainty and overly optimistic stock assessments were used to justify a failure to take precautionary action until it was too late to reverse the downward trends in the populations. As a result of high (but largely unrecognized) uncertainty and bias in assessment methods, stock assessments for these fisheries routinely overestimated stock biomass. For each cod stock, annual retrospective analyses of previous years’ data showed that biomass had been

overestimated. Even as past biomass estimates were revised downwards, however, the biased assessment methods were continued year after year, masking overfishing and producing overly optimistic projections of future biomass. Continuing declines in biomass over time eventually belied these optimistic predictions. *See Attachment 36 at 128, Fig. 1 (Walters and Maguire).*



As a result of inflated stock estimates, the fishing mortality rate, or the rate at which fish are removed from a population as a result of fishing, for cod stocks were severely underestimated. For example, revised assessments for Labrador cod populations found that fishing mortality rates were more than twice the rates originally estimated. *See Attachment 30 at 104, Fig. 2 (Myers et al. 1997).* In 1987, a group of fisheries experts suggested that fishing mortality rates in the cod fishery were greater than reported in assessments, although even their estimates were well below the actual mortality rates. *See Attachment 36 at 129 (Walters and Maguire).* The true extent of overfishing was not clear until after the fishery collapsed in 1994.

These patterns are not unique to cod. A review of International Council for the Exploration of the Sea (ICES) fisheries management in the late 1990s notes that biased stock assessments led to overly optimistic stock projections and less precautionary catch levels than intended for North Sea haddock, plaice and sole. *See generally Attachment 34 at 676 (Reeves*

and Pastoors 2007). Similarly, flawed scientific advice and overestimated target fishing mortality rates caused declines in West Coast rockfish stocks. *See* Attachment 33 at 19-20 (Ralston 2003).

The similarities between the situation that led to the declines in cod populations and the current situation in the hake fishery are obvious. Biomass estimates from the hake stock assessments are highly uncertain, due in large part to uncertainty in estimates of survey catchability (the proportion of total biomass detected in biennial surveys). As explained below, there is evidence that earlier stock assessment results do not appropriately account for this uncertainty. *See generally* Attachment 29(Martell et al. 2008). Biomass estimates for recent years were revised downward in 2008, and again in 2009, revealing just how dramatically stocks have declined since the mid-1980s (as much as 89%). While the 2008 stock assessment predicted that biomass would increase in 2009, in fact it declined even further. These annual downward revisions in biomass estimates and overly optimistic projections parallel the patterns seen in Atlantic cod stocks just prior to their collapse.

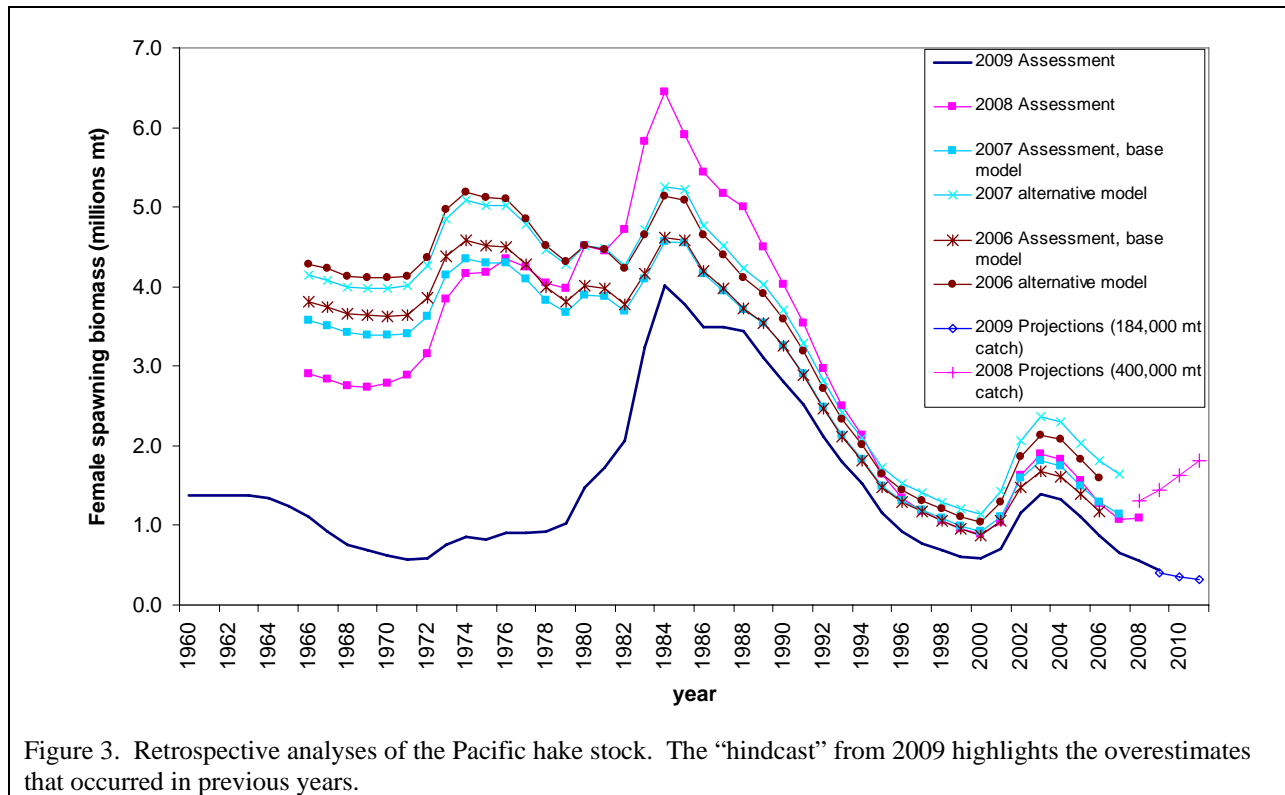


Figure 3. Retrospective analyses of the Pacific hake stock. The “hindcast” from 2009 highlights the overestimates that occurred in previous years.

This decline further highlights failures in the management of Pacific hake. As the models predict lower and lower biomass, they also change the estimate of unfished spawning biomass

( $SB_{zero}$ ), which, as explained above, lowers the limit and target reference points and prevents biomass from declining below the new limit reference point. Indeed, estimates of spawning biomass, unfished biomass, and the target and limit reference points have changed so much year-to-year that the variability in model estimates is greater than the uncertainty reported in any year. For example, the estimate of unfished biomass from 2008 does not even fall within the confidence bounds of the 2007 estimate. *See supra* p. 5. Thus, uncertainty is not properly taken into account, which has led to overly optimistic stock projections and constantly changing the reference points for the stock. As in the case of the cod fisheries, problems with the stock assessments have not gone entirely unnoticed. *See infra* pp. 14-19, 32-33. Nor, however, are these problems being addressed.

As the collapse of cod stocks has shown, the consequences of delay can be disastrous both for fish populations and the fishing industry. The collapses and closures for these fisheries occurred by 1994, though declines started far earlier, and the stocks still have not recovered. *See* Attachment 28 at 304, Fig. 4 (Hutchings and Reynolds 2004). At best, delays in the face of scientific uncertainty eventually lead to harsher management restrictions in order to rebuild decimated stocks; at worst, delays may entirely prevent fishery recovery. *See* Attachment 35 at 156 (Shertzer and Prager 2007). Northern cod populations ultimately declined by more than 97%, and the Newfoundland and Labrador cod populations were recently listed as endangered. *See* Attachment 28 at 303-04 (Hutchings and Reynolds 2004). Moreover, many gadids and flatfishes have experienced little, if any recovery as much as 15 years after experiencing 45% to 99% reductions in reproductive biomass. *See* Attachment 27 at 882-3 (Hutchings 2000).

For the cod fisheries, high catch levels lead to overfishing and, ultimately, collapse. Had managers acted with precaution to reduce catches in the face of scientific uncertainty and declining stocks, disaster may have been averted. Warning signs in the Pacific hake fishery—increasing fishing pressure, steep declines in abundance, overly optimistic biomass estimates, and serial revision of the reference points—evoke a fishery on the verge of collapse. Certification by the MSC could be another step toward the Pacific hake fishery becoming yet another cautionary tale.

## II. INTERESTS OF OBJECTORS

Objectors are non-profit organizations dedicated to protecting and conserving the oceans and marine resources for future generations. Oceana's advocacy includes both national and regional campaigns to ensure sustainable ocean fishing, protect habitat, reduce pollution, protect the ocean food web, and minimize the impacts of climate change and acidification to our oceans. Oceana's team of scientists, lawyers, and policy experts work to achieve specific management objectives in the water. In this regard, Oceana has made substantial contributions to better management of fisheries and other marine resources.

