Why Federal Dietary Guidelines Should Acknowledge the Food-Choice / Environment Nexus: Examining the Recommendation to Eat More Seafood

Nell Green Nylen*

The Dietary Guidelines for Americans, and all federal programs and activities that flow from them (for example, the Supplemental Nutrition Assistance Program, the Special Supplemental Nutrition Program for Women, Infants, and Children, and the National School Lunch Program), should integrate environmental sustainability considerations into policy development and on-the-ground implementation. While federal dietary advice is nonbinding on the American public, it is a policy vehicle intended to have specific, significant effects on the food choices of several hundred million people. These effects translate into significant foreseeable environmental impacts that should be taken into consideration under the National Environmental Policy Act in deciding what advice to give and precisely how to frame it. Currently, this does not happen, and the result is nutritional recommendations that are blindered to their actual impacts. For example, the 2010 Guidelines recommend that Americans more than double their average intake of seafood but fail to include guidance about—or even to acknowledge—the relative environmental impacts of different seafood choices. This is both irresponsible and, in the slightly longer term, self-defeating: Overfishing and habitat destruction today contribute to seafood scarcity and food insecurity tomorrow. We cannot afford
to continue to ignore the unintended environmental consequences of federal dietary advice.

Introduction

[T]here is still too little acknowledgment in the greater nutrition community that anything except health—and “free choice”—need to be of concern as we recommend diets. One searches in vain through the newest Dietary Guidelines for Americans for the slightest indication that anything might be amiss in the food system. But things are amiss . . .

Nutrition expert Joan Dye Gussow made this pointed observation about the previous iteration of the U.S. federal dietary guidelines, but her statement continues to resonate today. American consumers are becoming increasingly aware of the broader human and environmental health implications of their food purchasing decisions, and many want to make healthier, more sustainable

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choices. Unfortunately, their efforts are often stymied by the difficulty of finding concise, accurate information that directly addresses the costs and benefits of different options. The sheer quantity and variable quality of available information overwhelms most consumers, who are unable to expend the time and energy necessary to adequately research the choices available to them.

On the other hand, with its phalanx of expert agencies researching and contributing to the management of all aspects of our food system, the federal government is much better situated to recognize and assess the cumulative health and environmental impacts of food choices. Through its multiple roles of providing the public with general health and nutrition advice, promoting American food products, and overseeing food subsidy programs that affect millions, it is also uniquely positioned to relay sustainability information to American consumers to help them make more responsible decisions in their daily lives.

However, federal guidance about nutrition and the sustainability of different food choices has so far been kept largely separated. For example, the U.S. Department of Agriculture’s (USDA’s) Alternative Farming Systems Information Center serves as a clearinghouse for information on organic food production while its National Organic Program labels organic foods and its Know Your Farmer, Know Your Food initiative aims to support local farmers and sustainable agricultural practices. Similarly, the National Oceanic and Atmospheric Administration’s National Marine Fisheries Service (NMFS) hosts FishWatch, a website that “provides easy-to-understand science-based facts to help consumers make smart sustainable seafood choices.” Yet, the Dietary Guidelines for Americans, the official focal point of all federal nutritional advice, fails to incorporate (or even take into account) any of this information in its recommendations.

2. These agencies include the U.S. Departments of Agriculture and Health and Human Services, the Food and Drug Administration, the National Oceanic and Atmospheric Administration, and the Environmental Protection Agency.


4. See About FNS, U.S. DEP’T AGRIC., http://www.fns.usda.gov/about-fns (last visited Sept. 22, 2013) (“[O]ur mission is to increase food security and reduce hunger by providing children and low-income people access to food, a healthful diet and nutrition education . . .”). Food and Nutrition Service “programs serve one in four Americans during the course of a year.” Id.


Instead, USDA and the U.S. Department of Health and Human Services (HHS) consistently ignore the foreseeable environmental impacts of the Dietary Guidelines they jointly publish every five years. For example, the most recent guidelines, released in January of 2011, call for American adults to more than double their intake of seafood, yet the report fails to convey any indication of the effect this change would likely have on already overtaxed U.S. and global fisheries. One detractor of the new guidelines retorted: “Current fishing levels are unsustainable. Imagine the impact of all 300,000,000+ of Americans increasing fish intake . . . .” Even with sustainability advice in place, this increase in seafood consumption could be an environmentally damaging proposition. Without it, recommending that Americans eat more seafood is exceedingly irresponsible.

I. THE FOOD-CHOICE / ENVIRONMENT NEXUS: SEAFOOD

Simply encouraging Americans to eat more seafood will have far-reaching unintended consequences. Currently, visitors to USDA’s ChooseMyPlate nutrition advice website will find twenty-seven different types of fish and shellfish listed as examples in the “protein foods” group. There is no mention that eating some types of seafood comes with added baggage in the form of excessive fishing pressures and other negative environmental impacts. Yet, as Table 1 demonstrates, the Monterey Bay Aquarium’s Seafood Watch website lists only two of the ChooseMyPlate options—mussels and oysters—as unqualifiedly sustainable (receiving Seafood Watch’s “Best Choice” rating); the remainder give cause for differing levels of concern, often based on whether they are farmed or wild-caught, the particular fishing method used, and where they are harvested. In fact, approximately 63 percent of the options

8. See DIETARY GUIDELINES, supra note 7, at 46 fig.5-1, 51 tbl.5-1 (increasing suggested intake from 0.5 to 1.2 ounces per day).
rated very poorly (receiving an “Avoid” rating) under some combination of harvest type, fishing method, and harvest location.\textsuperscript{14}

**Table 1. Sustainability Ratings and Contamination Risks for the Twenty-Seven Types of Seafood the **ChooseMyPlate** Federal Nutrition Advice Website Lists as “[C]ommonly Eaten Protein Foods.”**

<table>
<thead>
<tr>
<th>Type of Seafood</th>
<th>Sustainability Rating\textsuperscript{15}</th>
<th>Mercury Risk (Safe Servings / Month)\textsuperscript{17}</th>
<th>PCB Risk\textsuperscript{18}</th>
</tr>
</thead>
<tbody>
<tr>
<td>anchovies</td>
<td>not available</td>
<td>4+ 4+ 4+ 4+</td>
<td></td>
</tr>
<tr>
<td>catfish</td>
<td>GA—Best Choice</td>
<td>4+ 4+ 4+ 4+</td>
<td></td>
</tr>
<tr>
<td>clams</td>
<td>GA—Best Choice</td>
<td>4+ 4+ 4+ 4+</td>
<td></td>
</tr>
<tr>
<td>cod</td>
<td>Avoid—Best Choice</td>
<td>4+ 4+ 4+ 4+</td>
<td></td>
</tr>
<tr>
<td>crab</td>
<td>Avoid—Best Choice</td>
<td>4–4+ 4–4+ 4–4+ +</td>
<td></td>
</tr>
<tr>
<td>crayfish</td>
<td>Avoid—Best Choice</td>
<td>4–4+ 4–4+ 4–4+ +</td>
<td></td>
</tr>
<tr>
<td>flounder</td>
<td>Avoid—GA</td>
<td>4+ 4+ 4+ 4+</td>
<td>+</td>
</tr>
<tr>
<td>haddock</td>
<td>GA—Best Choice</td>
<td>4+ 4+ 3</td>
<td>2</td>
</tr>
<tr>
<td>halibut</td>
<td>Avoid—Best Choice</td>
<td>3–4+ 3–4+ 2–3 1–2</td>
<td></td>
</tr>
<tr>
<td>herring</td>
<td>GA</td>
<td>4+ 4+ 4+ 4+</td>
<td></td>
</tr>
<tr>
<td>lobster</td>
<td>Avoid—Best Choice</td>
<td>4+ 4+ 4+ 3</td>
<td></td>
</tr>
<tr>
<td>mackerel</td>
<td>GA—Best Choice</td>
<td>&lt;1–4+ 0–4+ 0–4+ 0–4+</td>
<td></td>
</tr>
</tbody>
</table>

*Continued on next page*

\textsuperscript{14} See infra Table 1; Seafood Search, supra note 13.

\textsuperscript{15} See Protein Foods, supra note 12.

\textsuperscript{16} See Seafood Search, supra note 13. Seafood in the “Best Choice” category “is abundant, well-managed and caught or farmed in environmentally friendly ways”; “concerns with how [seafood is] caught or farmed—or with the health of [its] habitat due to other human impacts” place it in the “GA” (Good Alternatives) category; seafood in the “Avoid” category is “caught or farmed in ways that harm other marine life or the environment.” Seafood Recommendations, Monterey Bay Aquarium, http://www.montereybayaquarium.org/cr/cr_seafoodwatch/sfw_recommendations.aspx (last visited Aug. 17, 2013).

\textsuperscript{17} See EDF Seafood Selector, ENVT. DEF. FUND, http://seafood.edf.org/ (last visited Aug. 4, 2013) (providing pertinent data when a visitor clicks on each seafood type or queries the database by entering each seafood type in the “Search” box). The Environmental Defense Fund’s calculations of the safe number of servings per month for each category of consumers assume no other contaminated fish is eaten and the following body weights (in pounds), portion sizes (in ounces), and health-concern mercury cut-offs (in parts per million): Women—144, 6, 0.269; Men—172, 8, 0.241; Kids (6–12)—67, 4.5, 0.167; Kids (0–5)—32, 3, 0.119. See How We Determine Our Health Ratings, ENVT. DEF. FUND, http://seafood.edf.org/how-we-determine-our-health-ratings (last visited Aug. 4, 2013). Note that general consumption advisories may over- or underestimate a consumer’s actual risk exposure because actual contaminant concentrations vary widely for the same type of seafood. See, e.g., Roxanne Karimi et al., A Quantitative Synthesis of Mercury in Commercial Seafood and Implications for Exposure in the United States, 120 ENVTL. HEALTH PERSPS. 1512, 1515 (2012) (finding “high variability in Hg content for both broadly defined seafood categories composed of multiple species (e.g., shark, tuna, shrimp), as well as for individual species (e.g., blue crab, Callinectes sapidus)).

