Hazards	Estimated number of cases	Affected species
Anasakis Campylobacter jejuni Ciguatera Clostridium botulinum Clostridium perfringens Diphyllobothrum latum Giardia Hepatitis A Virus Other Marine Toxins Norwalk Virus Other Vibrio's Salmonella non-typhi Scombrotoxin Paralytic Shellfish Poisoning Shigella	100 200 1600 10 200 30 1000 20 100,000 1,000 200 8,000 10 200 8,000	Raw Finfish. Cooked Ready-to-Eat Fish, Smoked Fish, Molluscan Shellfish. Tropical, reef associated species of finfish. Vacuum Packaged Fish, Smoked and Salted Fish. Cooked Ready-to-Eat Fish, Smoked Fish, Molluscan Shellfish. Raw Finfish. Cooked Ready-to-Eat Fish, Smoked Fish, Molluscan Shellfish. Cooked Ready-to-Eat Fish, Smoked Fish, Molluscan Shellfish. Molluscan Shellfish. Cooked Ready-to-Eat Fish, Smoked Fish, Molluscan Shellfish. Molluscan Shellfish. Cooked Ready-to-Eat Fish, Smoked Fish, Molluscan Shellfish.
Total	113,630	

TABLE 9.—ASSOCIATION OF PARTICULAR HAZARDS WITH CATEGORIES OF SEAFOOD

2. Summary of Safety Benefits

The safety benefits are shown by year in Table 10 (undiscounted).

TABLE 10.—SAFETY BENEFITS

Year	Lower bound benefits	Upper bound benefits	
1 2 3 4 and beyond	32,957,233 32,957,233 45,010,733 45,010,733	67,897,751 67,897,751 116,097,537 116,097,537	

3. Nutrition Benefits From Mandatory Seafood HACCP and Increased Consumer Confidence

In the PRIA, FDA estimated what the potential nutrition benefits might be if reduced consumer anxiety over seafood safety led to increased sales. FDA hypothesized that this might lead to consumers eating lower fat meals (on average) as they replaced higher fat meat and poultry with lower fat seafood.

The agency has considered this issue in greater detail in the full RIA. FDA acknowledged in the PRIA that the entire estimate of nutrition benefits resulting from increased sales of seafood at the expense of meat and poultry sales is speculative. Although the agency believes that increased consumer confidence would result from having a state-of-the-art HACCP system in place for the seafood industry, no data were received to confidently predict the ultimate increase in the quantity of seafood sold as a result of this regulation. Sales data of this type were also not available before or after the agency initiated its low acid canned food regulations. Finally, the agency was unable to determine if any increase

in consumer confidence would offset a price increase resulting from HACCP costs.

The agency was equally concerned about possible nutrition benefits as to whether there would be an exact exchange in the nutrient profile between fish as prepared and meat and poultry. The agency finds that some fish dishes as consumed are eaten fried or served with heavy sauces, and that different species of fish have different fat profiles. Thus, for some consumers who make substitutions of fish meals for meat and poultry, it is not totally clear if there will be a favorable decrease in fat intake. Because there are too many unknown variables surrounding these substitutes and the lack of sales data, the agency is unable to quantify this benefit.

4. Rent Seeking

Rent seeking activities were characterized in the proposal as "public and private resources (which) have been expended in attempts to alter the level of regulatory effort toward seafood safety, as well as alter which Federal agency should oversee the industry." "Rent seeking" is a term economists have applied to activities that do not contribute to societal welfare but only seek to transfer resources from one party to another. An example often given is lobbying to change the ownership of a government granted special privilege so that profits change hands. In many cases, however, it is difficult to distinguish between activities that ultimately indirectly benefit society from those that only transfer profits. The proposal hypothesized that one benefit of the regulation was to reduce the social costs of rent seeking.

One commenter noted that the reason large firms support HACCP is because they must have HACCP to export to Europe. The commenter noted that mandated HACCP would "ensure that all domestic processing firms face the same costs, thereby reducing any competitive disadvantage."

FDA does not agree that this is a justification for HACCP. The reason for implementing HACCP is to reduce the incidence of foodborne disease. However, FDA agrees that this "rentseeking" argument may explain some support for HACCP by larger exporting firms. It is important to note, however, that there are small firms who export to Europe as well.

5. Export Benefits

In the PRIA, FDA asserted that one benefit (unquantified) of the rule was to allow firms now exporting to the EU to continue to do so because of the EU requirement for a federally overseen voluntary HACCP program. Several commenters noted that some countries that import seafood from the United States are beginning to require HACCP. One commenter noted that more than 30 percent of seafood produced in the United States is exported. The same commenter noted the disruption in trade when French authorities did not coordinate their seafood safety requirements with "other officials." Several commenters noted the need for more Memoranda of Understandings (MOU's) between the United States and other countries for seafood. One suggested that such MOU's be based upon HACCP as defined by various international bodies. Finally, one commenter noted that FDA "should take into account how the international