The Monterey Bay Aquarium's *Seafood Watch* program empowers seafood consumers and businesses to make choices for healthy oceans. The program works to transform seafood markets in ways that create incentives for sustainable fishing and aquaculture practices. Key elements of the program include efforts to raise consumer awareness about sustainable seafood issues, primarily through *Seafood Watch* pocket guides; and outreach efforts with retailers, restaurants, distributors, and other major seafood purveyors to encourage them to make the switch to sustainable seafood. The Monterey Bay Aquarium also participates in research and conservation efforts for several key marine species, works to reform ocean governance, supports implementation of marine protected areas, and advocates for policies to address global climate change.

Objectors have no financial stake in the certification process. Objectors' interest is in ensuring that fisheries, like the Pacific hake fishery, are conducted in a manner that protects public resources and the marine ecosystem. One important component of that work is helping to ensure that certification decisions are based on sound science, that fisheries certified by the MSC meet the three MSC Principles, and that the credibility and rigor of the MSC process is upheld. Despite their lack of financial interest in the outcome of this process, Objectors are required by the MSC procedures to fund this adjudicatory proceeding.

In addition, the full record has not been provided in advance of this submission. In this process, the MSC requires that the Independent Adjudicator's decision be on "the record," which includes "the Final Report of the certification body and the record of oral, written and documentary evidence, submissions and reports that were provided to it during the assessment process." MSC Objection Procedure Section 4.7.5(a). In correspondence to the parties, the Independent Adjudicator stated that the MSC was to prepare that record. On the date of this submission, a portion of the record was delivered in hard copy to Objectors. That "record of

documentation” contains only the Final Report and documents submitted subsequently.<sup>3</sup> It contains no other “record of oral, written and documentary evidence, submissions and reports that were provided to it during the assessment process.” As detailed in Attachment 42, it is clear that other such information exists and should be part of the record.

The Attachments to this document contain relevant information, other than those documents available in the “record of documentation” provided, in Objectors’ possession. These documents are provided to ensure that they are before the Independent Adjudicator in this process.

Nonetheless, the fact that neither Objectors nor the Independent Adjudicator have yet been provided an opportunity to review the documents on which the Certification Body based its decision creates serious doubt on any decision to approve certification for the Pacific hake fishery at this time.

## **ARGUMENT**

### **I. THE CERTIFICATION BODY FAILED TO CONSIDER IMPORTANT EVIDENCE ABOUT THE 2009 STOCK ASSESSMENT THAT WAS AVAILABLE TO IT AND WOULD MAKE A MATERIAL DIFFERENCE TO THE ASSESSMENT.**

The MSC Objections Procedure requires the Independent Adjudicator to remand the determination if he determines that “it is necessary to . . . enable [the] certification body to consider additional information described in Section 4.7.5(b) and described in the notice of objection.” *See* Obj. Proc. § 4.8.2(c); *see also id.* § 4.2.3. Section 4.7.5(b) describes information necessitating a remand as that which:

- (i) was known or should reasonably have been known to any party to the assessment process, and
- (ii) should reasonably have been made available to the certification body during the assessment process, and
- (iii) if considered, could have made a material difference to the outcome of the assessment.

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<sup>3</sup> Specifically, the file on the website contains the Final Report, Objectors’ Notice of Objection; additional submissions regarding the objection by Greenpeace, Marine Fish Conservation Network, and the client fishery pursuant to MSC Objections Procedure Section 4.7.4; and the Certification Body’s response to the Notice of Objection and accompanying errata.

*Id.* § 4.7.5(b). Such information regarding the 2009 stock assessment and management decision for the Pacific hake fishery was known and available to the Certification Body and would have made a material difference to the assessment.

Specifically, the following documents were available to the Certification Body prior to the release of its Public Draft Report and were presented to it in comments on that Draft Report:

- 1) Stock Assessment of Pacific Hake in US and Canadian Waters in 2009;
- 2) Pacific Fishery Management Council (PFMC) 2009 Supplemental SSC Report;
- 3) PFMC Supplemental Groundfish Management Team (GMT) Report; and
- 4) PFMC Council Decision, March 2009.

*See* Notice of Objection (Oceana Comments on Draft Certification Report). These documents are included as Attachments 17, 19, 21, and 23. The final decision from the National Marine Fisheries Service (NMFS) to adopt the PFMC recommended catch level was available prior to issuance of the Final Report. *See* Attachment 24 (NMFS 2009 Decision).

Collectively, these documents and their supporting evidence demonstrate that the substantial downward trend in the Pacific hake stock is continuing, that the 2008 stock assessment is not accurate and cannot be considered in isolation, and that the stock is being managed in a way that is inconsistent with MSC Principle 1. The Certification Body simply refused to consider them without providing any persuasive reason. Because it was available and would have made a material difference to the assessment, this information warrants remand of the certification decision.

A. The Information Was Available to the Certification Body During the Assessment Period.

According to the MSC's Fisheries Certification Methodology (FCM), the full assessment of a fishery is the "formal and public evaluation of a fishery against the MSC's Principles and Criteria." FCM at 9. That process is not complete until a Final Report, which accounts for all available information and public comment gathered during the assessment, is published by the Certification Body, and a certificate is issued. *See id.* at 12-13. Relevant information presented during this process must be considered by the Certification Body.

The 2009 stock assessment information was available and presented to the Certification Body. The draft assessment was published on February 25, 2009. The PFMC Scientific and Statistical Committee (SSC) approved it and issued its Supplemental Report on March 8, and the PFMC took formal action on March 10. The Certification Body did not publish its Public Draft

Report until April 1—more than one month after the initial release of the report and three weeks after final action by the PFMC. Moreover, neither of the peer reviews of the Public Draft Report were completed before the 2009 stock assessment was released, and one was not completed until after the PFMC’s final action. *See* Reconsideration at 4-5.

Further, all of this information was presented to the Certification Body during the public review of the draft, *see* Final Report at 240-42, 247-49, and the final decision by NMFS to adopt the recommendations of the PFMC was available to the Certification Body before publication of the Final Report, *see* Reconsideration at 4-5. The Certification Body refused to consider the information.

In addition, the concerns validated by the 2009 information were brought to the attention of the Certification Body earlier in the process. Comments submitted in July 2008 by Objector Oceana detailed the decline of the Pacific hake stock and identified these management and modeling issues for consideration by the Certification Body. *See* Notice of Objection (Oceana July 25, 2008 Comments); Attachment 40. Thus, the Certification Body was on notice of these issues and should have been prepared to address them in the Final Report.

The Certification Body contends that it did not consider the 2009 information because it “was explicit that the certification assessment was based on the March 2008 assessment and that all discussions related to the certification evaluation were related to that cycle.” Reconsideration at 4; *see also* Final Report at 240, 248-49 (responding to comments on the draft report). As defined by the FCM, the certification process simply does not allow the Certification Body to limit its analysis in this manner. Nowhere in the 44-page explanation of the certification methodology does the MSC allow the Certification Body to limit the scope of its analysis temporally or otherwise. To the contrary, in fact, the FCM explicitly requires that the full assessment be based on “[o]bjective, science-based fishery evaluation” and “external review and scrutiny.” FCM at 10-11. Allowing the Certification Body to exclude relevant information brought to its attention during the appropriate time period contravenes these requirements.

It also runs the substantial risk of distorting the evaluation process. As explained above, the 2006 and 2007 analyses showed a clear downward trend in the Pacific hake stock, and the 2008 analysis used new model parameters that created the appearance of a slowing in that trend. By refusing to consider the 2009 documents, the Certification Body has simply ignored

information showing that the downward trend is continuing and that the 2008 analysis was based on parameters shown to be inaccurate.

Further, the Certification Body clearly did not limit its evaluation to just one year. The evaluation of the health of the stock explicitly details the status of the population and its sharp decline from a peak in 1984. *See* Final Report at 32-35. The references in the Final Report include both the 2006 and 2007 Stock Assessments. *See id.* at 180. In addition, the background information regarding the fishery and management structure is taken from the 2006 Fishery Management Plan. *See* Final Report at 11-31.

B. The 2009 Stock Assessment Information Would Make a Material Difference to the Outcome of the Assessment.

The Certification Body has refused to consider the best and most recent information about the status of the stock and its management. These documents demonstrate that the fishery is not being managed sustainably and call into significant question the accuracy of the 2008 assessment on which the Certification Body rests its decision. They would make a material difference to the outcome of the assessment.