### Table 1. Continued

<table>
<thead>
<tr>
<th>Type of Seafood</th>
<th>Sustainability Rating</th>
<th>Mercury Risk (Safe Servings / Month)</th>
<th>PCB Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Women</td>
<td>Men</td>
</tr>
<tr>
<td>mussels</td>
<td>Best Choice</td>
<td>4+</td>
<td>4+</td>
</tr>
<tr>
<td>octopus</td>
<td>Avoid–GA</td>
<td>4+</td>
<td>4+</td>
</tr>
<tr>
<td>oysters</td>
<td>Best Choice</td>
<td>4+</td>
<td>4+</td>
</tr>
<tr>
<td>pollock</td>
<td>Avoid–Best Choice</td>
<td>4+</td>
<td>4+</td>
</tr>
<tr>
<td>porgy</td>
<td>GA</td>
<td>4+</td>
<td>4+</td>
</tr>
<tr>
<td>salmon</td>
<td>Avoid–Best Choice</td>
<td>4+</td>
<td>4+</td>
</tr>
<tr>
<td>sardines</td>
<td>Avoid–Best Choice</td>
<td>4+</td>
<td>4+</td>
</tr>
<tr>
<td>scallops</td>
<td>GA–Best Choice</td>
<td>4+</td>
<td>4+</td>
</tr>
<tr>
<td>sea bass</td>
<td>Avoid–Best Choice</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>shrimp</td>
<td>Avoid–Best Choice</td>
<td>4+</td>
<td>4+</td>
</tr>
<tr>
<td>snapper</td>
<td>Avoid–Best Choice</td>
<td>3–4+</td>
<td>3–4+</td>
</tr>
<tr>
<td>squid</td>
<td>Avoid–Best Choice</td>
<td>4+</td>
<td>4+</td>
</tr>
<tr>
<td>swordfish</td>
<td>Avoid–Best Choice</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>trout</td>
<td>Avoid–Best Choice</td>
<td>4+</td>
<td>4+</td>
</tr>
<tr>
<td>tuna</td>
<td>Avoid–Best Choice</td>
<td>1–4+</td>
<td>1–4+</td>
</tr>
</tbody>
</table>

When most people think about seafood consumption’s environmental impacts, they probably think first about overfishing; however, there are a host of important issues to address. Modern fishing techniques may do much more than capture the targeted species; they commonly result in physical damage to bottom environments and the incidental capture or destruction of large quantities of unwanted sea life (including fish, invertebrates, sea turtles, marine mammals, and sea birds). Coastal and inland ecosystems are sometimes destroyed to make room for aquaculture, fish farming can result in pollution, and some aquaculture practices have significant impacts on the viability of wild fish populations. Additionally, because the types of fish Americans prefer (including tuna and salmon) are high on the food chain, pound for pound, they represent a much larger energy “SeafoodPrint” than low-trophic level species, or even intermediate predators, leading us to exploit more and more of the oceans in order to satisfy our desire for these types of fish.  

These environmental impacts will have indirect, but definite, long-term effects on American health and nutrition, including by jeopardizing the future

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19 The SeafoodPrint of a particular fishery “is the oceanic primary production required to generate (or ‘sustain’) the catch of [the] fishery, similar to the grass that would be required per year to generate a certain production of milk or meat.” SeafoodPrint: A National Geographic & Sea Around Us Collaboration, Sea Around Us Project, http://www.seaaroundus.org/national_geographic/ (last visited July 28, 2013); see also D. Pauly & V. Christensen, Primary Production Required to Sustain Global Fisheries, 374 Nature 255 (1995). Seafood’s carbon footprint is another important issue, but I do not address it here.
availability of seafood. Moreover, environmental degradation and pollution directly affect the health of those who consume seafood contaminated by toxic pollutants.

A. Environmental Impacts Related to Wild-Caught Seafood

1. Overfishing

Overfishing—removing fish from an ecosystem at a rate that does not allow them to reproduce sustainably—is “a problem for fish, their ecosystems, and people that depend on them.” Fishing can have immediate severe impacts on fish populations, but damage from overfishing often plays out more slowly when harvest outpaces replacement reproduction or cumulative impacts restructure ecosystems and food webs, placing fish in novel and sometimes hostile conditions. Together, the development of new technologies and an expanding global population have given fishermen both the means and the incentive to capture as many fish as possible, and—in the absence of properly enforced, well-thought-out regulations—they have generally done so. For most of history, people assumed that the oceans had unlimited capacity to supply our needs. However, toward the end of the twentieth century, we began to realize this was a misconception. The rapid industrialization of ocean fisheries during the last half-century has brought significant change; today, resource exploitation occurs on a massive scale. Some researchers estimate that the oceans have lost 90 percent of “large predatory fish biomass,” and most declines appear to have occurred within a decade or two of fishery industrialization. This loss of large

20. See discussion infra Part III.C.
22. Becky Mansfield, “Modern” Industrial Fisheries and the Crisis of Overfishing, in GLOBAL POLITICAL ECOLOGY 84, 84 (Dick Peet et al. eds., 2011).
23. See id. at 85 (For example, “when predatory fish are removed, smaller herbivorous fish may increase in abundance, restructuring the entire food web and making recovery of the predatory species less likely.”); Colin W. Clark, Possible Effects of Schooling on the Dynamics of Exploited Fish Populations, 36 JOURNAL DU CONSEIL INTERNATIONAL POUR L’EXPLORATION DE LA MER [J. CONS. INT. EXPLOR. MER] 7, 7 (1974) (“[S]udden population collapses may be expected in the exploitation of small, schooling species of fish normally subject to heavy predation.”).
25. See Mansfield, supra note 22, at 84.
26. See id.
27. See id.
28. See Myers & Worm, supra note 24, at 280, 282. But see Boris Worm et al., Rebuilding Global Fisheries, 325 SCI. 578, 578 (2009) (noting declining exploitation rates for many ecosystems but noting
predators has had significant repercussions for individual fish stocks as well as the structure and function of entire marine ecosystems, which have experienced changed species compositions, reductions in biological diversity, and decreased resilience. Some suggest that we may be “moving from a system much like the wild Serengeti to a system where . . . all we have left are the plant eaters . . . .”

The Food and Agriculture Organization of the United Nations (FAO) reports that worldwide marine capture fisheries production reached a maximum of 86.4 million metric tons in 1996 and has remained fairly stable at close to 80 million metric tons since then. On the other hand, the downward trends for catches of particular species or groups of species have been striking. For example, Chilean jack mackerel catches declined from a peak of “about 5 million tonnes in the mid-1990s” to less than 1 million tonnes in 2010. As of 2008, shark catch had dropped nearly 20 percent after peaking in 2003, and catch of gadiformes (which include cod, hake, and haddock) had approximately halved since its peak in 1987. The FAO reported significant downward catch trends for freshwater mollusks (like clams and mussels) since 2002, possibly “due to their extreme vulnerability to habitat degradation, overexploitation, and predation by alien species.” Concerns about Atlantic bluefin tuna stocks and their mismanagement led to a 2010 proposal “to ban the international trade in Atlantic bluefin tuna under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and, although the proposal was ultimately rejected, the concern remains.”

In the mid-1970s, roughly 40 percent of marine fish stocks were estimated to be moderately exploited or underexploited, 50 percent were thought to be fully exploited, and 10 percent were considered “overexploited, depleted, or recovering stocks.” In 2009, only about 13 percent of fish stocks remained that “63% of assessed fish stocks worldwide still require rebuilding, and even lower exploitation rates are needed to reverse the collapse of vulnerable species”).

29. See Myers & Worm, supra note 24, at 282–83; Mansfield, supra note 22, at 85.
33. See STATE OF WORLD FISHERIES 2012, supra note 31, at 8.
34. See STATE OF WORLD FISHERIES 2010, supra note 32, at 15–16.
35. Id. at 17–18.
37. See STATE OF WORLD FISHERIES 2010, supra note 32, at 8.
“non-fully exploited,” 57 percent were fully exploited, and approximately 30 percent were overexploited. Stocks of the ten species accounting “for about 30 percent of world marine capture fisheries production” are either fully or overexploited.

Poor scientific understanding, lack of effective monitoring, weak regulations, and enforcement problems all contribute to overfishing. Illegal, unreported, and unregulated (IUU) fishing—irresponsible practices that undermine attempts to manage fisheries, including ignoring rules for permissible fishing gear, failing to report or misreporting catch composition and numbers, and fishing in off-limits areas—is a significant problem that works against a well-reasoned regulatory structure. Worldwide, the annual IUU catch has been estimated to be worth more than $4 billion, and it involves mostly fishing companies based in developed countries—including Britain, France, Italy, Japan, South Korea, Spain, and Taiwan—raiding the waters of developing nations. The status quo is unsustainable.

2. Collateral Damage: Bycatch and Habitat Destruction

Fishing generally takes place far from public view in an underwater environment of which most people are barely cognizant. The mental disconnect created by this separation allows the widespread, continuing use of fishing practices with significant negative, but rarely directly observed, side effects. As a thought exercise,

[i]magine what people would say if a band of hunters strung a mile of net between two immense all-terrain vehicles and dragged it at speed across the

38. STATE OF WORLD FISHERIES 2012, supra note 31, at 11. Non-fully exploited stocks “are under relatively low fishing pressure and have some potential to increase their production although they often do not have a high production potential and require proper management plans to ensure that any increase in the exploitation rate does not result in [] overfishing.” Id. at 11–12. “[F]ully exploited stocks . . . produce catches that are very close to their maximum sustainable production and have no room for further expansion and require effective management to avoid decline . . . .” Id. at 11. Meanwhile, overexploited stocks “produce[e] lower yields than their biological and ecological potential and [are] in need of strict management plans to restore their full and sustainable productivity . . . .” Id. at 12.

39. See id.


42. See id. at 80–81.

43. See, e.g., NOAA to Work with 10 Nations to Address Illegal, Unreported, and Unregulated Fishing and Stem the Bycatch of Protected Species, NAT’L OCEANIC & ATMOSPHERIC ADMIN. (Jan. 11, 2013), http://www.noanews.noaa.gov/stories2013/20130111_protectedspecies.html (“IUU fishing undermines international efforts to sustainably manage and rebuild fisheries and creates unfair market competition for fishermen who adhere to strict conservation measures, like those in the United States. IUU fishing can devastate fish populations and their productive marine habitats, threatening food security and economic stability.”).
plains of Africa. . . . [It] would scoop up everything in its way: predators such as lions and cheetahs, lumbering endangered herbivores such as rhinos and elephants, herds of impala and wildebeest, family groups of warthogs and wild dogs. . . . Picture how the net is constructed, with a huge metal roller attached to the leading edge . . . [that] smashes and flattens obstructions[,] . . . break[ing] off every outcrop and uproot[ing] every tree, bush, and flowering plant . . . . There are no markets for about a third of the animals they have caught because they don’t taste good, or because they are simply too small or too squashed. This pile of corpses is dumped on the plain to be consumed by scavengers.  

