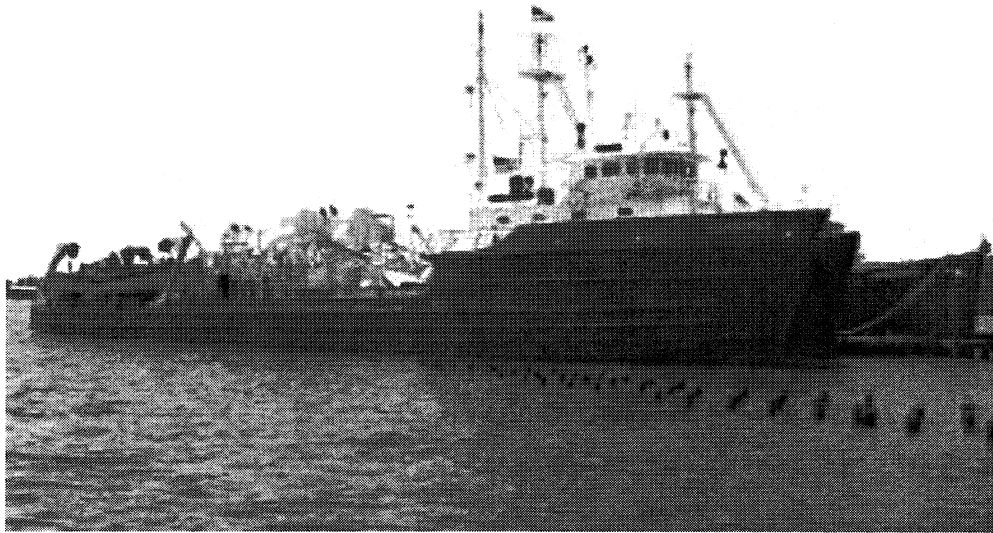


**An Assessment of the Social and Economic Importance
Of Menhaden (*Brevoortia tyrannus*) (Latrobe, 1802)
In Chesapeake Bay Region**

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Using these results in an input/output model, a commercial Bay quota of 75.0 thousand metric tons was not found to have a large impact on either the regional economy or on the economy of Virginia (Tables 5.9, 5.10, and Table 5.11). The regional output is reduced from \$88.2 to \$81.9 million, income is reduced from \$22.8 to \$21.1 million, and employment declines from 519 to 482 jobs. A zero Bay quota, without additional landings from the coastal ocean to compensate for the reduction, reduces total output to \$35.0 million, employment to 206 jobs, and income to \$9.0 million. Similarly, recreational angling for striped bass, bluefish, weakfish, and spotted sea trout that depends in part on menhaden as their prey did generate considerable economic activity. Anglers made a total of 2.9 million trips targeting those four species. In 2008, \$332.1 million in total sales or output, \$122.3 million in income, and nearly 3,500 jobs were generated for the region.

Obviously, an important component of this assessment is the effect of a reallocation of the commercial Bay menhaden quota on the recreational game fish catch, sales or output, income, and jobs. While a statistically significant increase of 0.05 in per pound of recreationally caught striped bass exists for each billion fish increase in menhaden, no statistically significant relationship was found between numbers of recreationally caught game fish and menhaden abundance. This latter effect of menhaden abundance on individual game fish species catch could not be assessed because of the inadequacy of the available information and data. It is possible that such an effect could exist, but the combination of species might confound the results when analyzed in the aggregate. In short, no empirical evidence exists that a reduction in or the elimination of the menhaden reduction industry in the Bay or coastal waters would result in an increase in the economic impacts derived from the recreational fishing for game fish species that depend on menhaden as a prey item.

The benefit-cost assessment of the social and economic importance of the menhaden resource was developed using a contingent valuation analysis based on an extensive survey of stakeholders in Virginia and Maryland. This resulted in estimates of the economic value to regional stakeholders from retaining or reducing the current Bay-wide commercial quota. The contingent valuation analysis indicated that the decrease in the menhaden industrial catch is valued at \$28 in net benefits per household, while its maintenance is valued at \$50 per household; a net gain in net benefits of \$110.0 million for maintaining the status quo. The result that society preferred to maintain the status quo instead of having a strong preference to reduce the allowable Bay quota was unexpected. Possible reasons for the preferences include a growing sympathy with watermen, an ailing economy and desire by individuals to prevent additional unemployment, and an inadequate understanding of the potential ecological goods and services of menhaden.

There are various reasons to interpret these economic value results cautiously. First, the estimates themselves are not exact due to uncertainty that is not easily quantified. Second, our valuation of the scenarios assumes that preferences are independent. However, in controversial and contentious cases of resource allocation, preferences may evolve such that not only does one side of the issue value its own management program, but it may also incur 'negative' value if the opposing side gets its way. The proportion of these individuals is probably quite small relative to the total number of interested individuals. Third, the strength of the results rests on the scientific evidence. We have presented the survey respondents with the best evidence we could provide. Weaknesses in this evidence will undermine the economic assessment of preferences.