*1. The 2009 documents confirm that the Pacific hake fishery is being managed unsustainably.*

At the most basic level, the 2009 information that the Certification Body refused to consider demonstrates that the Pacific hake fishery is being managed toward an overfished level and that management decisions are not in accord with MSC Principle 1. To comply with Principle 1, “[a] fishery must be conducted in a manner that does not lead to over-fishing 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.” Principles and Criteria for Sustainable Fishing at 3. The 2009 information identified above shows that overfishing either is occurring or is very likely to occur and that, therefore, the Pacific hake fishery cannot meet this Principle.

The PFMC recommended, and NMFS approved, a catch level of 184,000 mt for 2009. *See* Attachment 24 at 20,629 (2009 Final Rule); Attachment 23 at 4-5 (2009 Decision Document). This catch level was set on the basis that it “is the maximum harvest amount that maintains a greater than 50 percent probability of the stock remaining above  $B_{25\%}$  (the overfished threshold) by the beginning of 2010.” Attachment 24 at 20,622 (2009 Final Rule). As the SSC

stated, “[a] 2009 [catch] of 184,000 mt results in a 50 percent probability of the stock dropping below the minimum stock size threshold in 2010.” Attachment 19 at 2 (2009 SSC Report). Similarly, the Groundfish Management Team cautioned that the 184,000 mt catch level is the maximum catch level at which the “depletion rate matches the overfished level (25%) in year 2010 at a 50% probability” and “will exceed the overfished limit in 2011.” Attachment 21 at 4 (2009 GMT Report).

These documents show that managers are using the overfished level as a target for the Pacific hake fishery. There is at least a 50% probability that the stock will go below the overfished level in 2010, and this catch level would create a greater than 50% probability of the stock being below the overfished level in 2011. *See* Attachment 21 at 3 (2009 GMT Report) (table showing a 50% likelihood that the stock will be at  $B_{23\%}$  in 2011).

In addition, the 2009 SSC Report references an alternative stock assessment report prepared for 2009. *See* Attachment 19 at 1 (2009 SSC Report). This report has been reviewed by the Canadian Department of Fisheries and Oceans (DFO) and accepted for publication by the Canadian Science Advisory Secretariat. It shows that overfishing was occurring in the Pacific hake fishery in 2007 and 2008. *See* Attachment 20 at 1-2 (Martell 2009) (showing that the fishing mortality rates in 2007 and 2008 were greater than the rate that would allow for MSY, which constitutes overfishing). This alternate assessment lends further credence to the GMT’s warning that “[c]aution is necessary when targeting the limit reference point given the large uncertainty in the assessment and, thus, the current state of the population.” *See* Attachment 21 at 4 (2009 GMT Report).

Thus, the information that the Certification Body refused to consider shows that overfishing either is occurring or is very likely to occur. In light of that information, the Pacific hake fishery cannot satisfy MSC Principle 1 and, therefore, should not be certified.

2. *The 2009 documents confirm that the 2008 assessment results were inaccurate.*

As explained above, the Certification Body asserts that its evaluation was based on the 2008 Stock Assessment. The 2009 Stock Assessment documents cast substantial doubt on the validity of 2008 model and predictions.

In 2008, a substantial change was made to the model used in the stock assessment process. The change concerns the “acoustic survey catchability,” which is denoted “q” in the model and which estimates the proportion of the hake biomass that is caught per unit of effort.

This parameter is crucial to assessing the stock. It is particularly important to the estimate of unfished biomass. *See* Attachment 5 at App. 2, p. 1 (2007 Stock Assessment) (“This is the key parameter that scales the overall population size such that  $B_0$  can be determined.”). It also is one of the key sources of uncertainty in the modeling process. *See* Attachment 5 at 3 (“The acoustic survey catchability coefficient ( $q$ ) has been, and continues to be, one of the major sources of uncertainty in the model.”).

“From 2004 to 2007, assessments presented two models (which were assumed to be equally likely) in an attempt to bracket the range of uncertainty in  $q$ .” Attachment 17 at 3 (2009 Stock Assessment). In 2007, the two estimates for  $q$  were 0.7 and 1. *See* Attachment 9 at 19,391-92 (2007 Final Rule). The PFMC adopted and NMFS approved a value for  $q$  equal to 0.85—halfway between the two values. In so doing, the agency recognized that:

With a constant harvest rate corresponding to the 2007 U.S. OY of 242,591 mt, the stock biomass level is projected to drop below the overfished level ( $B_{25}$ , or 25 percent of estimated unfished biomass) by 2009 if  $q=1$  is the true state of nature; however, the biomass would remain near 30 percent of the unfished level through 2009 if  $q=0.7$  is the true state of nature. When the results of both models are combined [using  $q_{mid}$  (0.85)] and given equal weighting, the 2009 depletion level is projected to be slightly above the overfished level.

*Id.* at 19,392.

In addition to the agency’s recognition that this catch level would lead the Pacific hake stock toward the overfished level, the SSC warned that “the Pacific whiting stock is predicted to fall below 25%  $B_0$  if management is based on  $F_{40\%}$  primarily due to the impact of the highly variable recruitment characteristic of this stock. There is therefore a lack of consistency for Pacific whiting between aiming to maximize yield on average and preventing depletion to below 25% of  $B_0$ .” Attachment 6 at 1 (2007 SSC Report); *see also* Attachment 7 at 1 (2007 GMT Report) (“As a consequence, the management decisions facing the Council with respect to whiting harvest levels are strikingly similar to those faced in 2006; stock size is projected to continue declining even with greatly reduced harvest rates, but with more substantial declines

with harvest levels closer to the status quo.”)<sup>4</sup>

In 2008, the stock assessment team changed the manner in which  $q$  was estimated. For the first time, the model contained a single estimate for  $q$ . *See* Attachment 10 at 4 (2008 Stock Assessment). This value was derived by “freely” estimating  $q$ , which means that the value is derived by the model, rather than being fixed by managers. *See* Attachment 17 at 32 (2009 Stock Assessment). The value for  $q$  was estimated to be 0.46. *See* Attachment 19 at 1 (2009 SSC Report). Using that estimate led to a significantly higher estimate of unfished biomass and formed the basis for allowing higher catch levels. *See* Attachment 10 at 4 (2008 Stock Assessment).

At the time, significant concern was expressed about the accuracy of the new  $q$ . “[T]his is the first time that the value of  $q$  has been estimated for whiting, and it is questionable whether the data are informative enough to rely only on the point estimate from the base model for management decisions.” Attachment 14 at 1 (2008 SSC Report). A minority report from four members of the STAR panel cautioned,

This is at a time when the hake population is dominated by a single year-class now 9 years old, the population biomass is declining and at its historic minimum, the exploitation rate is increasing and at its historic maximum, and there is no good indication of good recruitment. Prudent management suggests catches should be reduced under these circumstances, not increased.

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<sup>4</sup> Similar concerns were expressed in 2006. The 2006 stock assessment predicts that all harvest levels above 100,000mt would lead the stock to being overfished (below  $B_{25}$ ) by 2009. *See* Attachment 1 at 13, Fig. g (2006 Stock Assessment). In addition, in evaluating that stock assessment, the SSC stated:

The spawning biomass is predicted to decline in the future for almost any level of harvest. If the 40-10 control rule is used to determine Optimum Yields (OYs), the stock is predicted to drop to below the overfished threshold of 25% of the unfished biomass (25%  $B_0$ ) even though the OYs are predicted to decline from over 500,000t to, for the base model, 184,000t. As such, the whiting stock should be considered to be “Approaching an Overfished State” if catches are to be based on the 40-10 control rule.

Attachment 2 at 1 (2006 SSC Report). The Groundfish Management Team (GMT) expressed similar concerns, and a minority statement was submitted by a member of the PFMC expressing his concern that the catch levels would lead to overfishing. *See* Attachment 3 at 1 (2006 GMT Report); Attachment 4 at 3 (2006 Minority Statement).

As has been noted on several occasions in the report, there is considerable uncertainty about the fishery selectivity estimates and uncertainty in F40% is probably under-estimated because no uncertainty is assumed in the maturity schedules. Given the current status of the stock, declining biomass, poor recruitment, spiking exploitation rates, and the high degree of uncertainty regarding key vital population parameters, it seems prudent to forecast the ABC at a lower exploitation rate than what has been estimated for the past several years. The recommendation was repeated to the Panel on the final day of the meeting and in e-mail while the report was being drafted, but it was vetoed on the grounds that it had to do with policy and not science. We fail to see the distinction.