Like a good documentary film, this description of a theoretical land-based equivalent to the fishing method known as trawling simultaneously disturbs and enlightens. It is doubtful that such an “efficient but highly unselective way of killing animals” could be kept up for long on land and in full view of the public. While perhaps an “efficient” means of gathering and killing sea life, bottom trawling is also a breathtakingly wasteful and unsustainable method of procuring protein to feed the world.

Every year, fishermen incidentally catch and discard on the order of 16 billion pounds of fish, invertebrates, turtles, birds, sharks, and marine mammals while targeting other species. This figure represents almost twice the weight of the United States’ total reported commercial catch in 2008 (8.3 billion pounds). As the FAO explains, many fisheries around the world have a serious problem with “high levels of unwanted and often unreported bycatch and discards . . . including the capture of ecologically important species and juveniles of economically valuable species.” Therefore, bycatch compounds the effects of overfishing.

Fishing gear is a primary predictor of bycatch. Fishing methods with very low bycatch and that are unlikely to cause much habitat damage include
pole/troll fishing (using a baited hook and a fishing pole to target individual fish), trolling (towing multiple baited lines from a boat), and harpooning.\textsuperscript{50} Traps and pots usually result in fairly low bycatch and are less destructive to the sea floor than methods that involve dragging gear along the bottom.\textsuperscript{51} Purse seining involves surrounding entire schools of fish with a wall of netting that is then pulled tight at the bottom; if misused, this method can lead to bycatch.\textsuperscript{52} Gillnetting involves “curtains of netting . . . suspended by a system of floats and weights” that is extremely difficult for fish to see and avoid, and can produce significant bycatch.\textsuperscript{53} Longlining uses “a central fishing line that can range from one to 50 miles long . . . strung with smaller lines of baited hooks, dangling at evenly spaced intervals,” either near the surface (for swordfish and tuna) or along the ocean floor.\textsuperscript{54} Trawling involves towing nets at different water depths, with bottom trawling producing the most bycatch.\textsuperscript{55} Dredging by “dragging a heavy frame with an attached mesh bag along the sea floor to catch animals living on or in the mud or sand” (used for shellfish including clams, scallops, and oysters) can produce a large amount of bycatch and severely damage bottom habitat.\textsuperscript{56} In some parts of the world, dynamite is a common fishing gear used in coral reef environments; it leads to significant bycatch and habitat destruction.\textsuperscript{57} U.S. fisheries are dominated by trawling (54 percent), with pole/troll making up less than 1 percent.\textsuperscript{58}

Although small-scale fisheries vary significantly, they are generally more sustainable than large-scale industrialized fisheries because they use less energy-intensive fishing gear and cannot operate far offshore[,] . . . discard little to no fish and (with the exception of a few gears, including dynamite) do not destroy benthic communities [on which exploited species

\textsuperscript{51} See id.; see also Geoffrey G. Shester & Fiorenza Micheli, Conservation Challenges for Small-Scale Fisheries: Bycatch and Habitat Impacts of Traps and Gillnets, 144 BIOLOGICAL CONSERVATION 1673, 1677 (2011).
\textsuperscript{52} See Fishing Methods, supra note 50.
\textsuperscript{53} Id.; see also Shester & Micheli, supra note 51, at 1677; Luis Gustavo Cardoso et al., Gillnet Fisheries as a Major Mortality Factor of Magellanic Penguins in Wintering Areas, 62 MARINE POLLUTION BULL. 840, 842 (2011).
\textsuperscript{54} Fishing Methods, supra note 50.
\textsuperscript{55} See id.; see also John N. Kittinger, The Legal Nexus in U.S. Fisheries Management: Application in the Hawaiian Longline Fishery Litigation, 30 U. HAW. L. REV. 269, 270, 273–74 (2007) (discussing significant longline turtle bycatch); Cardoso et al., supra note 53, at 842 (stating that longlining is known to kill albatrosses and petrels).
\textsuperscript{56} See Fishing Methods, supra note 50; see also generally S.J. Foster & A.C.J. Vincent, Tropical Shrimp Trawl Fisheries: Fishers’ Knowledge of and Attitudes About a Doomed Fishery, 34 MARINE POL’Y 437 (2010).
\textsuperscript{57} ALIZA GREEN, THE FISHMONGER’S APPRENTICE 17 (2011); see also Fishing Methods, supra note 50.
\textsuperscript{59} See Fishing Methods, supra note 50.
depend[,] . . . are capable of targeting different fish species on the basis of
their availability[,] . . . [and] employ 25 times more people and use one-quarter the fuel to catch roughly the same amount of edible fish (roughly 30 million [metric] tons).60

Yet, large-scale industrialized fisheries, which tend to use more destructive fishing techniques, receive larger fishing subsidies.61 Furthermore, seafood certification organizations experience “real technical difficulties in defining sustainability criteria for fisheries that are data poor,” as small-scale fisheries generally are, leaving consumers in the dark about the actual sustainability of their seafood options.62 As a consequence, small-scale fisheries are largely unable to capitalize on the fact that they are often more sustainable than large-scale fisheries.

B. Environmental Impacts Related to Farmed Seafood (Aquaculture)

Aquaculture, seen as a way to overcome the increasingly obvious limitations of marine fisheries, has been gaining in popularity, experiencing a fifty-fold increase over the last six decades.63 As of 2008, aquaculture accounted for more than one-third of all seafood produced worldwide, including 45.7 percent of the seafood produced for human consumption.64 The practice involves raising fish and shellfish—including those later released into the wild—in “ponds, tanks, cages, or raceways.”65 Aquaculture can entail freshwater (e.g., trout, tilapia, and catfish) or marine (e.g., salmon, shrimp, oysters, mussels, and clams) species.66 So far, the United States has been a minor producer but a major consumer of global aquaculture production: Domestic aquaculture production contributes about 5 percent of the seafood we consume every year, while imported aquaculture products account for more than 40 percent.67

60. Jennifer Jacquet & Daniel Pauly, Funding Priorities: Big Barriers to Small-Scale Fisheries, 22 CONSERVATION BIOLOGY 832, 832–33, 833 fig.1 (2008) (noting that industrial fisheries discard large quantities of bycatch and “reduce[] 20–30 million[] [metric tons] of fish annually into fishmeal to feed pigs, chickens, and farmed fish”); see also Mansfield, supra note 22, at 91.
61. See Jacquet & Pauly, supra note 60, at 833–34, 834 tbl.1 (arguing that most fishing subsidies are skewed toward large-scale fisheries and that “[t]he elimination of fuel subsidies alone would render the 200-strong fleet of high-seas bottom trawlers unprofitable, sparing the reef habitat and bycatch these industrial boats generate in their pursuit of overfished deep sea species”).
62. See Jacquet & Pauly, supra note 60, at 833.
64. See STATE OF WORLD FISHERIES 2010, supra note 32, at 18.
However, aquaculture can have significant environmental impacts when poorly conceived or managed. Unlike farming relatively low-maintenance herbivorous fish, farming salmon and shrimp is very resource intensive, requiring the input of a weight of fish meal (derived from wild-caught fish like herring and anchovies) many times the weight of edible seafood finally harvested. Open net pens and cages pose significant risks of pollution, transferring parasites or disease to wild fish, and escaped fish interbreeding or competing with wild ones. On the other hand, coastal or inland pond aquaculture often causes habitat destruction and creates significant amounts of wastewater. For example, shrimp farms have replaced almost 4 million acres of biologically diverse coastal mangrove ecosystems that buffer low-lying areas from coastal erosion, tsunamis, and saltwater intrusion. Moreover, leftover feed pellets, fecal material, pesticides, antibiotics, and other aquaculture-related chemicals commonly result in local and regional pollution, algal blooms, and anoxic water conditions that cause dead zones. While recirculating systems of raised tanks that treat and recycle water mitigate aquaculture’s pollution impacts, they are expensive and energy intensive.

Additionally, seafood produced via aquaculture can pose greater health hazards than wild-caught alternatives. Farmed fish, raised on feed made from fish meal and oil, contain higher levels of polychlorinated biphenyls (PCBs), dioxins, and other toxic chemicals that build up in fatty tissues than wild fish, which eat a more varied diet.

68. See, e.g., Fishing for Sustainable Practices to Conserve Fisheries, supra note 63.
69. See id.; Simon Santow, Sustainability Questions Over Fish Farming, ABC NEWS AM (May 9, 2011, 8:35 AM), http://www.abc.net.au/am/content/2011/s3211297.htm; Fishing for Sustainable Practices to Conserve Fisheries, supra note 63.
70. See Fishing Methods, supra note 50.
71. See id.
74. See Fishing Methods, supra note 50; C.I.M. Martins et al., New Developments in Recirculating Aquaculture Systems in Europe: A Perspective on Environmental Sustainability, 43 AQUACULTURAL ENGINEERING 83 (2010).
C. Environmental Impacts Related to the Trophic Level of Seafood Choices

Because the types of fish preferred by Americans (including tuna and salmon) are high on the food chain, pound for pound, they have a much larger SeafoodPrint than low-trophic level species, or even intermediate predators, leading us to exploit more and more of the oceans in order to satisfy our desire for these types of fish. A rough, back-of-the-envelope calculation shows that eating 1 pound of a top predator (e.g., bluefin tuna, orange roughy, or salmon) is comparable to eating 10 pounds of intermediate predators (e.g., pollock, herring, and flying squid), 100 pounds of low-trophic-level consumers (e.g., anchovies and lobsters), or 1000 pounds of primary producers (phytoplankton, algae, and aquatic plants).

