

# THE FUTURE OF SUSTAINABLE SEAFOOD

## BLUE VISION SUMMIT BREAKOUT SESSION

GEORGE WASHINGTON UNIVERSITY, WASHINGTON DC

MARCH 8, 2009

### SESSION SUMMARY

The Environmental Law Institute (ELI), the Marine Fish Conservation Network (MFCN), and the Pew Environment Group co-sponsored a double-session on the future of sustainable seafood at the Blue Vision Summit on March 8, 2009. The double-session was divided into three segments: a panel on the sustainability of wild fishing; a panel on aquaculture; and a discussion of how national ocean policy can guide the future of sustainable seafood.

#### MODERATORS

- Mr. Bruce Stedman, Executive Director, Marine Fish Conservation Network
- Dr. Kathryn Mengerink, Director, Ocean Program, Environmental Law Institute
- Ms. Laura Cantral, Senior Mediator, Meridian Institute

#### FISHERIES PANELISTS

- Ms. Linda Behnken, Executive Director, Alaska Longline Fishermen's Association
- Mr. Chris Dorsett, Vice President of Fishery Conservation and Management, Ocean Conservancy
- Dr. John Field, Research Fish Biologist, Fisheries Ecology Division, National Marine Fisheries Service, National Oceanic and Atmospheric Administration

#### AQUACULTURE PANELISTS

- Mr. Neil Simms, President, Kona Blue
- Mr. Chris Mann, Senior Officer, Pew Environment Group, Pew Charitable Trusts

#### I. SUSTAINABILITY AND WILD FISHING

Mr. Bruce Stedman introduced the session. In his opening comments, he noted that rather than discussing how to define sustainability, the panel was aimed at identifying solutions—solutions that are practical, visionary, broadly applicable, and able to address the complexity of the issues involved.

Ms. Linda Behnken provided recommendations for the fundamental elements necessary for a national ocean policy. She discussed three elements for sustainability:

- (1) **Information that is accurate, adequate, and timely.** Ms. Behnken described information needs including life history, food web dynamics, habitat, selectivity, and ecosystem considerations.
- (2) **Effective tools that are practical for fishermen.** These include management tools such as funding for stock assessments, setting limits on total removals, accounting systems for catch that are timely and accurate, and adequate enforcement. She also described tools for fishermen including clearly identifying issues and needs of specific fisheries, collaboration to achieve

practical solutions, encouraging selective fishing practices to reduce bycatch, and information related to spatial and temporal distribution of fisheries.

(3) **Policies that promote stewardship.** Ms. Behnken noted that these policies include respect for stock assessment science, acknowledgement of inherent uncertainties, controls for total fishing removals, spatiotemporal fisheries distributions, and practical incentives to encourage stewardship.

Ms. Behnken described the Alaskan halibut fishery as an example of effective implementation of the three elements. She noted that in the 1980s a large number of new fishermen entered the fishery, which led to intense 24-hour “derby” openings and created problems of overcrowding, gear loss, dangerous fishing conditions, and bycatch. These conditions changed with the development of the individual fishing quota (IFQ) program, which addressed the derbies and solved a number of developing resource issues. Ms. Behnken stated that effective fishery management utilizes information on life history characteristics, age structure and recruitment, and long-term abundance trends. Effective tools include annual stock assessments, conservative harvest policies, and total catch accounting. Effective policy encourages and rewards resource stewardship. Ms. Behnken pointed out that these successful approaches have led to increased stewardship in the halibut longline fishery, Marine Stewardship Council certification, and an allowable catch that has not been exceeded since IFQ implementation. Ms. Behnken noted that the downside of IFQs has been the significant increase in the cost of entry to halibut fishing, which limits participation by rural community residents. Ms. Behnken described a novel approach to help independent community based fishermen regain access to the longline fisheries—the establishment of the Alaska Sustainable Fisheries Trust.

Ms. Behnken concluded by describing the threats the Alaska halibut fishery faces. Of particular concern is the threat of overfishing posed by the halibut charter fleet—i.e., guided sport fishing. There are also risks associated with political interference with fishery management, offshore agriculture, and industrialization of fisheries generally. She explained that resource conservation can only be achieved when all sectors live within conservation-minded allocations.

Mr. Chris Dorsett discussed the principle causes of overfishing and bycatch, and possible solutions, noting that solutions must be tailored to particular areas or fisheries. Mr. Dorsett began by defining overfishing as exceeding the Maximum Sustainable Yield (MSY) under the Magnuson-Stevens Fishery Conservation and Management Act. He noted that one of the first causes of overfishing is scientific uncertainty in determining the appropriate mortality levels for managed species. Second, managers may fail to set science-based catch levels. Third, management may fail to appropriately limit fishing efforts, due to factors such as incomplete data and monitoring, and management measures may create perverse incentives or exclude important considerations such as bycatch. Fourth, there is a general lack of accountability for the health of the fishery. The fifth cause is fleet overcapacity. After discussing overfishing, Mr. Dorsett explained several factors that lead to bycatch. They include unselective fishing practices, management uncertainty due to incomplete monitoring, and the lack of accountability and overcapacity that may also lead to overfishing.