Attachment 12 at 1, 5 (2008 Minority Report).

In 2009, the stock assessment recognized the substantial inaccuracies in the 2008 estimate of  $q$  and made an effort to improve it. *See* Attachment 17 at 3 (2009 stock assessment) (“This 2009 assessment model incorporates further uncertainty in the degree of recruitment variability as well as more flexible time-varying fishery selectivity.”). The result of those improvements was an estimate of  $q$  equal to 0.85:

The acoustic survey catchability coefficient ( $q$ ) was freely estimated for the first time in the 2008 assessment, although it was recognized that this parameter was likely to be imprecisely estimated. Survey catchability was again estimated in the current assessment, and the estimate of  $q$  increased from 0.46 in the previous assessment to 0.85 in the current assessment. This had the effect of scaling the estimate of population biomass downwards.

Attachment 19 at 1 (2009 SSC Report).

The 2009 estimate of  $q$ , of course, is exactly the same as the 2007 value. As a result, the stock assessment and predictions reflect those from the 2007 assessment and 2008 minority report:

The assessment results indicate that the Pacific whiting stock has continued to decline as the strong 1999 year class passes out of the population and has not replaced by a similar strong year class. Estimates of stock status indicate that the stock is now at the lowest spawning biomass ever observed and is projected to decline further in the next three years under current harvest management.

*Id.*; *see also* Attachment 21 at 1 (2009 GMT Report) (“Spawning stock biomass has been in decline since 2003, with estimated levels approaching all time lows. In addition ... there appears to be a risk of exceeding the overfished threshold in the next few years.”); Attachment 24 at 20,621-22 (2009 NMFS decision) (describing current state of stock). As detailed above, these new estimates show that the fishery is in significant danger of becoming overfished.

C. The Determination Must be Remanded to Consider the 2009 Stock Assessment Information.

Ultimately, ignoring the 2009 information threatens the credibility of the MSC process. To be certified as sustainable, “[a] fishery must be conducted in a manner that does not lead to over-fishing 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.” FCM at 3. This Principle is designed to “ensure that the productive capabilities of resources are maintained at high levels and are not sacrificed in favor of short term interests.” *Id.* To comply with it, a “fishery shall be conducted at catch levels that continually maintain the high productivity of the target population(s) and associated ecological community relative to its potential productivity.” *Id.* As explained above, the 2009 information shows that the Pacific hake stock is in significant decline and that management decisions are being made that will result in overfishing and possible collapse.

Certification should not occur when the majority of the evidence suggests that, in fact, “the high productivity of the target population” is not being maintained. The MSC cannot have intended that “sustainable” fisheries include those managed toward the overfished limit in the face of substantial uncertainty about the stock models. At a minimum, the 2009 information would have a significant impact on the Performance Indicators relevant to stock size, reference points and uncertainty. *See* Final Report at 76-97 (detailing scores for Performance Indicators 1.1.1.2, 1.1.1.5, 1.1.1.6, 1.1.2.3, 1.1.3.1, 1.1.3.2, 1.1.3.3., 1.1.3.4, 1.1.4.2, 1.1.4.3, 1.1.5.1, and 1.1.5.2).

Moreover, any decision to certify a fishery should be based on the best available information. There is no dispute that the 2009 documents contain the most current and accurate information about the stock and management decisions. It threatens the very credibility of the MSC to proceed with certification without even considering the best available information—particularly when that information calls into substantial question the fishery’s compliance with the MSC’s own Principles and Criteria. This information is particularly important given the substantial and acknowledged uncertainty in the stock assessment modeling.

In sum, important information about the status of the Pacific hake stock was available to the Certification Body during the period of its analysis. This information shows that the fishery is dangerously close to being overfished and is not being managed in such a way to avoid that

result. The Certification Body was required to consider that information, and the Independent Adjudicator should remand the Final Report for it to do so.

II. THE SCORES GIVEN BY THE CERTIFICATION BODY FOR SEVERAL OF THE PERFORMANCE INDICATORS CANNOT BE JUSTIFIED, AND THOSE ERRORS ARE MATERIAL TO THE OUTCOME OF THE ASSESSMENT.

The Independent Adjudicator “shall remand the Determination” if:

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

Obj. Proc. § 4.8.2(b). In their Objection, Objectors identify a series of substantial errors made by the Certification Body. That information is not repeated here. Rather, the following additional information and argument focuses on several of the important omissions and demonstrates that remand is necessary.

A. A Score of 70 for Performance Indicator 1.1.4.3 Cannot be Justified Because the Harvest Strategy for Pacific Hake Is Not Precautionary.

Performance Indicator 1.1.4.3 assesses whether the “harvest strategy can be shown to be precautionary (including appropriate response to uncertainty).” Final Report at 94-95. Scoring guidepost 60 requires that “a precautionary harvest strategy has been defined but not evaluated to determine effectiveness.” *Id.* at 94. Scoring guidepost 80 requires that the “harvest strategy has been demonstrated to be effective and precautionary, based on past management responses.” *Id.* The Certification Body reached a score of 70, between those two guideposts.

The Certification Body recognizes that the “harvest strategy has not been demonstrated to be precautionary.” Final Report at 94; *see also* Reconsideration at 8-9. It then simply asserts that, because a harvest strategy has been identified, scoring guidepost 60 has been met. *See* Reconsideration at 9. That assertion is not sufficient. In fact, all available evidence

demonstrates that the harvest strategy for Pacific hake is not precautionary and, therefore, does not satisfy scoring guidepost 60.

The harvest rule implemented for the Pacific hake is known as the 40:10 rule. *See supra* pp. 3-4 (explaining 40:10 rule). As explained in the formal Objection, there is substantial evidence from the PFMC Scientific and Statistical Committee and others showing that the 40:10 control rule is not precautionary for Pacific hake. *See* Objection at 7-8; *see also* Attachment 19 at 2 (2009 SSC Report) (“[T]he population dynamics of Pacific whiting are not well matched to the default harvest policy for groundfish. . . . Given that whiting recruitment is highly variable, application of the 40-10 control rule will lead to excursions into the overfished zone.”); Attachment 2 at 1 (2006 SSC Report) (“If the 40-10 control rule is used to determine Optimum Yields (OYs), the stock is predicted to drop to below the overfished threshold of 25% of the unfished biomass (25%  $B_0$ ) . . . .”). At least one of the peer reviewers for this process agrees with that assessment as it applies to this Performance Indicator. *See* Final Report at 228 (“[I]t is unlikely that the current harvest strategy is demonstrably precautionary.”); *see also id.* at 208 (stating a concern from the other peer reviewer with respect to this Performance Indicator that uncertainty would not be addressed).

Appropriate implementation of the 40:10 rule requires three critical pieces of information: 1) an estimate of the unfished spawning stock biomass ( $SB_0$ ), 2) an estimate of the target reference point ( $SB_{msy}$ ) or its corresponding proxy, and 3) a projection of the current stock size ( $SB_{curr}$ ). *See* Attachment 13 at 5 (Martell 2008). The rule is only precautionary if the reference points can be determined accurately and reliably from the available data. *See* Attachment 26 at 368-369, 372 (Hilborn et al. 2002); *see generally* Attachment 32 at 866-71 (Punt 2003). As explained above, these reference points have changed dramatically every year. *See supra* p. 5. In addition, the assessment models prior to 2008 underestimated uncertainty. *See* Attachment 13 at 5, 32-34 (Martell 2008). Where there is insufficient information to reliably estimate reference points, there is no reason to expect the 40:10 rule to be precautionary.

The further decline of the stock provides additional evidence that the 40:10 rule is not precautionary and that the uncertainty in the stock assessment model has not been accounted for appropriately by managers. Moreover, the 2009 stock assessment and decision to manage toward the overfished limit provide a further demonstration that the stock is not being managed in a precautionary manner. *See supra* pp. 14-19.

Had the Certification Body given full consideration to the evidence that the 40-10 control rule is not precautionary, it could not have justified a score of 60. The 40:10 rule is not “a precautionary harvest strategy [that] has been defined but not evaluated to determine effectiveness.” Rather, it is a harvest strategy that has been demonstrated not to be precautionary for Pacific hake. It does not satisfy scoring guidepost 60. In any event, there is no justification for the higher score of 70.<sup>5</sup> Had Performance Indicator 1.1.4.3 been accurately scored, the fishery would have failed to meet a passing score of 60 and the fishery would not have been allowed to be certified.