As of 2010, the United States had the third largest SeafoodPrint of any country, lagging behind only China and Japan. Since we are partial to top predators, in one year, we consume fish that require the equivalent of 768.3 billion pounds of primary production. If we were to double that amount, as the Dietary Guidelines suggest—without switching to species that are lower on the food chain—we would surpass the current SeafoodPrint of China, a nation with a population more than four times the size of our own. Instead of acknowledging and addressing our unsustainable preferences, the United States and other wealthy nations, like Japan, have transformed “broader and broader swaths of the high seas . . . from fallow commons into heavily exploited, monopolized fishing grounds” and “spirited away” poorer nations’ “seafood

76. See supra note 19 (defining “SeafoodPrint”).
77. See generally Paul Greenberg, Time for a Sea Change, NAT’L GEOGRAPHIC, Oct. 2010, available at http://ngm.nationalgeographic.com/2010/10/seafood-crisis/greenberg-text. The amount of primary production that actually “moves up the food chain,” “sustain[ing] seafood production,” is constrained by the amount actually consumed. Wilf Swartz et al., The Spatial Expansion and Ecological Footprint of Fisheries (1950 to Present), 5 PLOS ONE e15143-1, e15143-5 (2010). Although “the proportion of primary production [that] can be sustainably removed each year without compromising ecosystem integrity” is not yet clear, “[i]n cases where fisheries capture more than 30% of local primary production, they may be capturing most of the [primary production] available to fisheries.” Id. “With . . . limited room for [fisheries] expansion, and excessive appropriation of primary production in many regions, the only way toward sustainability of global fisheries goes through reduction of” fisheries’ SeafoodPrints. Id.
78. See Greenberg, supra note 77, illustrations at 82–85.
79. See id. at 84. As Greenberg explains, Japan consumes . . . about 582 million metric tons [per year] in primary-production terms. Though the average Chinese consumer generally eats smaller fish than the average Japanese consumer does, China’s massive population gives it the world’s biggest seafood print: 694 million metric tons of primary production. The U.S., with both a large population and a tendency to eat apex fish, comes in third: 348.5 million metric tons of primary production. Id.
80. See id.
81. See id.
D. Health Effects Associated with Seafood Contamination by Toxic Pollutants

The positive health benefits of eating seafood can be partially or completely offset by the effects of toxic contaminants, especially methyl mercury and persistent organic pollutants, including dioxins and PCBs. Contamination risks are generally highest with large, predatory fish, farmed fish and shellfish, and freshwater fish, but local variations in the amount of contamination can be significant. Therefore, it is imperative that advice to eat more seafood comes with clear guidance about seafood contamination advisories at international, national, and local levels.

Approximately 60 percent of the types of fish and shellfish listed (without health warnings) on USDA’s ChooseMyPlate nutrition advice website present mercury or PCB contamination risks to some segment of the

83. Greenberg, supra note 77, at 84–85 (“Nations with money tend to buy a lot of fish, and a lot of the fish they buy are large apex predators like tuna. . . . Poorer countries simply cannot afford to bid for high-value species. Citizens in these nations can also lose out if their governments enter into fishing or trade agreements with wealthier nations” in which “local fish are sold abroad and denied to local citizens—those who arguably have the greatest need to eat them and the greatest right to claim them.”). We have reached the point that “demand for seafood has now driven fishing fleets into every virgin fishing ground in the world,” leaving “no new grounds left to exploit.” Id. at 85.


85. See U.S. GEOLOGICAL SURVEY, MERCURY IN THE ENVIRONMENT (2000), available at http://www.usgs.gov/subjects/mercury/factsheet/146-00/ [hereinafter MERCURY IN THE ENVIRONMENT]; Rebecca A. Lincoln et al., Fish Consumption and Mercury Exposure Among Louisiana Recreational Anglers, 119 ENVTL. HEALTH PERSPS. 245, 245 (2011) (explaining that methyl mercury “exposure assessments among average fish consumers in the United States may underestimate exposures among U.S. subpopulations with high intakes of regionally specific fish” and finding elevated exposure levels in recreational fishermen in Louisiana eating many different species—nearly eighty were reported in total—of locally caught fish).

86. See, e.g., Sofie Ström et al., Nutritional and Toxicological Aspects of Seafood Consumption—An Integrated Exposure and Risk Assessment of Methylmercury and Polyunsaturated Fatty Acids, 111 ENVTL. RES. 274, 274 (2011) (highlighting “the importance of communicating species specific seafood consumption advisories for women of childbearing age in general and for pregnant women in particular, while . . . encourag[ing] them to consume more seafood”).

87. See Protein Foods, supra note 12 (suggesting “[s]elect[ing] some seafood that is rich in omega-3 fatty acids, such as salmon, trout, sardines, anchovies, herring, Pacific oysters, and Atlantic and Pacific mackerel” but failing to mention mercury or other contamination risks). A different part of the ChooseMyPlate website, not linked to the Protein Foods page, does mention mercury as a potential problem for pregnant and nursing women. See Eating Fish While You Are Pregnant or Breastfeeding, ChooseMyPlate, U.S. DEP’T AGRIC., http://www.choosemyplate.gov/pregnancy-breastfeeding/eating-fish.html (last visited Aug. 4, 2013) (suggesting pregnant or breastfeeding women (1) avoid “shark, swordfish, tilefish, and King mackerel,” (2) “limit canned white tuna to less than 6 ounces per week,” and (3) check local contamination advisories).
population. 88 Looking at this limited selection of data (there are many other types of seafood, as well as other potential contamination risks), the 2010 Dietary Guidelines’ advice to pregnant and nursing women to stay away from king mackerel, shark, swordfish, and tilefish, eat a variety of other seafood, and limit their intake of albacore tuna 89 falls far short. 90

Methyl mercury is a potent neurotoxin (with especially devastating effects on developing embryos and young children) that humans are primarily exposed to by eating fish. 91 Mercury from fossil-fuel burning and other anthropogenic and natural sources makes its way into water, where it can be converted to biologically active methyl mercury by microorganisms, ingested by fish, and then concentrated with each step up the food chain; the result is that large, predatory fish can contain very high levels of methyl mercury. 92 Because methyl mercury builds up in the body faster than it can be excreted (a process known as bioaccumulation), the presence of even miniscule quantities in the environment is magnified and can pose a significant health risk. 93

A recent study of 184 samples of swordfish, tuna, and salmon from restaurants and grocery stores in five states across the country found that, while two-thirds of the grocery store samples had mercury levels “deemed unsafe for consumption,” less than 20 percent had posted mercury warning signs. 94 Meanwhile, a U.S. Geological Survey study of 291 sites in streams across the country detected greater than 0.014 parts per million (ppm) of mercury in every fish tested. 95 Skinless fish filet mercury concentrations at over two-thirds of the

88. See supra Table 1.
89. See DIETARY GUIDELINES, supra note 7, at xi, 34, 39.
90. See, e.g., Lincoln et al., supra note 85; Amy Halloran, Getting Out the Word on the Hudson’s Fish, FOOD SAFETY NEWS (Apr. 1, 2011), http://www.foodsafetynews.com/2011/04/getting-the-word-out-about-hudsons-pcb-fish/ (discussing efforts to address the lack of local knowledge about PCB contamination of fish in the Hudson River and mentioning that, since PCBs accumulate in fish fat, discarding the skin and fat prior to cooking can halve PCB intake).
92. See MERCURY IN THE ENVIRONMENT, supra note 85; see also Mercury Contamination, NAT. RESOURCES DEF. COUNCIL, http://www.nrdc.org/health/effects/mercury/ (follow the “Learn more about the dangerous effects of mercury” hyperlink) (last visited Oct. 16, 2013).
95. See BARBARA C. SCUDDER ET AL., U.S. GEOLOGICAL SURVEY, MERCURY IN FISH, BED SEDIMENT, AND WATER FROM STREAMS ACROSS THE UNITED STATES 1998–2005, at 10, 50 (2009) (finding mercury values that “ranged from 0.014 to 1.95 μg/g ww” with a “median value [of] 0.169 μg/g ww”); David Gutierrez, 100 Percent of Fish in U.S. Streams Found Contaminated with Mercury, NATURAL NEWS (Mar. 3, 2010), http://www.naturalnews.com/028284_fish_mercury.html.
sample locations topped 0.1 ppm, the level “of concern for the protection of fish-eating mammals, including mink and otters,” and 27 percent met or exceeded the Environmental Protection Agency’s (EPA’s) human health threshold of concern (0.3 ppm).

Another concern, especially for wild-caught or farmed freshwater fish, is pesticide residue. Pesticides are substances—including insecticides, herbicides, and fungicides—intended to control pests. Because they are toxic by nature, pesticides can negatively impact human, animal, and environmental health. Prior to a federal court of appeals decision in 2009, EPA did not consider pesticides discharged into or over water to be pollutants requiring National Pollutant Discharge Elimination System (NPDES) permits under the Clean Water Act (CWA).

New EPA regulations requiring a Pesticide General Permit for certain targeted water or above-water applications kicked in on October 31, 2011. Nonetheless, pesticides in “agricultural stormwater or irrigation return flow” remain exempt from CWA permitting and other environmental laws, leaving our nation’s streams and lakes at continued risk.

Additionally, chemicals used in many common household products, pharmaceuticals, and industrial processes have made their way into rivers, lakes, and the ocean. For example, marine and freshwater fish can be heavily contaminated with polybrominated diphenyl ethers (PBDEs) and PCBs (persistent organic chemicals used in flame retardants, insulation, and pigments and dyes that are now banned in the United States). Similarly, triclocarban, a common antibacterial soap ingredient, was recently discovered to be strongly bioaccumulative in fish, although humans are thought to be able to metabolize it successfully, avoiding bioaccumulation. Triclocarban is an endocrine

96. SCUDDER ET AL., supra note 95, at 50.
98. See id.
disruptor, one of a group of compounds that includes “pharmaceuticals, dioxin and dioxin-like compounds, polychlorinated biphenyls, DDT and other pesticides, and plasticizers such as bisphenol A” found in many common products.104 Endocrine disruptors can cause developmental, neurological, reproductive, and immune problems in animals, including humans, by mimicking natural hormones, blocking hormone receptors, or causing the body to over- or underproduce hormones.105 A variety of pharmaceuticals—including the antidepressants Prozac and Zoloft and the anti-anxiety drug Oxazepam—pass unaffected through wastewater treatment plants and can bioaccumulate in fish.106

II. FEDERAL FISHERIES MANAGEMENT

In order to achieve and maintain sustainable fisheries (so that we can take the 2010 Dietary Guidelines’ advice and enjoy the health benefits of increased seafood consumption, now and in the future), we need to find ways to mitigate or avoid the negative impacts currently associated with U.S. and global fisheries. For wild-caught fisheries, this means avoiding overfishing with scientifically sound catch limits and off-limits areas like marine reserves107 and significantly reducing bycatch and habitat destruction through fishing gear and method restrictions. Aquaculture, too, needs tight regulation and sensible siting restrictions that will minimize habitat destruction, pollution, and impacts to wild fish populations. Effective enforcement is essential.