After noting challenges, Mr. Dorsett went on to describe potential solutions to help increase the sustainability of fisheries. He stated that fisheries must learn to effectively deal with uncertainty and develop mechanisms that allow determination of total allowable catch in the absence of a full stock assessment. In these cases, Mr. Dorsett noted, best available science should govern. He called for mechanisms, including monitoring catch effort, to make sure that fishing fleets do not reach a state of overcapacity. More broadly, Mr. Dorsett noted the need to improve data collection and monitoring generally. He called for the use of new enforcement technologies, performance measures, accountability measures, and the adoption of management measures with a high probability of success that create proper incentives. Mr. Dorsett also recommended the implementation of gear restrictions for increased selectivity to decrease bycatch.

Dr. John Field discussed the role of fisheries science to support management, and showed that while most stocks are currently being managed individually, all of the NFMS science centers are engaged in ecosystem research at some level, and future management will benefit from an ecosystem-wide perspective. Focusing on the historical role of fisheries science in managing the world’s pelagic forage fisheries, based on literature developed by Dr. Pierre Freon, Dr. Field noted that until the 1890s, the

oceans were seen as inexhaustible. The “Industrial exploitation” period from 1900 through the 1950s altered that perception. It led to the “conventional management” period from the 1950s through 1975, during which managers thought that fisheries yields were both predictable and stable over time, and implemented management policies accordingly. Dr. Field noted that it was in the 1970s that fisheries scientists entered what Freon refers to as the “Doubt” period, which began with spectacular fisheries failures that exposed many of the shortcomings of previous models. He went on to say that the current movement toward ecosystem management began in 1995.

To illustrate the need for ecosystem management, Dr. Field provided two examples—the Peruvian anchoveta fishery and the Pacific rockfish fishery. First, Dr. Field discussed the crash of the Peruvian anchoveta fishery, then the largest in the world, during the 1970s. This crash led to dramatic impacts to higher trophic levels (particularly seabirds) and to an increased appreciation for the role of climate as a driver of fisheries productivity. It was noted that the U.S. sardine management plan currently incorporates a climate variable for determining the harvest rate, in recognition of the significance of ocean conditions in determining sardine productivity.

Second, Dr. Field discussed the decline of rockfish, which appears to have been the combined result of overfishing and poor environmental conditions. Dr. Field noted that the rockfish stocks are currently recovering, which provides an example of how management can work if sufficient information is available and proper tools are used.

During the discussion period, the following comments were discussed:

- The goals of long-term sustainability are limited by our understanding of ecosystem interactions and the need for regulatory protection for environmentally sound fishing practices.
- In the Pacific rockfish fishery, there are many species that are still overfished, despite the low trip limits in place.
- The Marine Stewardship Council certification system has helped in the marketplace, favoring eco-friendly harvest methods. However, not enough attention has been paid to continually improving the standards—it needs a mechanism for incorporating increased ecosystem knowledge.
- IFQs are not a good fit for all fisheries. They work well for longline fisheries because the fishery is fairly selective in contrast to many trawl fisheries, which are non-selective. IFQs would also probably not work well in a fishery where every fish caught equals a mortality. Some fish, such as halibut, can be released and survive. It is also important to protect against absentee ownership, as only the owner has a vested interest. IFQs can be effective, but they must be considered and built carefully.

## **II. SUSTAINABILITY AND MARINE AQUACULTURE**

Dr. Kathryn Mengerink introduced the marine aquaculture session, noting that the goal of the session was how to develop sustainable practices. She provided a brief overview of the state of world aquaculture, a sector that has grown from 3.9% of the total seafood production weight in the 1970s to over 30% in 2004, and of U.S. aquaculture, which is small in terms of world production but with the potential for expansion.

Mr. Neil Sims called for a national ocean policy that endorses, embraces, and encourages open-ocean aquaculture. He stated that there are three imperatives: ecological health, public health, and accepting responsibility. When considering these imperatives in the context of fisheries and aquaculture, he noted that wild seafood is collapsing, it's healthy to eat seafood, and the U.S. imports 80% of the seafood consumed, thus outsourcing the U.S. ecological footprint.

Mr. Sims argued that an ocean policy should include four key elements with regard to aquaculture, fisheries, and conservation: (1) an extensive MPA network; (2) IFQs for commercial fisheries; (3) fisheries should target the base of the food chain; and (4) responsible open-ocean aquaculture.