**B. A Score of 90 for Performance Indicator 1.1.5.1 Cannot be Justified Because the Best Information Shows That the Stock Is Not Likely to Be Above the Limit or Target Reference Points.**

Performance Indicator 1.1.5.1 is designed to ensure that the population is maintained above a particular limit reference point. For this assessment, that limit reference point is the overfished level—equal to 25% of the estimated unfished biomass—and the level below which protection and rebuilding requirements are triggered under U.S. law. The scoring guideposts are defined by the likelihood that the fishery is above that overfished level (25-50% for guidepost 60, 50-90% for guidepost 80, and greater than 90% for guidepost 100). Scoring guidepost 80 and 100 also include a requirement that the fishery be “around” or “above” the “target reference point,” which is 40% of the estimated unfished biomass. As an initial matter, this system would allow certification where there is a 75% chance that the fishery is overfished, which contravenes the intent of MSC Principle 1. *See infra* pp. 34-35. Regardless, there are substantial problems with the score of 90 awarded by the Certification Body.

The estimate of unfished biomass has changed dramatically each year since 2006. As explained above and shown in the table below, that change affects both the “limit” and “target” reference points:

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<sup>5</sup> The Certification Body’s response to the Objection states that “adjustments, for bycatch and other reasons, make the harvest strategy more precautionary, even though the strategy has not been formalized.” Reconsideration at 9. Unevaluated improvements on a model that the Certification Body recognizes has not been determined to be precautionary do not justify an increased score.

Year (as in that year's assessment) <sup>6</sup>	Current Biomass (SB <sub>current</sub> )(million mt)	Unfished Biomass (SB <sub>zero</sub> )(million mt)	Relative Depletion (SB <sub>40%</sub> is target biomass)	Overfished Limit (SB <sub>25%</sub> ) (million mt)
2006	1.178 (0.857 – 1.491)	3.81 (3.46 -4.16)	30.9% (24.7 – 36.9)	0.95
2007	1.146 (0.790 – 1.502)	3.57 (3.14 – 4.0)	32.1% (24.3 – 39.7)	0.89
2008	1.097 (0.419 – 1.775)	2.89 (1.556 – 2.50)	37.9% (21.9 – 53.9)	0.72
2009	0.43 (0.20 – 0.67)	1.37 (1.22 – 1.51)	32% (15 – 49)	0.34

The estimate of unfished biomass (SB<sub>zero</sub>) is the basis for the overfished limit (SB<sub>25%</sub>) and target biomass (SB<sub>40%</sub>). Thus, lowering the estimate of (SB<sub>zero</sub>) has the effect of lowering the reference points each year, which creates significant uncertainty. *See supra* p. 5 (explaining that the relative width of the 95% confidence intervals is expanding, which highlights the growing uncertainty and that there is evidence showing that uncertainty in the 2006 and 2007 stock models was under-estimated).

In light of the changes in reference points and the recent management decisions, the certification body cannot show that there is a high probability that the stock is currently above the limit reference point. In fact, the 95% confidence interval includes estimates as low as 15% of unfished biomass. Further, according to the 2009 assessment, the spawning biomass (SB<sub>current</sub>) for 2008 was 0.56 million mt, which was below the 2008 limit reference point of 0.72 million mt. Therefore, the 2009 Stock Assessment shows that in 2008, the population was below the limit reference point. This “hindcast” likely is more accurate than the assessment prepared in 2008 because it includes the additional 2008 data. Moreover, as explained above, the harvest levels set by the PFMC in 2009 would result in the stock being at the brink of overfished in 2010 (at B<sub>25%</sub>) and overfished by 2011 (at B<sub>23%</sub>). *See supra* pp. 14-15. Thus, it is very unlikely that the stock will be maintained at a level above the limit reference point. Certainly, the Certification Body cannot show that there is a greater than 50% chance of it staying above the overfished level.

This information also shows clearly that the stock is not “likely to be around the target reference point currently and in the future” as would be required to meet a score of 80. As explained in detail above, the stock is in serious decline. Even based on the 2008 information, the stock was at 37% of unfished biomass—three percent below the target reference point. The

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<sup>6</sup> *See* Attachment 1 at 4, 7 (2006 Stock Assessment); Attachment 5 at 4, 7 (2007 Stock Assessment); Attachment 10 at 4, 6 (2008 Stock Assessment); Attachment 17 at 5-6 (2009 Stock Assessment).

2009 stock assessment shows a further decline to 8% below the target reference point. Thus, the clear trend is that the stock is declining further and further below the target reference point.

In light of this information, a score of 60 would be questionable, and a score of 80 unreachable. There is no reasonable basis for a score of 90.

C. A Score of 90 for Performance Indicator 2.1.3.1 Cannot Be Justified Because No Evaluation of the Impacts of This Fishery Has Been Conducted and There is Evidence Suggesting Substantial Impacts.

Performance Indicator 2.1.3.1 is designed to assess knowledge about the physical impacts of fishing gear on habitats. A score of 90 was awarded in part on the grounds that “this is a mid-water trawl fishery with infrequent bottom contact.” Final Report at 109. There is not sufficient evidence to support that statement.

Indeed, there has been no evaluation of the impacts of this trawl fishery on the bottom habitat. The Certification Body merely relies on a single statement from the Pacific Coast Essential Fish Habitat Environmental Impact Statement (EIS) that “[m]id-water or pelagic trawl gear is required for the directed hake fishery and mid-water trawl gear components only make bottom contact infrequently.” Final Report at 108. There was no evaluation of the “extent and location of impact” as required by scoring guidepost 60.<sup>7</sup> Nor is there sufficient evidence to support the conclusion that the effects on habitat are not unacceptable as is required by scoring guidepost 80. Rather, there is a lack of specific information about the impacts of this fishery.

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<sup>7</sup> In fact, the EIS states, “Midwater trawls were excluded from the summary assuming that they do not impact bottom habitat.” Attachment 38, at App. A, p. 79 (Pacific Coast EFH EIS). The EIS goes on to state that:

More than thirty fishing gear types are used on the west coast (Recht 2003). There have been no studies on the impacts of most of these on bottom habitats. Those for which useful studies were found included eight gear types: otter trawls, beam trawls, shrimp trawls, New Bedford/scallop dredges, hydraulic dredges, oyster dredges, pots, and hand/mechanical harvesting. Only two studies directly on west coast gears were found to be useful.

[I]t should be emphasized that we only have a preliminary understanding of how fishing gear impacts biogenic habitats. Some trends are emerging, but further consideration of the two gear/habitat combinations that departed from general trends should be a warning that the relationships involved can be quite complex.

Attachment 38 at App. A, App. 10, p. 14.

The Certification Body likewise cannot justify this score on the basis of the information that is available about mid-water trawls in general. To the contrary, in fact, available information shows that pelagic trawls do impact bottom habitat. According the National Research Council, pelagic trawls “may be frequently fished in contact with the seafloor, especially in shallow water (<50 fathoms). To confirm that this gear has reduced seafloor impacts, the extent of bottom contact and disturbance should be quantified.” Attachment 31 at 58 (NRC 2002). An analysis of the impacts of the Alaska pollock fishery, which is also a pelagic trawl fishery (including many of the same vessels that participate in the Pacific hake midwater trawl fishery), estimated that trawls make contact with the bottom 44% of the time. *See* Attachment 37 at Table B.2-4 (Alaska EFH EIS, Appendix B). The methodology used in that study has been peer-reviewed and published. *See* Attachment 25 (Fujioka 2006).

In addition to quantifying the amount of the bottom contact, that analysis also quantifies its impacts using a long-term effect index (LEI):

The analysis estimated an LEI of the effects of fishing on infaunal prey, epifaunal prey, living structure (coral treated separately), and non-living structure across different habitats and between fisheries. The LEI estimated the percentage by which these habitat features would be reduced from a hypothetical unfished abundance if recent intensity and distribution of fishing effort were continued over a long enough term to achieve equilibrium. Equilibrium is defined as a point where the rate of loss of habitat features from fishing effects equal the gain from feature recovery. The spatial pattern of long-term effect indices largely reflects the distribution of fishing effort scaled by the sensitivity and recovery rates assigned to different features in different habitat types.