Given the imperfect world we live in today—in which sustainable fisheries management is not a consistent reality—what is the United States doing to address the situation? Will it be enough? U.S. fisheries management is divided among overlapping federal, interstate, and state management systems. International laws and multi-national agreements also come into play.

A. Fishing in Federal Waters

Under the 1976 Magnuson-Stevens Fishery Conservation and Management Act (MSA),108 NMFS regulates fishing in the U.S. Exclusive Economic Zone (EEZ), which generally extends from 3 to 200 miles

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offshore.\textsuperscript{109} NMFS also maintains management authority over fisheries in state coastal waters and over anadromous species during the inland parts of their life cycles.\textsuperscript{110} The MSA embodies Congress’s intent “to take immediate action to conserve and manage” these fishery resources,\textsuperscript{111} “to support and encourage the implementation and enforcement of international fishery [conservation and management] agreements” for highly migratory species,\textsuperscript{112} to establish eight Regional Fishery Management Councils (RFMCs) that will prepare, monitor, and revise fishery management plans to “achieve and maintain . . . the optimum yield from each [EEZ] fishery,”\textsuperscript{113} and to promote U.S. utilization of previously underutilized fisheries “in a non-wasteful manner.”\textsuperscript{114} Although the MSA technically allows foreign countries to negotiate to fish within the EEZ,\textsuperscript{115} almost no foreign fishing has occurred in U.S. waters since 1991 as U.S. fishing capacity has grown to allow full exploitation of U.S. fisheries.\textsuperscript{116}

The MSA lays out ten national standards by which all fishery management plans must abide and directs the Secretary of Commerce to develop nonbinding advisory guidelines to help RFMCs incorporate these standards into their fishery management plans.\textsuperscript{117} National Standard 1 dictates that “[c]onservation and management measures shall prevent overfishing while achieving, on a continuing basis, the \textit{optimum yield} from each fishery for the United States fishing industry.”\textsuperscript{118} The MSA defines “optimum yield” as the quantity of fish that:

(A) will provide the greatest overall benefit to the Nation, particularly with

\begin{footnotesize}
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\item[111.] 16 U.S.C. § 1801(b)(1).
\item[112.] \textit{Id.} § 1801(b)(2). The MSA defines “highly migratory species” as “tuna species, marlin, oceanic sharks, sailfishes, and swordfish.” \textit{Id.} § 1802(21) (internal parentheticals omitted).
\item[114.] 16 U.S.C. § 1801(b)(6).
\item[115.] \textit{Id.} § 1821.
\item[116.] See \textit{id.} § 1801(b)(6); FISHERIES OF THE UNITED STATES, supra note 110. The MSA defines “[t]he total allowable level of foreign fishing, if any, with respect to any fishery subject to the exclusive fishery management authority of the United States, is that portion of the optimum yield of such fishery which cannot, or will not, be harvested by vessels of the United States.” 16 U.S.C. § 1821(d).
\item[118.] 16 U.S.C. § 1851(a)(1) (emphasis added).
\end{itemize}
\end{footnotesize}
respect to food production and recreational opportunities, and taking into account the protection of marine ecosystems;

(B) is prescribed on the basis of the maximum sustainable yield\textsuperscript{119} from the fishery, as reduced by any relevant social, economic, or ecological factor; and

(C) in the case of an overfished fishery, provides for rebuilding to a level consistent with producing the maximum sustainable yield in such fishery.\textsuperscript{120}

To achieve National Standard 1, beginning in 2010 (for fisheries designated as overfished) and 2011 (for other fisheries),\textsuperscript{121} fisheries management plans must include mechanisms for setting annual catch limits (ACLs) and establishing accountability measures to prevent overfishing.\textsuperscript{122} ACLs must be set at or below the level recommended by each RFMC’s scientific and statistical committee.\textsuperscript{123} If a fishery is identified as overfished, RFMCs must modify their fishery management plans within two years “to end overfishing immediately... and to rebuild affected stocks of fish” in as short a time as possible, generally not to exceed ten years.\textsuperscript{124} Since 1997, NMFS has provided Congress with an annual report on the status of U.S. fisheries,\textsuperscript{125} describing fishery stocks that are overfished or subject to overfishing.\textsuperscript{126} The agency also makes quarterly updates of its Fish Stock Sustainability Index, which tracks the

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\item Maximum sustainable yield is “[t]he largest average catch or yield that can continuously be taken from a stock under existing environmental conditions.” NAT’L OCEANIC & ATMOSPHERIC ADMIN., FISHERIES GLOSSARY 28 (2006), available at http://www.st.nmfs.noaa.gov/st4/documents/FishGlossary.pdf.
\item 16 U.S.C. § 1802(33).
\item See 16 U.S.C. § 1853(a)(15); National Standard Guidelines, supra note 117, at 3180.
\item 16 U.S.C. § 1852(h)(6). Scientific and statistical committees provide RFMCs with “ongoing scientific advice for fishery management decisions, including recommendations for acceptable biological catch, preventing overfishing, maximum sustainable yield, and achieving rebuilding targets, and report[] on stock status and health, bycatch, habitat status, social and economic impacts of management measures, and sustainability of fishing practices.” Id. § 1852(g)(1)(B). Committee members must be “Federal employees, State employees, academicians, or independent experts and shall have strong scientific or technical credentials and experience.” Id. § 1852(g)(1)(C).
\item Id. §§ 1854(e). If an RFMC fails to comply, the Secretary of Commerce is bound to prepare a fishery management plan or amendment “to stop overfishing and rebuild affected stocks of fish within 9 months.” Id. § 1854(e)(5).
\item See, e.g., NAT’L MARINE FISHERIES Serv., STATUS OF STOCKS 2012, at 4–5 (2013), available at http://www.nmfs.noaa.gov/stories/2013/05/docs/2012_sos_rtc.pdf. “Subject to overfishing” connotes that harvest rates for a fish stock are above the level allowing maximum sustainable yield, while “overfished” means that the biomass of a fish stock is “depleted to a degree that the stock’s capacity to produce the [maximum sustainable yield] is jeopardized.” Id. at 2.
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health of 230 key fishery stocks, available on its website.¹²⁷

NMFS assessments suggest the new ACLs are already making a positive impact, and the outlook for achieving the end of overfishing in U.S. waters is looking brighter. For example, in 2012, fewer fisheries experienced overfishing than in previous years, and many overfished populations appeared to be rebuilding.¹²⁸ In 2012, the FAO reported that “67 percent of all [U.S.] stocks are now being sustainably harvested.”¹²⁹ On the other hand, there is still room for improvement; 19 percent of assessed fishery stocks are overfished, and 10 percent are subject to overfishing.¹³⁰ Additionally, the status of “a high proportion of the most important stocks” remains unknown: “Of the 230 stocks that contribute over 90 percent of total fishery landings, overfishing status is known for [just] 85 percent and overfished status for [just] 77 percent.”¹³¹

The Marine Fish Conservation Network—a coalition of almost 200 organizations including the Marine Stewardship Council, Monterey Bay Aquarium, Natural Resources Defense Council, Pew Environmental Group, and a number of commercial and recreational fishing associations—lauds the creation of “a responsive, adaptive and flexible framework” that can help stop overfishing in U.S. waters but also warns Congress against complacency.¹³² It argues that Congress must work to ensure full implementation of current MSA requirements, reject political interventions that relax catch limits, and provide funding adequate “to support vital data collection, catch monitoring, and stock assessment science.”¹³³ The coalition urges that restoring overfished stocks “to healthy, productive levels is the best way to help fishermen and coastal communities derive the greatest benefits from fisheries resources.”¹³⁴

By contrast, opponents have suggested weakening the MSA. Citing job losses due to what they see as overzealous catch limits, they have introduced proposed legislation that would, for example, limit the power of RFMCs’ science and statistical committees in developing ACLs.¹³⁵ H.R. 1646, floated in 2011, would have added a requirement for committee scientific advice to be

¹²⁷. See Status of U.S. Fisheries, supra note 125.
¹²⁸. See, e.g., STATUS OF STOCKS 2012, supra note 126, at 2, 4–5. Since 2000, thirty-two stocks “have rebuilt to their target levels,” including six that achieved their targets during 2012. Id. at 2.
¹³⁰. See STATUS OF STOCKS 2012, supra note 126, at 2.
¹³¹. See id. at 2.
¹³³. Id. at 2.
¹³⁴. Id. at 13.
“risk neutral,” barred committees from providing an ACL recommendation that represents a 20 percent increase or decrease over the prior limit without approval by “a peer review process conducted exclusively by non-governmental entities,” extended the length of time allowed for rebuilding overfished fisheries, and limited the Secretary’s ability to close fisheries.136 This type of pushback is shortsighted. In theory, there should be no tension between fishing-industry interests and the MSA’s goal of achieving optimum fisheries yields, which are directed at restoring and maintaining high fish populations and high yields into the future.

B. Federal Oversight of State Fisheries Management

In addition to governing fishing activities in the EEZ, NMFS oversees three Interstate Marine Fishery Commissions—for the Atlantic, Gulf, and Pacific states—that help manage coastal fisheries under state jurisdiction, those within approximately three miles of the shoreline.137 A fourth, the Great Lakes Fishery Commission, is a cooperative effort between federal, state, tribal, and provincial agencies of the United States and Canada.138

Furthermore, each state has its own laws and regulations dealing with fishing and fisheries management. For example, in California the primary management agency is the Department of Fish and Wildlife, responsible for administering and enforcing the California Fish and Game Code and Title 14 of the California Code of Regulations.139 Where state regulations do not identify species by name, they “may be taken without restriction” by commercial fishermen; however, the state heavily regulates the types of fishing gear commercial fishermen may use in specific situations.140 Additionally, the Department of Fish and Wildlife controls recreational fisheries within the state.141 States can sometimes affect global fisheries policy through market-restricting legislation, like California’s ban on the possession, sale, trade, or distribution of shark fins.142

140. See id.
C. Federal Aquaculture Law and Policy

Although most aquaculture production in the United States takes place in inland areas and coastal waters that fall under state jurisdiction, NOAA plays a permitting and oversight role and supports aquaculture research through the National Marine Aquaculture Initiative. Congress intended the National Aquaculture Act of 1980 “to encourage the development of aquaculture in the United States” by requiring the development of a National Aquaculture Development Plan, aquaculture research, and studies to determine how to “remove unnecessarily burdensome regulatory barriers to the initiation and operation of commercial aquaculture ventures.” NOAA and Department of Commerce released National Aquaculture Policies in June 2011. So far, federal governance of aquaculture seems to be based on its interface with non-aquaculture-specific laws (like the CWA) and regulations.

