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TESTIMONY BEFORE THE SUBCOMMITTEE ON INSULAR AFFAIRS, OCEANS AND WILDLIFE U.S. HOUSE OF REPRESENTATIVES September 9, 2009

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Oversight Hearing on Offshore Aquaculture

My name is Ken Hinman, and I am here as president of the National Coalition for Marine Conservation, an independent non-profit organization devoted exclusively to conserving ocean fish and their environment. I have been actively involved in marine fisheries issues since 1978, a period that corresponds with the evolution of marine fish conservation in the United States. During this time, I've witnessed the many changes Congress has made to our fisheries laws, in response to both the changing needs of our fisheries and our increasing knowledge about the fish, their behavior, their habitat and, more recently, the ocean ecosystems they are such a critical part of.

Madame Chairman, subcommittee members, I appreciate this opportunity to speak to you today on the extremely important issue of offshore aquaculture and how it fits into the broader vision we have for the future of our oceans, for the fishermen and fishing communities that depend on the sea for sustenance and recreation.

The Department of Commerce's approach to offshore aquaculture announced on September 3rd, and repeated here today, illustrates what's wrong with the way we are addressing this issue. The Administration approved, by not approving, a poorly-conceived and grossly ambitious plan to farm waters of the Gulf of Mexico for up to 64 million pounds of fish a year. After giving the gulf the go-ahead, the National Oceanic & Atmospheric Administration says it will now begin developing a national policy.

To use an expression from down on the farm, that's putting the cart before the horse. Congress needs to step in now, bring this cart to a halt, step back, and begin a true national dialogue on offshore aquaculture. The first priority is to develop strict national environmental standards that will keep our ocean fisheries healthy and wild.

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The National Coalition for Marine Conservation (NCMC) was started in 1973 by conservation-minded fishermen. Like the sportsmen before them who pioneered wildlife conservation on land, they evolved, naturally, into passionate protectors of their prey and the wild world we share. Fish are wild animals and they need wild places. The NCMC is dedicated to finding a way to keep the ocean wild in order to preserve our wild fisheries for the fishing public.

But we wonder where we will fit in the future. We see policies being developed that support a future of wild places preserved in marine parks, where little or no fishing is permitted, soon to be surrounded by farms and other industrial uses. Is this the future we want for our oceans? How will the fishing public fit into this scenario? The millions of individual anglers, who simply want to catch a few fish for the home table, or who release their catch because it's the experience they value most? Or the conscientious commercial fishermen who fish selectively and with restraint, scaled-down to serve their communities, not corporations?

This is not to say there isn't room for aquaculture in the sea. But the way it's being done in many parts of the world, and now contemplated here in the United States, is not sustainable and comes with high environmental costs. Aquaculture is *not* fishing. Done on a large scale, as proposed in the Gulf plan, it is agribusiness at sea, or aqua-business for want of a better word.

The environmental threats are real and many and not easily remedied. Fish meal and oil containing PCBs that accumulate in the flesh of farmed salmon. Forage fish taken from the food chain in mass quantities to feed fish reared in saltwater pens. Large numbers of fish that escape their net-pens, competing with less abundant wild stocks for food and habitat. Escapees breeding with wild fish, creating crossbreed populations that are genetically weaker and more vulnerable to disease and parasites. Waste by-products along with pesticides and chemical fertilizers used in the aquaculture process that leak into the marine environment.

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NOAA has committed to an ecosystem-based approach to fisheries management for all marine fisheries. But we find this hasty move into farming the seas anathema to such an approach. We are told that offshore aquaculture will help take pressure off wild stocks of fish. In fact, it is likely to do the opposite. It will put increased pressure directly on forage fish that are used as aqua-feed, and indirectly on other species by taking food out of the mouths of predators; fish, marine mammals and seabirds.

Forage fish, including menhaden, herrings, sardines, anchovies, mackerels, whiting, and krill, are small, abundant, schooling fish that are prey for

many other species of fish, marine mammals and seabirds. They serve the critical ecosystem function of transferring energy from primary or secondary producers to higher trophic levels. Despite their important ecological role, forage fish catch limits are currently set without explicitly taking into account the needs of predators in the ecosystem. This is particularly alarming because the recent boom in global offshore aquaculture has placed unprecedented pressure on forage stocks to satisfy the demand for aqua-feed.

None of the U.S. fishery management plans covering forage fish adequately address all areas vital to maintaining a healthy forage base. Only recently has NOAA begun to develop federal guidance on employing more conservative standards for forage fish. Without more conservative standards, the risk of harvesting these fish at levels that damage the food web and irreversibly harm ecosystems is substantial.

The aquaculture industry is the largest consumer of fishmeal and fish oil, using more than half of the global supply, and this demand is projected to more than double in the next decade as offshore aquaculture expands to meet projected consumer demands. In 2003, 28.8 million tones of fish were captured for reduction into meals and oils for non-human consumption, mostly feeds for agriculture and aquaculture. At current rates of expansion, according to the FAO, it is predicted that the global aqua-feed industry will require 70% of the average historical fish meal supply and 145 percent of the fish oil supply by 2015. The global demand for fish meal for aqua-feeds will exceed total available supplies around the year 2020 and for fish oil well before the year 2010.

While aquaculture is promoted as a solution to reduce pressure on wild fish stocks, the most highly-prized aquaculture species are carnivorous finfish that require significant amounts of fish-based feed. Up to three pounds of wild-caught forage fish are needed to raise a single pound of salmon. Forage needed to rear a pound of bluefin tuna is estimated from 7 to 25 pounds. Most major forage fish species are fully- or over-exploited and cannot sustain increased fishing pressure. Current fishing levels may already be hindering the recovery and sustainability of predator populations.