Attachment 37 at B-21. The results of that analysis show that the pollock pelagic trawl fishery was the largest single component of impact to the biostructure of the Eastern Bering Sea:

**Table B.2-10. Long-term Effect Indices (LEI\*) Indicating the Effects of Fishing on Habitat Features by Fishery for the Features with the Highest LEIs in Each Region**

<b>Bering Sea (soft substrate)</b>	<b>Sand/Mud Biostructure</b>	<b>Slope Biostructure</b>
Pollock Pelagic Trawl	4.6%	7.2%
Yellowfin Sole Trawl <sup>1</sup>	2.9%	0.2%
Flathead Sole/Flatfish Trawl <sup>1</sup>	1.8%	1.6%
Rock Sole Trawl <sup>1</sup>	0.9%	0.2%
Pollock Bottom Trawl <sup>1</sup>	0.4%	0.6%
Pacific Cod Trawl <sup>1</sup>	0.2%	0.4%
Sablefish/Turbot Trawl <sup>1</sup>	0.1%	0.7%
Pacific Cod Longline	0.0%	0.0%
Rockfish Trawl <sup>1</sup>	0.0%	0.0%
Pot	0.0%	0.0%
Sablefish/Turbot Longline	0.0%	0.0%
<b>Total</b>	<b>10.9%</b>	<b>10.9%</b>
<sup>1</sup> Total Bottom Trawl	6.3%	3.7%

Figure 3. Showing impacts of Alaska pollock fishery on bottom habitat. Attachment 37 at Table B.2-10.

Thus, the one and only quantitative estimate of impacts from pelagic trawling is clearly at odds with the Certification Body’s rationale.

The Certification Body largely dismisses this analysis on the grounds that Alaska is different than Pacific Coast. *See* Reconsideration at 22. It relies on a “net specialist” to support its contention that “the bottom type in the majority of the Bering Sea is different” than it is off the Pacific Coast. *Id.* These statements do not demonstrate any specific evaluation of the extent or location of impacts from the hake fishery. Moreover, the similar descriptions of bottom type in the Alaska EFH EIS (including mud, clay, silt, sand, and gravel) and Pacific Coast EFH EIS (“silt, mud, sand, gravel or mixed”) provide evidence that the bottom types in the two regions are similar. *Compare* Attachment 37 at 3-3 (Alaska EFH EIS) *with* Attachment 38 at 3-6 (Pacific Coast EFH EIS). Further, the National Research Council has stated that “[f]ishery managers should evaluate the effects of trawling based on the known responses of specific habitat types and species to disturbance by different fishing gears and intensity of fishing effort, even when region-specific studies are unavailable. . . . Predictions developed from common trends observed in comparable habitats will provide reasonable estimates of fishing effects to serve as the basis for management.” Attachment 31 at 66 (NRC 2002).

The Certification body also uses the “net specialist” to support the statement that “[w]hiting tend to be off bottom, up in the water column compared to pollock.” *See*

Reconsideration at 22. This statement is contradicted by the Certification Body itself, which stated that “[b]ecause large hake tend to aggregate at depth, there is an incentive to fish near the bottom.” Final Report at 109. Bycatch records for the 2007 and 2008 Pacific hake fishery also provide indication of seafloor contact as the fishery takes species associated with seafloor habitats including Dungeness crab, halibut, sablefish, arrowtooth flounder, Dover sole, English sole and other flatfishes.

For all these reasons, the score of 90 cannot be justified and, in fact, a score of 60 likely is not defensible.



Pacific hake near the seafloor. (photo courtesy NMFS Northwest Fisheries Science Center).

**D. A Score of 80 for Performance Indicator 2.1.4.2 Cannot be Justified Because There Is No Quantitative Information Available About the Impacts of Bycatch from this Fishery on the Ecosystem Structure or Function.**

The Pacific hake fishery takes substantial numbers of non-target species each year, including thousands of protected salmon and rockfish. Performance Indicator 2.1.4.2 is designed to assess whether the impacts on ecosystem structure and function from the removal of those non-target species have been evaluated. Given the lack of available information, a score of 80 cannot be justified.

To achieve a score of 80, the Performance Indicator requires that “some quantitative information is available on consequences of current levels of removal of non-target species” and that “information suggests there are no unacceptable fishery impacts on ecosystem structure and function within key fishing areas.” Final Report at 114. The Certification Body cannot justify

either conclusion. First, there is no quantitative information presented about the impacts of bycatch on the ecosystem. The Final Report does not identify any such quantitative information and, in fact states that “there is qualitative information regarding the ecosystem consequences of removal of non-target species but not quantitative.” *Id.* at 115 (emphasis added). One of the peer reviewers emphasized this point: “ecosystem impacts are not quantified any better for non-target species removals than they are for the target species.” *Id.* at 231. In response, the Certification Body states that “even if the impacts on the ecosystem of the removal of bycatch species have not been well quantified it is safe to assume they are minimal.” *Id.* A score of 80 cannot be justified based on this mere speculation.

Nowhere does the Certification Body identify any quantitative information about the removals of non-target species by the hake fishery. In its Reconsideration, the Certification Body appears to rely on the stock assessments for the non-target species as quantitative information about impacts to the ecosystem from bycatch in the hake fishery. *See* Reconsideration at 15 (stating that “the impacts on ecosystem structure and function from the removal of non-target species can be evaluated through the stock assessments of these non-target species” and that “stock assessments . . . provide quantitative information on the consequences of current levels of removal”). That simply is not true. The stock assessments do not address the impacts specifically attributable to the hake fishery. More significantly, though, single species stock assessments do not necessarily provide consequences on the ecosystem from removal of non-target species. In fact, neither of the most recent widow rockfish or bocaccio stock assessments and updates address any ecosystem considerations. Indeed, the Certification Body knew of these stock assessments at the time of its assessment but did not rely on them as a source of quantitative information about bycatch.

For similar reasons, the Certification Body likewise cannot show that there are no “unacceptable fishery impacts on ecosystem structure and function” attributable to bycatch in the hake fishery. The Certification Body’s conclusion is based on a “de minimus argument,” in which it asserts that because bycatch is only 0.2% of the overall catch, the ecosystem impact of removing non-target species would be commensurately small. *See* Reconsideration at 15. This simple biomass equation does not address the impact of those removals. As the Certification Body notes, non-target species play “different functional roles than hake, such that impacts can’t

be assessed only by the biomass removed.” *Id.* Moreover, nowhere does this equation account for the proportion of the population of each bycatch species caught by the hake fishery.

In an effort to remedy that deficiency, the Certification Body relies again on the stock assessments for the non-target species and “assumes that, as long as bycatch limits in the hake fishery are not exceeded, that there are no unacceptable ecosystem impacts from the removal of non-target species.” *Id.* As explained above, these stock assessments are for the stock itself and do not address impacts to the ecosystem more generally. Moreover, it is unlikely that there is a stock assessment for every non-target species caught by the hake fishery.

For those reasons, the Certification Body cannot justify a score of 80 for this fishery. In fact, a score of 60 cannot be justified because the certification body cannot show that “investigations are underway to identify potential impacts and, where necessary, reduce them to acceptable levels.” There is no evidence that acceptable levels of impact to the ecosystem have been determined. Nor is there any evidence of investigations pending to identify potential impacts to the ecosystem.

E. A Score of 70 for Performance Indicator 2.1.5.1 Cannot Be Justified.

Performance Indicator 2.1.5.1 addresses one of the keys to certification—whether levels of acceptable impact on ecosystem function have been determined and reviewed. *See* Final Report at 115. To meet scoring guidepost 60, the Certification Body must show that “[t]here is some information to determine acceptable impacts for main target and non-target species and habitats, but estimates have not been completed.” *Id.* The Certification Body determined that this guidepost was met and awarded a score halfway to guidepost 80, which requires that levels of acceptable impacts for key components of the ecosystem within main fishing areas have been estimated and are regularly reviewed.” *Id.* No justification is given for a score above 60 and, in fact, it is not clear that a score of 60 is reasonable.

As explained above, there is information provided about the catch levels for hake and some non-target species. There is, however, no quantitative information about the impacts on the ecosystem from those removals. *See supra* pp. 27-28. Nor is there any effort to show how those estimates could be used to determine acceptable levels of impact to the ecosystem. As one peer reviewer noted, “Information by client inadequate and does not address ecosystem impacts but rather focuses primarily on bycatch rates.” Final Report at 212.

Accordingly, even if the basic information about removal rates for individual species were sufficient to meet guidepost 60, there is no persuasive reason for a higher score.

F. A score of 90 for Performance Indicator 2.1.5.2 Cannot be Justified Because Sufficient Management Measures Are Not In Place to Avoid Impacts to the Ecosystem.

The Performance Indicators under Section 2.1.5 are designed to ensure that “[s]trategies have been developed within the fisheries management system to address and to reduce any significant negative impacts of the fishery on non-target species and ecosystem function.” *See* Final Report at 115. As a part of that goal, Performance Indicator 2.1.5.2 is the place at which those strategies for reducing impacts to the ecosystem are addressed. As explained above, there is almost no information available about the impacts of the fishery on the ecosystem. *See supra* pp. 27-29. Nonetheless, the Certification Body awarded the hake fishery a very high score of 90. This score cannot be justified.