D. The International Arena: International Law and Trade

Given that we imported about 91 percent of the seafood we ate in 2011—about 5.3 billion pounds, mainly from China, Thailand, Canada, Indonesia, Vietnam, and Ecuador (in order of decreasing import quantity)—success in achieving sound domestic fisheries management can, at best, ensure that a small fraction of the seafood we eat is sustainable. How likely are we to be able to influence fisheries management around the world on a timescale that can respond effectively to the 2010 Dietary Guidelines’ call to double seafood consumption? The prospect is daunting.


145. Id. §§ 2801(b), (c), 2803, 2804(c), 2808.
and CITES—affects “high seas” (and sometimes national) fisheries management.\textsuperscript{149} International agreements are especially important for the management of “straddling stocks,” anadromous species, and highly migratory species, which either straddle political boundaries or regularly migrate across them so that populations may be affected by activities in widely separated locations.\textsuperscript{150} Generally, only parties to these agreements are bound by them,\textsuperscript{151} unless their tenets are also considered to be part of customary international law.\textsuperscript{152} In a regrettable failure of international leadership, the United States has failed to ratify UNCLOS, lessening its leverage in this arena.\textsuperscript{153}

Legally binding agreements are supplemented by purely voluntary international instruments, like the Code of Conduct for Responsible Fisheries, which is not internationally enforceable but is instead intended to be invoked to justify domestic policy initiatives and legislation.\textsuperscript{154} Additionally, groups of nations that share fishing interests in a particular region or highly migratory species have formed Regional Fisheries Management Organizations (RFMOs) that, depending on the terms of the agreements that create them, range from purely advisory bodies to organizations whose decisions are legally binding on their members.\textsuperscript{155} Unfortunately, the frequent lack of meaningful consequences for rule breakers, even in RFMOs, allows member states to undertake biologically risky levels of fishing that jeopardize fisheries with impunity.\textsuperscript{156}

\textsuperscript{149} See generally ERICK FRANCKX, FOOD & AGRIC. ORG. OF THE UNITED NATIONS, THE RELATIONSHIP BETWEEN CITIES, FAO AND RELATED AGREEMENTS; LEGAL ISSUES (2011) [hereinafter FAO LEGAL ISSUES], available at http://www.fao.org/docrep/013/i1976e/i1976e00.pdf; Tyler, supra note 21; see also FRANCISCO ORREGO VICUÑA, THE CHANGING INTERNATIONAL LAW OF HIGH SEAS FISHERIES 31 (1999); FAO Compliance Agreement, FOOD & AGRIC. ORG. UNITED NATIONS, http://www.fao.org/fishery/topic/1476e/en (last visited Nov. 16, 2013). For example, in an attempt to address the problem of fishing vessels reflagging to avoid being subject to specific international conservation and management agreements, the 1993 FAO Compliance Agreement requires parties to “ensure that fishing vessels entitled to fly its flag do not engage in any activity that undermines the effectiveness of international conservation and management measures.” FAO Compliance Agreement, supra.

\textsuperscript{150} See VICUÑA, supra note 149, at 32–33, 40–41. Straddling stocks “occur . . . in the exclusive economic zone of two or more coastal states or in the exclusive economic zone and an area of the high seas adjacent to and beyond this zone.” Id. at 41.


\textsuperscript{152} See, e.g., CUSTOMARY INTERNATIONAL HUMANITARIAN LAW, INT’L COMMITTEE RED CROSS, http://www.icrc.org/eng/war-and-law/treaties-customary-law/customary-law/index.jsp (last visited Nov. 16, 2013) (“Customary International Law is made up of rules that come from ‘a general practice accepted as law’ and that exist independent of treaty law.”).


\textsuperscript{154} See FAO Compliance Agreement, supra note 149.


Given the complexity, inconsistency, and patchiness of this network of international fisheries agreements, it is tempting to consider the idea of instituting an outright ban on imports of seafood caught or produced unsustainably. However, such an action would likely run afoul of the General Agreement on Tariffs and Trade (GATT). Article XX(g) of GATT—which allows nondiscriminatory trade restrictions to further “the conservation of exhaustible natural resources” does not apply to natural resources outside the trade-restricting state’s jurisdiction. Because CITES is more recent, parties to both GATT and CITES formerly had to apply the conflicting provisions of CITES, which “allow[] [s]tate[] parties to protect non-domestic species through trade restrictions.” However, in 1994, the World Trade Organization (WTO) Agreement effectively reset GATT’s “date from 1947 to 1994,” “leapfrog[ing]” GATT over most environmental treaties using trade measures, including CITES, and apparently preventing state parties from using trade restrictions to protect species outside their jurisdictions.

Nonetheless, in 2001, the WTO Appellate Body’s ruling in the Shrimp-Turtle case indicated that environmental trade restrictions, including “unilateral import bans” intended to protect nondomestic resources can be acceptable under GATT, if “they avoid unfair discrimination.” Because this decision emphasized that the trade-restricting party would need to have first made “good faith efforts to reach international agreements” on the issue, the WTO would undoubtedly frown upon a blanket ban on unsustainable imports (which would likely be politically infeasible, even if acceptable to the WTO). Therefore, the United States would need to enact WTO-compliant bans piecemeal, based on the facts associated with each individual fishery and only after international negotiations failed.

The difficulty of directly regulating management of fisheries partially or entirely located in non-U.S.-controlled waters highlights the need to use other methods of influence. If the federal government cannot (or will not) import-ban

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158. See FAO LEGAL ISSUES, supra note 149, at 59.
159. See id. at 59, 59 n.386.
160. Id. at 59–60. Note that the principle of lex specialis potentially provides some relief here, because “multilateral environmental agreements . . . are [usually] much more specific than the general provisions of the WTO Agreement.” Id. at 60.
161. Howard F. Chang, Environmental Trade Measures, the Shrimp-Turtle Rulings, and the Ordinary Meaning of the Text of the GATT, 8 CHAP. L. REV. 25, 33–34, 50 (2005); see also Appellate Body Report, United States—Import Prohibition of Certain Shrimp and Shrimp Products, ¶ 135, WT/DS58/AB/RW (Oct. 22, 2001) (holding that U.S. ban on shrimp imports from foreign countries that lacked a comparably effective regulatory program for the incidental taking of sea turtles was valid), available at http://www.worldtradelaw.net/reports/wtoab/us-shrimp(ab)(21.5).pdf; see also Tyler, supra note 21, at 87–88 (arguing that Shrimp-Turtle indicates that “RFMOs and other fisheries MEAs [multilateral environmental agreements] can adopt trade measures as an enforcement mechanism without violating the WTO” Agreement).
162. See, e.g., Chang, supra note 161, at 33–34.
its way to sustainable seafood, it can still use its bully pulpit to persuade the people of the United States to wield the collective power of their pocketbooks to demand more-sustainable seafood.

III. USING THE BULLY PULPIT: THE CRUCIAL ROLE OF “RECOMMENDATIONS”

While there is no guarantee Americans will follow federal advice about food choices, the size of the government’s megaphone ensures that a significant portion of the population will likely hear its message. That is half the battle. People need to recognize there is a problem and their personal food-choice and purchasing decisions are important to its solution. Without government buy-in to clearly and authoritatively communicating the issues, we can only expect the existence of seafood sustainability guides\(^\text{163}\) and seafood certification programs\(^\text{164}\) to get us so far. To this end, the *Dietary Guidelines for Americans* and all federal programs and activities that flow from them must integrate environmental sustainability considerations into policy development and specific implementation. Unfortunately, the *Guidelines* currently ignore the issue of sustainability altogether.

A. *The 2010 Dietary Guidelines for Americans*

Although the federal government has issued nutritional guidance for more than 100 years,\(^\text{165}\) it first issued the *Dietary Guidelines* in 1980.\(^\text{166}\) The National Nutrition Monitoring and Related Research Act of 1990 requires that USDA and HHS produce updated guidelines at least every five years.\(^\text{167}\) In

\[\begin{align*}
\text{163.} & \text{ See, e.g., Seafood Recommendations, MONTEREY BAY AQUARIUM,}
\text{167.} & \text{See 7 U.S.C. § 5341(a)(1) (2012).}
\end{align*}\]
addition to providing the general public with nutritional advice to “promote health and reduce disease risk,” the Guidelines “establish the scientific and policy basis” for all federal food, nutrition, and health programs. Thus, Congress intended the Guidelines to be much more than mere advice when it comes to federal government programs.

For the most recent update, the Dietary Guidelines Advisory Committee (DGAC), composed of thirteen experts in the fields of health and nutrition, undertook a detailed review of the 2005 Dietary Guidelines and recent scientific and medical developments, submitting its advisory report to USDA and HHS in June 2010. After soliciting public comment on the report, nutritionists from USDA’s Center for Nutrition Policy and Promotion and HHS’s Office of Disease Prevention and Health Promotion “translated” it into the 2010 Dietary Guidelines.