Mr. Sims pointed out that not all aquaculture is like salmon aquaculture, an industry that has come under fire for unsustainable and destructive practices. There are over 20,000 marine fish species. Their life histories render them notably different to salmon, and these facets can modulate many of the potential

risks. Mr. Sims went on to describe key elements of responsible open ocean aquaculture based on his own experiences with Kona Blue. He stated that it is based on nurturing; it provides transparent water quality data; it does not have significant impacts on coral reef, marine mammals, or other fish; and U.S. farmed yellowtail (the Kona Kampachi® produced by Kona Blue) has been ranked as a “Good Alternative” by Monterey Bay Aquarium’s Seafood Watch Program. Mr. Sims encouraged innovative engineering and investment and mariculture hatcheries and restocking efforts with appropriate consideration for scaling and siting.

Mr. Chris Mann discussed general aquaculture challenges and potential solutions. He noted that although the impacts of finfish farming generally take front stage, there are other types to consider that may play different roles in the debate. For example, Mr. Mann stated, low trophic level aquaculture can provide food to people who need it, with less environmental impacts.

Mr. Mann stated that while not all aquaculture is like salmon aquaculture, salmon data show the categories of associated risk, including: escape, parasites and disease, habitat loss (e.g., coastal ponds), pollution (flow-through system), outside factors damaging the system, and altered meal and oil demand due to increased use as aquaculture feed.

Mr. Mann described one innovative approach to aquaculture: Integrated Multi-Trophic Aquaculture (IMTA) or polyculture, which has been used to grow sablefish, in conjunction with scallops, mussels, sea cucumbers, and kelp. He noted that polyculture can mitigate some impacts; however, there are still social and economic questions about growing fish in competition with well-managed commercial fisheries. He also pointed out that some types of low-tech aquaculture, such as inshore shellfish farming, can help clean water in addition to providing seafood.

Mr. Mann’s take-home message was that, as people consider sustainability, they must recognize that there is no free lunch: siting is key, inputs must be controlled, and we must manage for cumulative impacts. He concluded that siting aquaculture as part of a larger marine spatial planning exercise could help mitigate environmental impacts and user conflicts.

During the discussion period, the following comments were discussed:

- Recent developments have led to zero-exchange aquaculture systems for shrimp, tilapia, and barramundi. They are capital and energy intensive, though. Closed containments offer a lot of opportunity for addressing proximate harms, although there are still downsides associated with aspects like shipping and processing and the economics have not yet proven out on a large scale.
- It is important to figure out how forage fisheries and aquaculture can operate together, but we should not subsidize competition with well-managed fisheries.

### **III. HOW NATIONAL OCEAN POLICY CAN GUIDE THE FUTURE OF SUSTAINABLE SEAFOOD**

*Introduction by Moderator Laura Cantral, Joint Ocean Commission Initiative*

Ms. Laura Cantral moderated this interactive discussion session with the panelists and meeting participants. She opened this session by noting that the question for this session is how a national ocean policy can meet some of the challenges facing the seafood industries and ensure sustainability. She highlighted the need for a national ocean policy that makes a commitment, and that recognizes that seafood is important to the economy and the environment. Ms. Cantral stated that the policy must articulate the obligation to protect, maintain, and restore ecosystems, so that they may continue to provide necessary services. She called for a framework that enables management structures to fulfill this obligation and ensures that responsible agencies take protective action. She noted that governments must also coordinate activities to address the connectivity between different resource uses. Ms. Cantral pointed out that policy-makers should seize the current economic crisis as a rationale for implementing a national ocean policy that maintains sustainable seafood and ocean ecosystems.

The following issues were raised and discussed during this session:

- One person noted potential synergies between mariculture and MPAs. However, the counterpoint was made that risks associated with aquaculture (e.g., disease, escape, pollution) made aquaculture siting in MPAs questionable.
- Panelists and participants noted the complexity of siting decisions with some recommendations to take a regional approach to siting decisions to account for different environments and objectives.
- Participants discussed the lack of a national standard for aquaculture. Impediments to such a standard include the regulatory labyrinth and associated costs. Participants noted that it is more likely that a piecemeal regulatory system will develop in the near-term (e.g., the Outer Continental Shelf Lands Act has some language that enables aquaculture siting on existing structures).
- The question of how climate impacts might be inserted into management practices was posed. The general suggestion was that the best approach is to maintain healthy and resilient marine ecosystems.
- Participants pointed out that a critical component of ocean policy is that the sustainability of seafood depends upon the sustainability of the underlying ecosystems. Ecosystem based management and marine spatial planning was suggested as an approach for national policy.
- The recommendation was made that a national ocean policy should declare that the public trust doctrine applies to federal waters, providing authority and responsibility to manage the area as a whole for the public.