The only justification provided for the score given to the U.S. portion of the fishery is that “the assessment team heard testimony that ecosystem impacts are minor, which suggests that management strategies are effective at avoiding adverse impacts.” Final Report at 115. In its Reconsideration, the Certification Body simply repeats its contention that pelagic trawling has minimal impacts on the seafloor. *See* Reconsideration at 18. No other justification is provided.

Given the lack of information about impacts of the fishery and removal of non-target species on the ecosystem, it is impossible to justify a score of 90. Moreover, the Certification Body only awarded a score of 70 for Performance Indicator 2.1.5.1, which is designed to address whether levels of acceptable impact on ecosystem function have been determined and reviewed. *See* Final Report at 115. The higher score for this Performance Indicator appears to mean that effective management measures are in place but that there is no standard against which to assess the efficacy of those measures. That result cannot stand.

As detailed above, the information available for Pacific hake only addresses the individual stocks of the target and non-target species. There is not sufficient information about the impact of that fishery on the ecosystem to address the efficacy of the management measures. Nor is there any evidence that information on ecosystem function (trophic relationships, community and habitat structure) is raised or discussed when catch levels and fishery management measures are recommended for Pacific hake. Accordingly, a score of 80 could not be justified, and the score of 90 is unreasonable.

G. A score of 75 for Performance Indicator 3.7.2 Cannot be Justified Because Sufficient Surveillance and Enforcement Measures Are Not In Place.

MSC Principle 3 requires that “[t]he fishery is 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.” MSC Principles and Criteria at 4. To comply with this Principle, the Certification Body must determine that the management system “contains appropriate procedures for effective compliance, monitoring, control, surveillance and enforcement which ensure that established limits to exploitation are not exceeded and specifies corrective action to be taken in the event that they are.” *Id.* at 5. Performance Indicator 3.7.2 specifically assesses whether “surveillance and enforcement are in place to ensure that the fishery complies with requirements of the management system.” Final Report at 166.

As detailed in the Objection, while some effort has been made at surveillance and monitoring in the U.S. portion of the fishery, there currently is not an effective system in place. In fact, the Council’s Enforcement Committee’s Recommendations, *see* Attachment 8 (2007 EC Report), have not been implemented in this fishery to date. To meet scoring guidepost 60, the fishery must have surveillance activities and enforcement measures that are “reactive and focused on key management measures” and must be “monitored sporadically” to determine compliance with management measure. *See id.* These criteria have not been established. It is true that enforcement actions have been implemented, *see* Objection at 17 (detailing two illegal dumping incidents from 2007), and that a limited observer program has been implemented for the shoreside portion of the fleet, *see* Attachment 22. This limited program is administered through a series of Experimental Fishing Permits and is not codified in any sort of comprehensive program. *See id.*

Accordingly, there are substantial components of the fishery subject to no surveillance or enforcement. In addition, the recent incidents in 2007 of noncompliance and the Enforcement consultants report to the PFMC highlight that the sporadic surveillance has not ensured control over the fishery and has not resulted in high compliance. In fact, the Certification Body’s final report admits that high compliance is likely unattainable for this fishery. *See* Final Report at 167.

One of the peer reviewers echoed these concerns:

This is a difficult PI to evaluate. The U.S. client information was inadequate and did not provide detailed description of enforcement and surveillance systems/effectiveness. In the scoring rationale, it is unclear where the information was derived (I assume this is a personal reference -- but needs a citation). One cannot adequately determine whether higher level of reported problems is due to generally low level of compliance or successful surveillance/enforcement. If personal citation information is accurate then there appears to be a problem. Unsure whether the Council's Enforcement Committee's Recommendations is adequate/appropriate given its key features are not cited in this report.

Final Report at 220. Nonetheless, the Certification Body contends that since there have only been individual incidents that have been detected and addressed through the management put in place, that the management measures work and the fishery meets SG 60 and part of SG 80. The lack of a comprehensive monitoring program, evidence that enforcement could be effective, and implementation of the Council's Enforcement Committee's recommendation render a score of 60 impossible. Even if the limited effort conducted to date would meet scoring guidepost 60, there is no justification for a score above that level.

H. Given the Underestimation of Uncertainty, the Scores for Performance Indicators 1.1.3.2 and 1.1.3.3 Cannot be Justified.<sup>8</sup>

These Performance Indicators measure whether the stock assessment methods “are statistically rigorous” and “take appropriate account of major uncertainties in data and input assumptions.” Final Report at 89-90. The Certification Body awarded the Pacific hake fishery very high scores (95 for Performance Indicator 1.1.3.2 and 85 for Performance Indicator 1.1.3.3). Given the major uncertainties in the stock assessment model and the evidence that those uncertainties have not been addressed, these scores cannot be justified.

The Certification Body recognizes that the 2006 and 2007 stock assessment models grossly underestimated uncertainty. *See* Final Report at 89; *see generally* Attachment 13 at 5, 32-34 (Martell et al. 2008). The scores for Performance Indicators 1.1.3.2 and 1.1.3.3, however, are based on the assertion that the 2008 stock assessment model largely remedied these

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<sup>8</sup> Arguments relevant to these Performance Indicators were raised in supplemental information submitted by Objector Monterey Bay Aquarium pursuant to MSC Objections Procedure Section 4.5.6. The MSC informed Monterey Bay Aquarium that these comments were appropriate. The Independent Adjudicator reversed that determination and determined that the Aquarium was not included among “any other stakeholder that participated in the fishery assessment process” pursuant to Section 4.5.6. At a minimum, this information should be considered at this point. See Attachment 41.

problems. This justification, however, does not account for the uncertainty regarding the estimation of the catchability parameter  $q$ , as explained above, or the 2008 Minority Report, which cast serious doubt on the 2008 Stock Assessment. *See supra* pp. 16-18. This uncertainty was addressed by the SSC: “This is the first time that the value of  $q$  has been estimated for whiting, and it is questionable whether the data are informative enough to rely only on the point estimate from the base model for management decisions.” Attachment 19 at 1 (2008 SSC Report). The 2009 Stock Assessment also describes several shortcomings in the 2008 Stock Assessment and, thereby, provides evidence that the 2008 Stock Assessment used inappropriate statistical methods. *See* Attachment 17 at 23-4, 33, 45 (2009 Stock Assessment). Specifically, it shows that the statistical methods used in the 2008 Stock Assessment did not incorporate sufficient uncertainty in the degree of recruitment variability, were not sufficiently flexible in time-varying fishery selectivity, did not appropriately model of ageing imprecision or incorporate some available historical length data. *Id.*

In addition, the fact that the “hindcast” for each assessment from the past several years has produced substantial differences from the predictions highlights the uncertainties in the forecasts. *See supra* p. 8. For example, the 2009 Stock Assessment produced a strikingly different estimate of the 2008 stock level than the 2008 Stock Assessment (0.56 mt in 2008 according to 2009 assessment; 1.097 mt in 2008 according to 2008 assessment).

Appropriate statistical methods would not result in such wide variation from year to year. Accordingly, scores of 95 and 85 cannot be justified for these Performance Indicators.

### III. THE PERFORMANCE INDICATORS DO NOT ENSURE COMPLIANCE WITH MSC PRINCIPLES 1 AND 2, WHICH CONSTITUTES A SERIOUS IRREGULARITY IN THE FISHERY ASSESSMENT PROCESS THAT MADE A MATERIAL DIFFERENCE TO THE FAIRNESS OF THE ASSESSMENT.

“At the centre of the MSC is a set of *Principles and Criteria for Sustainable Fishing*.” *See* Principles and Criteria for Sustainable Fishing at 1. These Principles and Criteria “represent the overarching philosophical basis” for the MSC Certification program and are the standard against which fisheries are measured in the certification process. *Id.* at 2. The Certification Body implements these Principles and Criteria through the Performance Indicators and scoring guideposts in the assessment tree. *See* Fisheries Certification Methodology at 37 (defining the assessment tree as “[t]he hierarchy of Principles, Criteria, sub-criteria, and performance

indicators that is used as the basis for assessment of the fishery for compliance with the MSC Principles and Criteria”).

Accordingly, the assessment tree must be consistent with the Principles and Criteria and ensure that the fishery can be measured appropriately against those standards. Any failure in that regard constitutes “a serious procedural or other irregularity in the fishery assessment process” MSC Obj. Proc. § 4.8.2(a), warranting remand by the Independent Adjudicator.