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Advocates of offshore aquaculture development in the U.S. acknowledge that using fish to feed fish in offshore aquaculture operations is a concern, but then downplay it - unscientifically. They claim, for instance, that there is not a net loss of protein, that wild fish generally consume more protein per pound than do farmed fish.

Whether or not wild fish consume more protein than farmed fish is irrelevant. Farmed fish are separate and apart from the ocean ecosystem. Fish caught to feed farmed fish are removed from the ocean and therefore no longer

available as food for wild predators. The food base for these predators, and the ability of the ocean to support them, is reduced accordingly.

As we noted, one of the main arguments advanced in support of offshore aquaculture is that it will take pressure off already stressed wild fish stocks. But if taking pressure off wild stocks is to allow us to rebuild and maintain them at healthy population levels so they can continue to support wild fisheries, commercial and recreational – which is our current national management goal – it also means ensuring an abundant supply of forage fish (sardines, anchovy, menhaden, mackerel, etc.) to sustain them.

Again as we noted, the growth of offshore aquaculture is expected to more than double the global demand for aqua-feeds over the next decade, putting additional pressure on forage fish populations that are already subject to as much or in some cases more fishing than their populations can withstand. Harvesting forage species to feed penned fish is no different than feeding them to chickens or hogs. It takes substantial amounts of food out of the mouths of wild fish and other marine predators. As far as the ocean environment is concerned, it *is* a net loss of protein.

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Americans ate an average of 16½ -pounds of seafood per person in 2006, according to the Department of Commerce. What would seem to be good news for the fishing industry is tempered by the fact that 83 percent of the fresh, frozen or canned fish and shellfish we consume are imported from overseas. Forty percent of that comes from fish farms.

The Administration is using these figures to bolster support for legislation to promote a big-time U.S. offshore aquaculture industry to close the trade deficit by making the country more seafood self-sufficient. The Commerce Department claims aquaculture will take pressure off wild stocks as seafood demand in the U.S. is expected to exceed supply - stocks are already strained beyond capacity - by 4 million metric tons by 2025.

But will farming take the pressure off? Can we really get more fish out of the ocean without taking more fish? Only two of the five largest capture fisheries produce seafood directly for our dinner table, according to the Woods Hole Oceanographic Institution. The other three "reduce" fish such as menhaden, sardine and mackerel to fish meal and oil for agriculture and aquaculture feeds. So the 16 lbs per person is deceiving. It's actually a lot more than that—up to 4 times, by one estimate—when you factor in the animals nourished on fish feed—chickens, pigs and, yes, farmed fish.

With the exploding global growth of marine aquaculture, including penning or ranching carnivorous fish like salmon and tuna, we're likely to see a sizeable increase in the amount of fish removed from the ocean to feed them.

Diverting fish to the table through farming is an inefficient way to use protein from the sea. Stocks of key forage fish are not well managed around the world and cannot handle the increased fishing pressure. Even here in the U.S., fishery management goals for forage fish are set to sustain the fisheries, not predators.

As for whether aquaculture will take pressure off the stocks of the fish being farmed, that hasn't happened with salmon, because wild-caught fish are more valuable. And in the Mediterranean, where farming bluefin tuna is big business, the result has been vastly increased captures of wild tuna to "grow" in the pens, without a commensurate drop-off in the established market fisheries. Farming adds an estimated 25,000 tons a year to what's already being taken from the Med. Annual catches are now over 50,000 tons, in a fishery that scientists say shouldn't take more than 15,000.

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In order to protect the ocean's forage base, a fundamental element of an ecosystem-based approach to managing fisheries and conserving living marine resources, the National Coalition for Marine Conservation believes we must make preserving an adequate supply of prey for predators the primary goal of fishery management plans for key forage fish. To this end, the NCMC urges Congress to include as a key feature in any federal offshore aquaculture legislation, strict, measurable standards for the use and management of forage fish.

We make the following **recommendations**:

- Prohibit fish ranching, defined as the catching of wild fish to rear and fatten in pens for harvest.

- Permit the use of wild fish as feed ingredients for offshore aquaculture *only* if they are sourced from fisheries utilizing an ecosystem-based approach to management.

- Until such time as ecosystem-based management measures are in place, cap the harvest of forage fish used for reduction.

- Require all Fishery Management Plans for forage fish to feature *ecological reference points* to ensure an adequate forage reserve is maintained for the ecosystem.

- Define *ecological reference points* as targets and limits, such as stock biomass and fishing mortality rate, set to achieve ecosystem-based management goals. These reference points should include target and threshold population size, target population age structure, target population density, and target fishing mortality. As an example, we

append to these comments a white paper we prepared entitled "Ecological Reference Points for Atlantic Menhaden," which is based on a review of the scientific literature and policies recommended and/or implemented in fisheries for key forage species here and abroad.

- Define "forage fish" for which the above standards apply as a suite of species that provide a critical link between lower and upper trophic levels. These species (e.g., menhaden, herrings, sardines, anchovies, mackerels, whiting, and krill) generally exhibit one or more of the following characteristics:

  - Fish and invertebrates that are important prey for upper trophic levels (e.g., small schooling pelagic fish);
  - Prey throughout much of their life-cycle;
  - Their abundance highly influences productivity of predators;
  - Are key forage species at the juvenile stage (small size, location nearshore).