The Center for Nutrition Policy and Promotion’s website contains the final 2010 Guidelines, the 445-page DGAC advisory report, links to public comments, and other related materials that seem geared toward the nutrition expert. Indeed, the 100-plus-page Dietary Guidelines document is too long and detailed for general consumption and is primarily aimed at helping nutrition and health professionals develop educational materials and providing policymakers with a basis for creating and implementing nutrition-related programs. It discusses the links between eating behaviors and obesity and provides context for twenty-three general recommendations and six recommendations directed at specific subsets of the American population. General recommendations include encouraging everyone over the age of two to: eat only enough calories to achieve and maintain a healthy weight; get more exercise; reduce consumption of foods high in solid fats, sugar, refined grains, meat and poultry, and sodium; cut synthetic trans fats from their diets; and increase consumption of nutrient-dense foods, including vegetables, dried legumes, fruits, whole grains, nuts, seeds, low-fat and fat-free dairy products, and seafood. Additionally, the Guidelines encourage people over age fifty to get extra vitamin B12; women “capable of becoming pregnant” to eat more iron-, vitamin-C-, and folate-rich foods and to consume 400 micrograms of synthetic folic acid daily; and pregnant or breastfeeding women to take an iron supplement and eat eight to twelve ounces of seafood each week while limiting their intake of albacore tuna to six ounces and avoiding tilefish, shark, 

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168. BACKGROUNDER, supra note 166, at 2; see also 7 U.S.C. § 5341(a)(1).
169. Id. at 2–3.
170. Id. at 4.
171. See DIETARY GUIDELINES, supra note 7, at x–xi.
swordfish, and king mackerel. \[174\]

HHS’s Health.gov website, on the other hand, seems to be directed more toward the general public. In addition to making the Dietary Guidelines document available, it boils everything down to three bullet points:

- Balance calories with physical activity to manage weight
- Consume more of certain foods and nutrients such as fruits, vegetables, whole grains, fat-free and low-fat dairy products, and seafood
- Consume fewer foods with sodium (salt), saturated fats, \textit{trans} fats, cholesterol, added sugars, and refined grains \[175\]

The Guidelines explain that, by the directive to “consume more seafood,” the federal government has in mind that we each increase our average intake from about 3.5 ounces of seafood per week to more than 8 ounces per week (up to 12 ounces for pregnant and nursing women) of a variety of seafood. \[176\] In other words, this single document recommends more than doubling our national demand for seafood. \[177\]

To back up the recommendations, the Dietary Guidelines devote most of a page to describing the cardiovascular benefits of omega-3 fatty acids as outweighing potential methyl-mercury risks as well as advocating that Americans “eat[] a variety of seafood . . . that emphasizes choices relatively low in methyl mercury.” \[178\] Salmon, anchovies, herring, sardines, trout, Atlantic and Pacific mackerel, and Pacific oysters are highlighted as choices that are rich in omega-3’s but “lower in mercury.” \[179\] An appendix gives estimates of omega-3 fatty acids and mercury content for selected varieties of seafood. \[180\]
B. The Guidelines Ignored DGAC References to Environmental Sustainability

Although the word "environment" appears more than twenty times in the 2010 Dietary Guidelines, it never alerts readers to the important relationship between our food choices and the health of our physical environment. Instead, the document invokes the term to describe the also important social and economic context that shapes our food choices and physical activity decisions. The Guidelines advocate a holistic approach to promoting nutrition and physical activity, recognizing that American citizens ultimately make their own choices but are heavily influenced by the information and opportunities available to them. They emphasize that “actions are best sustained when developed, implemented, and evaluated by supporters across multiple levels of influence” so that “[p]ositive changes . . . will require broad, cooperative, and sustainable efforts by all.”

In fact, the only sentence in the Dietary Guidelines that hints at the environmental consequences of food comes within “a call to action” to “[e]nsure that all Americans have access to nutritious foods and opportunities for physical activity.” To meet that goal, the guidelines’ suggestions include working to “[d]evelop and expand safe, effective, and sustainable agriculture and aquaculture practices to ensure availability of recommended amounts of healthy foods to all segments of the population.”

This appears to be the sole remnant of several brief mentions of environmental sustainability in the DGAC report, upon which the 2010 Dietary Guidelines are based. For example, the report contains a similar “call to action” to the one described above, but it is more detailed, pushing for

[i]ncrease[ing] environmentally sustainable production of vegetables, fruits, and fiber-rich whole grains[,] . . . [d]evelop[ing] safe, effective, and sustainable practices to expand aquaculture and increase the availability of seafood to all segments of the population[,] . . . [and] [e]nhanc[ing] access to publicly available, user-friendly benefit/risk information that helps consumers make informed seafood choices.

The call for risk/benefit information appears to be directed only at providing

181. DIETARY GUIDELINES, supra note 7, at 56 ("[A] Social-Ecological Model can help us understand the roles that various segments of society can play in making healthy choices more widely accessible and desirable. The model considers the interactions between individuals and families, environmental settings and various sectors of influence, as well as the impact of social and cultural norms and values.").
182. See id. at 57.
183. Id.
184. Id.
185. Id. (emphasis added).
the public with adequate information about the direct health risks (methyl mercury and persistent organic pollutants) and health benefits of eating different types of seafood.\textsuperscript{187} Nonetheless, the calls for more sustainable agriculture and aquaculture are promising.\textsuperscript{188} In at least two instances, the committee also recognizes that actually implementing its recommendations would create significant new demands on our natural resources:

Population growth, availability of fresh water, arable land constraints, climate change, current policies, and business practices are among some of the major challenges that need to be addressed in order to ensure that these recommendations can be implemented nationally. For example, if every American were to meet the vegetable, fruit, and whole-grain recommendations, domestic crop acreage would need to increase by an estimated 7.4 million harvested acres.\textsuperscript{189}

and,

[The evidence suggesting that plant-derived omega-3 fatty acids are not as protective as those found in seafood] increases the need for efficient and ecologically friendly strategies to allow for greater consumption of seafood n-3 fatty acids . . .\textsuperscript{190}

It would have behooved the 2010 Dietary Guidelines to retain these minimal references to environmental impacts and sustainability.

C. The Guidelines Failed to Consider Environmental Impacts

As Maya Joseph and Marion Nestle point out, widely given dietary advice can have significant unintended, yet quite foreseeable, environmental consequences.\textsuperscript{191} For example, the general recommendation to eat less saturated fat will likely guide people to shift their protein intake from beef to chicken, lean pork, or fish. Increased chicken and pork consumption will likely mean more concentrated animal feeding operations that pose pollution and disease risks, and increased fish consumption will contribute to overfishing, habitat destruction, biodiversity loss, and pollution.\textsuperscript{192} After a summer 2010

\textsuperscript{187} See, e.g., id. at 385–87, 425.
\textsuperscript{188} Interestingly, the committee briefly discussed the health effects of organic produce in a supplement to its main report, concluding that there is not sufficient proof that organic foods are nutritionally superior to conventional ones and declining to discuss them in the main report. See id. at 369; DIETARY GUIDELINES ADVISORY COMM., U.S. DEPT’T OF AGRIC. & U.S. DEPT’T OF HEALTH & HUMAN SERVS., RESOURCE 3: CONVENTIONAL AND ORGANICALLY PRODUCED FOODS 2 (2010), available at http://www.cnpp.usda.gov/Publications/DietaryGuidelines/2010/DGAC/Report/Resource3-Orgonics.pdf. However, the DGAC failed to examine studies about the health impacts of pesticide residues or to take into account the broader public health and environmental consequences of using conventional farming versus organic. These are the reasons most people give for purchasing organic foods, so the committee’s treatment of the issue is something of a strawman.
\textsuperscript{189} DGAC REPORT, supra note 186, at 55.
\textsuperscript{190} Id. at 238 (emphasis added).
\textsuperscript{192} See id.; discussion supra Part I.
trip to visit Alaskan salmon fisheries, Nestle blogged about the experience, concluding: “I could not help thinking about federal dietary guidelines... If we want to continue to have fish to eat, we must pay attention to” issues like fishery sustainability, bycatch, and waste.193

Even assuming no direct connection between resource sustainability and human health, failure to account for the environmental impacts of seafood choices is shortsighted and counterproductive. For the U.S. population to derive a long-term health benefit from seafood consumption, fish and shellfish must continue to be available in sufficient quantities into the future. Indeed, the United Kingdom’s Sustainable Development Commission put out a 2009 study exploring the relationship between nutrition, food choices, food security, and the environment that made exactly this point: “[P]ublic health problems resulting from a lack of fish will be far worse in the long term if stocks are depleted to the point of no return.”194 The report mentioned that the UK’s own Food Standards Agency (FSA) had recently revised its consumer nutrition advice regarding fish and shellfish to include sustainability information, suggesting this might serve as a useful model for how health and environmental advice could be integrated for other food choices.195 This change followed a

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195. See SUSTAINABLE DEV. COMM’N, supra note 194, at 43. As part of the FSA’s Eat Well program, the webpage on fish and shellfish (one of eight “nutrition essentials”) explained the health benefits of different types of seafood, discussed health risks from dioxins, PCBs, and mercury, and delved into sustainability issues, offering practical advice for choosing responsibly managed seafood. See Fish and Shellfish, FOOD STANDARDS AGENCY, http://collections.europarchive.org/nla/20100927130941/http://www.eatwell.gov.uk/healthydiet/nutritionessentials/fishandshellfish#cat516851 (archive created Sep. 27, 2010); see also Fish Sustainability, FOOD STANDARDS AGENCY, http://tna.europarchive.org/20120419000433/http://www.food.gov.uk/foodindustry/farmingfood/fish/ (archive created April 9, 2012). Unfortunately, the FSA no longer provides dietary advice, that duty having been transferred to the National Health Service, which currently gives only minimal dietary
review sparked by concerns that official advice to simply eat more fish could have devastating environmental consequences.196

Even if it would be ethically responsible (and commonsensical) to consider them, many probably assume that USDA and HHS can legally ignore the foreseeable environmental impacts of their dietary advice because worrying about environmental sustainability is not in their job descriptions. There are several reasons this assumption is inaccurate. USDA (the lead agency for the 2010 Dietary Guidelines) provides a good example. First, USDA’s mission—"provid[ing] leadership on food, agriculture, natural resources, rural development, nutrition, and related issues based on sound public policy, the best available science, and efficient management"197—undoubtedly invokes environmental concerns. Second, USDA is home to the Forest Service198 (one of two agencies charged with managing most federal public lands) and the Natural Resources Conservation Service,199 and it administers many other programs with an environmental focus.200 Therefore, the Department boasts significant expertise in the area of environmental analysis and is well versed in our nation’s environmental laws. USDA regulations affirm that all USDA agency programs and policies will be “planned, developed, and implemented” following National Environmental Policy Act (NEPA) procedures.201 Furthermore, “in order to assure responsible stewardship of the environment for present and future generations,” USDA explicitly requires its agencies to plan, develop, and implement their programs and policies “to achieve [NEPA’s] goals.”202

In fact, every federal agency is similarly bound to comply with NEPA,203 which Congress intended to serve as an important constraint on decision making.204 The statute directs federal agencies to consider the potential environmental impacts of their proposed actions but does not mandate a particular outcome; instead, it aims to ensure the integrity of the agency


196. See Alison Chiesa, We Were Told to Eat More Fish . . . but Now There May Not Be Enough Left, HERALD, SCOTLAND (Feb. 7, 2008), http://www.heraldscotland.com/we-were-told-to-eat-more-fish-but-now-there-may-not-be-enough-left-1.874263.