There are significant irregularities with regard to Performance Indicators 1.1.3.1, 2.1.5.1, and 2.1.5.2 that have compromised the assessment of the Pacific hake fishery and created the substantial likelihood that the assessment cannot ensure compliance with the MSC Principles.

A. The Performance Indicators Do Not Ensure Compliance With MSC Principle 1.

MSC Principle 1 requires that “[a] fishery must be conducted in a manner that does not lead to over-fishing 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.” Principles and Criteria for Sustainable Fishing at 3. Principle 1 is intended to “ensure that the productive capabilities of resources are maintained at high levels and are not sacrificed in favor of short term interests.” *Id.* The MSC has identified three specific Criteria that a fishery must meet in order to fulfill the requirements of Principle 1. The first criterion requires that “[t]he fishery shall be conducted at catch levels that continually maintain the high productivity of the target population(s) and associated ecological community relative to its potential productivity.” *Id.* The Performance Indicators would allow certification for a fishery with a 75% chance of being overfished and, therefore, do not provide an appropriate measure of compliance with this standard.

Performance Indicator 1.1.3.1 evaluates whether “[a]ssessment models are appropriate to the biology of the stock and the nature of the fishery.” Final Report at 88. To meet scoring guidepost 60, however, the Certification Body requires only “a generic model which does not account for specific characteristics of either the biology of the species or the nature of the fishery.” *Id.* Any model, regardless of applicability or accuracy would meet this standard and, therefore, qualify the fishery for certification. Further, even a model that the majority of evidence suggests is inappropriate for the fishery would qualify under this standard. Principle 1 does not countenance such a result.

This irregularity has the effect in this case of artificially raising the score awarded to the hake fishery. If the scoring guidepost for 60 were more appropriately framed, then the model, necessarily, would need to be more rigorous to qualify for a score of 80. As explained above, the parameters for the model used to assess the Pacific hake stock have changed repeatedly over the past years, reflecting uncertainty and the likelihood that a lower score would be more appropriate for this topic. *See supra* pp. 16-18.

This problem is compounded by the manner in which the Performance Indicators evaluate the harvest strategy. As explained above, Performance Indicator 1.1.5.1 evaluates whether the stock is likely to be above a limit reference point (the overfished level, or  $B_{25\%}$ ) and a target reference point ( $B_{40\%}$ ). *See supra* pp. 22-23. It allows certification, a score of 60, if there is a 25-50% chance that the fishery is above the overfished level ( $B_{25}$ ). When it established Criterion 1 for Principle 1, the MSC simply could not credibly have intended that a fishery with a 75% chance of being overfished satisfies the requirement that it “be conducted at catch levels that continually maintain the high productivity.”

Further, the Certification Body for the Alaska pollock fishery used a similar Performance Indicator—with one significant difference. That Performance Indicator assessed the status of the stock only against the target (defined in that assessment as  $B_{msy}$ , the biomass that results in maximum sustained yield). *See* Attachment 43 (Pollock Assessment Tree Performance Indicators 1.1.2.1 and 1.1.2.2). A score of 60 was awarded only if there was a “reasonable chance that the stock is at or above  $B_{msy}$  or its equivalent.” *Id.* (Performance Indicator 1.1.2.2). Certification would not have been possible for a fishery at significant danger of being overfished. In this assessment, the “target” reference point is made relevant only to achieve a score of 80, where the fishery must have 50-90% likelihood of being above the overfished level and be “around” the target level ( $B_{40}$ ). *See* Final Report at 96.

Similarly, the pollock assessment included two Performance Indicators not found here: an evaluation of whether the harvest strategy “results in appropriate reductions in exploitation rate at low stock sizes” and a determination that the harvest strategy “results in reductions in [catch limits] as uncertainty increases.” *See* Attachment 43 (Indicators 1.1.1.3 and 1.1.1.4). These are the only Performance Indicators for Principle 1 that were excluded entirely from the Pacific hake assessment tree and, as explained above, the 40-10 rule, which is used to set catch limits for Pacific hake does not satisfy these conditions. *See supra* pp. 20-22. The Certification

Body provides no rationale for omitting these two key Performance Indicators in the final assessment tree, and it appears that they would have precluded the certification in this case.

Accordingly, the Performance Indicators are not sufficient to ensure that a fishery only be certified if it is “conducted at catch levels that continually maintain the high productivity of the target population.”

B. Performance Indicators 2.1.5.1 and 2.1.5.2 Are Insufficient to Ensure Compliance With MSC Principle 2.

MSC Principle 2 requires that “[f]ishing operations should allow for the maintenance of the structure, productivity, function, and diversity of the ecosystem (including habitat and associated dependent and ecologically related species) on which the fishery depends.” Principles and Criteria for Sustainable Fishing at 3. Principle 2 is intended to “encourage the management of fisheries from an ecosystem perspective under a system designed to assess and restrain the impacts of the fishery on the ecosystem.” *Id.* To satisfy this Principle, a fishery must be “conducted in a way that maintains natural functional relationships among species and should not lead to trophic cascades or ecosystem state changes.” *Id.* at 3-4.

In the Pacific hake assessment, the Performance Indicators in section 2.1 address this criterion. *See* Final Report at 100. The first four subsections (2.1.1-2.1.4) address only whether information is available about impacts and do not address the management strategies to avoid impacts. *Id.* at 100-15. Sub-criterion 2.1.5 is the sole place for this criterion in which the Certification Body assesses whether “[s]trategies have been developed within the fisheries management system to address and to reduce any significant negative impacts of the fishery on non-target species and ecosystem function (trophic relationships, community and habitat structure).” *Id.* at 115.

Sub-criterion 2.1.5 has three Performance Indicators. Performance Indicator 2.1.5.1 addresses whether “levels of acceptable impact on ecosystem function have been determined and reviewed.” *Id.* at 115. Performance Indicator 2.1.5.3 assesses whether “management strategies are in place to avoid and/or reduce bycatch.” *Id.* at 118. Accordingly, the existence and efficacy of management strategies for all other impacts to the ecosystem are evaluated in one Performance Indicator—2.1.5.2. *See id.* at 117 (“Management strategies are in place to avoid and/or reduce ecosystem impacts (i.e. Physical impacts, lost gear, operational waste, effects on ecosystem structure).”).

Combining this evaluation has the effect of minimizing its importance significantly and, thereby, contravening the intent of MSC Principle 2. Indeed, this Performance Indicator is one of fourteen in section 2.1. *See id.* at 100-19. Collectively, those fourteen Performance Indicators account for one-third of the score for compliance with Principle 2. Thus, this indicator is one of fourteen addressing one-third of the fishery's compliance with this Principle. This important issue cannot be marginalized in that manner.

Moreover, combining categories of impacts would allow a fishery to be certified if it had management strategies in place for one type of impact (physical, for example) but not for any of the others. Indeed, the Certification Body established separate Performance Indicators for determining the information available about the various categories of impacts. *See Final Report* at 108-11. At a minimum, it should have done that for the management strategies.

C. These Deficiencies Are Serious Irregularities In the Fishery Assessment Process Warranting Remand.

As explained above, the Performance Indicators are the mechanism by which the fishery is evaluated against the MSC Principles and criteria. Any deficiency in these Performance Indicators, therefore, constitutes “a serious procedural or other irregularity in the fishery assessment process” as set out in the MSC Objections Procedure Section 4.8.2(a).

The Certification Body does not respond to these contentions in its Reconsideration other than to set out the process it followed in establishing the Performance Indicators and then stating that Objectors did not submit comments during the review process for the assessment tree. *See Reconsideration* at 3-4. The Fisheries Certification Methodology does not require an objector to submit comments on the assessment tree in order to raise these issues in an Objection. Nor does it prohibit challenges to the Performance Indicators. These objections are properly stated.

Further, for the reasons explained under each of the headings above, the irregularities in the Performance Indicators led to artificially high scores that could not have otherwise been justified. Had the Performance Indicators appropriately ensured compliance with MSC Principles 1 and 2, certification likely would not have been appropriate. Accordingly, these irregularities “made a material difference to the fairness of the assessment” and warrant remand.

## **CONCLUSION**

The MSC has proposed certification for a fishery that is at substantial risk of collapse. It has done so in the face of evidence that the collapse is already occurring, without considering the best available information, and without fully and fairly evaluating the fishery against its Principles and Criteria. Certification should not follow in those circumstances. Rather, the Independent Adjudicator should remand and require the Certification Body to consider the 2009 Stock Assessment and other key information available at the time of the determination and to remedy the scoring and other irregularities explained above.