

In order to gauge the economic effect of this proposed rule, both benefits and costs must be considered. Potential economic benefits related to this rule would include increased manatee protection and tourism related to manatee viewing, increased property values, increased boater safety, increased fisheries health, and decreased seawall maintenance costs. Potential economic costs are related to increased administrative activities related to implementing the rule and affected waterborne activities. Economic costs will be measured primarily by the number of recreationists who use alternative sites for their activity or have a reduced quality of the waterborne activity experience at the designated sites. In addition, there may be some impact on commercial fishing because of the need to maintain slower speeds in some areas. While the State of Florida has 19,312 km (12,000 miles) of rivers and 1.21 million hectares (3 million acres) of lakes, this rule would affect less than 185 km (115 river miles). The extension of slower speed zones as proposed in this rule would not be expected to affect enough waterborne activity to create a significant economic impact (*i.e.*, an annual impact of over \$100 million).

Economic Benefits

We believe that the designation of the three manatee refuges proposed in this rule would increase the level of manatee protection in these areas. Two studies have examined the public's willingness to pay for protection of the manatee (Bendle and Bell, 1995; Fishkind & Associates, 1993). Based on these contingent valuation studies, it is believed that there is large public support for manatee protection regulations such as this proposed rule.

It is difficult to apply the results of these studies to this proposed rule, because neither study measures an impact similar to that associated with this rulemaking. For example, the Fishkind study was designed to gauge the economic impact of the Florida Manatee Sanctuary Act. First, the estimates of economic benefit are predicated on a different baseline in terms of both the manatee population being protected at that time versus now and the regulatory conditions in existence, such as current manatee protection areas. Second, the Fishkind study is not clear about the type and extent of manatee protection. The study does not clearly state if protection refers simply to the establishment of speed zones, or whether implementation and enforcement are included. Nor does the study clearly state whether residents are

providing a willingness to pay for manatee protection for a specific region or for the entire manatee population in the State of Florida. While neither of these studies are specific enough to apply to this proposed rule, they provide an indication that the public holds substantial value for the protection of the manatee.

Another potential economic benefit is increased tourism that could result from an increase in manatee protection. To the extent that some portion of Florida's tourism is due to the existence of the manatee in Florida waters, the protection provided by this rule may result in an economic benefit to the tourism industry. We are not able to make an estimate of this benefit given available information.

Florida waterfront property owners may benefit from manatee protection areas such as the three proposed manatee refuges. Bell and McLean (1997) showed that speed zone enforcement may provide an economic benefit to adjacent landowners. Bell and McLean studied the impact of posted manatee speed zones on the property values of waterfront homes in Fort Lauderdale, Broward County, Florida. The authors found a strong relationship between property values and slow speed zones, and found evidence that slow speed zones may have a positive impact on home sale price. Slow speed zones were found to correlate with as much as a 15 to 20 percent increase in sale price, although this result has not been corroborated by other studies. The authors speculated that speed zones may increase property values by reducing noise and fast traffic, as well as making it easier for boats to enter and leave primary waterways. In each of the three manatee refuge areas there are stretches of river where residential property owners may experience these benefits.

In addition, due to reductions in boat wake associated with speed zones, property owners may experience some economic benefits related to decreased expenditures for maintenance and repair of shoreline stabilization structures (*i.e.*, seawalls along the water's edge). Speed reductions may also result in increased boater safety. Another potential benefit of slower speeds is that fisheries in these areas may be more productive because of less disturbance. These types of benefits cannot be quantified with available information.

Based on previous studies, we believe that this rule would produce some economic benefits. However, given the lack of information available for

estimating these benefits, the magnitude of these benefits is unknown.

Economic Costs

The economic impact of the designation of three manatee protection areas would result from the fact that in certain areas, boats will be required to go slower than under current conditions. As discussed above, an extensive system of manatee speed zones promulgated by the State exists in each of the areas covered under this rule. The rule would add to these areas by extending shoreline buffers and reducing speed limits slightly in some channels. Some impacts may be felt by recreationists who would have to use alternative sites for their activity or who would have a reduced quality of the waterborne activity experience at the designated sites because of the proposed rule. For example, the extra time required for anglers to reach fishing grounds could reduce onsite fishing time and could result in lower consumer surplus for the trip. Other impacts of the rule may be felt by commercial charter boat outfits, commercial fishermen, and agencies that perform administrative activities related to implementing the rule.

Affected Recreational Activities

For some boating recreationists, the inconvenience and extra time required to cross additional slow speed areas may reduce the quality of the waterborne activity, or cause them to forgo the activity. This will manifest in a loss of consumer surplus to these recreationists. In addition, to the extent that recreationists forgo recreational activities, this could result in some regional economic impact. In this section, we examine the waterborne activities taking place in each area and the extent to which they may be affected by designation of the proposed manatee refuge. The resulting potential economic impacts are discussed below for each manatee refuge area. These impacts cannot be quantified because the number of recreationists and anglers using the designated sites is not known.

Caloosahatchee River Area: In the proposed Caloosahatchee River Manatee Refuge, affected waterborne activities include transiting, fishing, sailing, waterskiing, and personal watercraft use. The number of registered recreational vessels in Lee County in 2002 was 45,413 (Division of Highway Safety and Motor Vehicles, 2003). Based on aerial surveys and boat traffic surveys conducted in 1997 and 1998, the highest number of vessels observed on the Caloosahatchee River sites on a given day was 477 vessels. Based on