200. See, e.g., sources cited supra note 5.

201. 7 C.F.R. § 1b.2(a) (2013).

202. Id. (emphasis added).


decision-making process and to facilitate public participation.\textsuperscript{205} To achieve these goals, NEPA requires agencies to identify and consider a project’s direct, indirect, and cumulative impacts\textsuperscript{206} and to prepare a detailed environmental impact statement (EIS) for major federal actions that could significantly affect “the quality of the human environment.”\textsuperscript{207} Whether an action might significantly affect the environment should be analyzed in terms of both context\textsuperscript{208} and intensity.\textsuperscript{209} An agency may first prepare an environmental assessment (EA) to determine if EIS preparation is required.\textsuperscript{210} If the EA results in a finding of no significant impact (FONSI), the agency “must supply a convincing statement of reasons to explain why a project’s impacts are insignificant” in order to show that it “took a hard look” at the question.\textsuperscript{211}

Currently, the U.S. Supreme Court views NEPA as a procedural statute, requiring only that agencies follow the proper environmental review process before making decisions.\textsuperscript{212} Yet, in enacting NEPA, Congress sought to “prevent or eliminate damage to the environment and biosphere[,] stimulate the health and welfare of man[,] . . . [and] enrich the understanding of the ecological systems and natural resources important to the Nation.”\textsuperscript{213} Therefore, it directed that, “to the fullest extent possible . . . the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with” NEPA’s polices,\textsuperscript{214} which include acting as a responsible “trustee of the environment for succeeding generations” and attaining “the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences.”\textsuperscript{215}

Some types of activities may be categorically excluded from NEPA analysis because an agency has determined that they do not normally have “individually or cumulatively” significant effects on the environment.\textsuperscript{216} This

\textsuperscript{205} See, e.g., Robertson v. Methow Valley Citizens, 490 U.S. 332, 349 (1989); Neighbors of Cuddy Mountain v. Alexander, 303 F.3d 1059, 1063 (9th Cir. 2002).
\textsuperscript{206} See 40 C.F.R. §§ 1501.2(b), 1508.25(c).
\textsuperscript{207} 42 U.S.C. § 4332(C).
\textsuperscript{208} Contextual considerations include how the action will affect “society as a whole . . . , the affected region, the affected interests, and the locality. . . . Both short- and long-term effects are relevant.” 40 C.F.R. § 1508.27(a).
\textsuperscript{209} Intensity describes “the severity of impact” and should take into account factors including “both beneficial and adverse” impacts, “[u]nique characteristics of the geographic area,” the level of uncertainty/controversy regarding potential effects, the potential for “individually insignificant but cumulatively significant impacts,” and whether the action is likely to violate federal, state, or local statutes or regulations “imposed for the protection of the environment.” 40 C.F.R. § 1508.27(b).
\textsuperscript{210} See 40 C.F.R. § 1508.9; see also Ctr. for Biological Diversity v. Nat’l Highway Traffic Safety Admin., 538 F.3d 1172, 1185 (9th Cir. 2008).
\textsuperscript{212} Id. § 4332.
\textsuperscript{213} Id. § 4331(b) (emphasis added).
\textsuperscript{216} See 40 C.F.R. §§ 1508.4, 1501.4(a)(2), 1507.3(b)(2)(ii) (2013).
prevents agencies from wasting their time producing an EA and FONSI every time they need to make a simple administrative decision. In this way, USDA generically excludes a number of categories of actions, including “[e]ducational and informational programs and activities,” from NEPA review. If defined as mere guidance, the 2010 Dietary Guidelines would appear to fall within this broadly defined categorical exclusion; indeed, neither USDA nor HHS engaged in NEPA review during development of this ultimate source of federal nutrition policy. However, the propriety of an exclusion is a presumption that is intended to be overridden if the specific activity could have significant environmental impacts.

It is hard to believe Congress intended for U.S. policies with potential global environmental repercussions to escape NEPA’s requirement for informed decision making. However, whether the Guidelines technically enjoy a categorical exclusion should be beside the point. Instead, what matters is that federal dietary advice given to the American public, while nonbinding, is a policy vehicle intended to have specific, significant effects on the food choices of several hundred million people—with significant foreseeable environmental impacts that must be considered when deciding what advice to give and precisely how to frame it. “An assessment of the environmental impact of such guidelines should be considered before the guidelines are issued, as it should for all clinical and public health recommendations that include dietary interventions.” Quite simply, advocating a significant increase in seafood consumption without incorporating specific guidance about the relative environmental impacts of different seafood choices is both irresponsible and self-defeating.

CONCLUSION

Not only is integrating environmental sustainability concerns with federal nutrition and public health promotion programs (like the 2010 Dietary Guidelines) the right thing to do, it is also achievable. We know this because it is already happening on a limited basis.

Building on the 2010 Dietary Guidelines, the Centers for Disease Control and Prevention (CDC, another agency within HHS) partnered with the General Services Administration (GSA) to produce Health and Sustainability

217. 7 C.F.R. § 1b.3(a) (2013).
218. See id. § 1b.3(c) (“Notwithstanding the exclusions listed in paragraphs (a) of this section and § 1b.4, or identified in agency procedures, agency heads may determine that circumstances dictate the need for preparation of an EA or EIS for a particular action. Agencies shall continue to scrutinize their activities to determine continued eligibility for categorical exclusion.”); see also 40 C.F.R. § 1508.4 (requiring that agencies “provide for extraordinary circumstances in which a normally excluded action may have a significant environmental effect”).
219. Jenkins et al., supra note 180, at 636.
Guidelines for Federal Concessions and Vending Operations. This document “proposes specific food, nutrition, and sustainability guidelines to complement the GSA procurement guidelines” in order to increase the availability of healthier, more sustainable food and beverage options, eliminate synthetic trans fats, decrease sodium in offered foods, and allow informed choice through informational labeling of menu items. In addition to asking concessions operations to, for example, incentivize reusable beverage container use and offer at least 25 percent organic, local, or “documented sustainably grown” food, the Health and Sustainability Guidelines require seafood to be certified by the Marine Stewardship Council (or similar program) or “identified as ‘Best Choices’ or ‘Good Alternatives’ on the Monterey Bay Aquarium’s Seafood Watch list.”

To demonstrate support for the Health and Sustainability Guidelines, the CDC website offers endorsements from different organizations, including the Prevention Institute, which commends HHS and GSA on the inclusion of sustainability criteria in the Guidelines. The health impacts of our food system span far beyond the nutrients contained in food, yet are often overlooked in the development of nutrition guidelines. . . . By incorporating sustainability criteria into the Guidelines, HHS is taking an important step towards a more holistic and comprehensive approach to promoting healthful food. Moving forward, we would like to see these guidelines used as a model, and a baseline, to be adopted by other federal agencies, state and local governments, businesses, and nongovernmental organizations to make their food services healthier and more sustainable.

While the Health and Sustainability Guidelines currently only apply to HHS and GSA worksites, the federal government would do well to adopt something similar on a much grander scale—not just in government office buildings across the nation, but for all government-subsidized programs.

During fiscal year 2012, millions of Americans participated in federal food and nutrition programs. For example, on average more than 46 million


222. Id. at 12, 13. The authors of the Health and Sustainability Guidelines were careful to insert a footnote explaining that “[e]xamples of ‘Best Choices’ do not imply government endorsement of these standards. Only endorsements made directly by governing agencies (e.g., USDA, FDA) should be considered government endorsements.” Id. at 13.

223. See Health and Sustainability Guidelines Website, supra note 220.

224. See id.
people per month received Supplemental Nutrition Assistance (SNAP, otherwise known as food stamps), the National School Lunch Program provided more than 31 million children with lunch each day, and almost 9 million women, infants, and children received help each month through the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). All of these programs are intended to follow the Dietary Guidelines.

What if every fish stick in a federally subsidized school lunch and every can of fish in a WIC food package contained only sustainable fish? Such a change could start to make a real difference. Now factor in the potential persuasive power of Dietary Guidelines that include environmental considerations over Americans’ food choices.

Sustainable food policy—whether it concerns seafood, livestock, or agricultural crops—is sound food policy. Sustainably managed resources are more stable and have higher yields over the medium- and long-term. Therefore, there is no real tension between utilizing diverse USDA science expertise to incorporate sustainability information in the Dietary Guidelines and the interests of the nation, the fishing and aquaculture industries, and seafood consumers. Not doing so may in fact violate NEPA.

We cannot afford to continue to willfully ignore the unintended consequences of federal dietary advice. For our health, and the health of future generations, we must recognize and respond to the fact that “the act of eating is one of the most powerful ways we affect the environment.”

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226. See id.

227. See id.

228. See supra text accompanying note 168.

229. Fish sticks are usually made from whitefish, including cod, pollock, and haddock. See, e.g., Fish Finger, WIKIPEDIA, http://en.wikipedia.org/wiki/Fish_finger (last modified Aug. 9, 2013). However, cod and pollock vary from “Best Choice” to “Avoid” based on the differential sustainability of different fisheries and fishing techniques. See supra Table 1.


231. See, e.g., Toward a Healthy, Sustainable Food System, AM. PUB. HEALTH ASS’N (Nov. 6, 2007), http://www.apha.org/advocacy/policy/policysearch/default.htm?id=1361; Miguel A. Altieri, Modern Agriculture: Ecological Impacts and the Possibilities for Truly Sustainable Farming, AGROECOLOGY ACTION, http://nature.berkeley.edu/~miguel-alt/modern_agriculture.html (last updated July 30, 2000) (“Increasingly, researchers are showing that it is possible to provide a balanced environment, sustained yields, biologically mediated soil fertility and natural pest regulation through the design of diversified agroecosystems and the use of low-input technologies.”).


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