have a positive impact on all households, firms, and communities sensitive to the quality of these resources. Evidence from studies in Oregon indicate that at least one-third of the population is sensitive to the region's natural-resource amenities.

The marbled murrelet and its habitat have intrinsic value. Given the proposed designation's goal of recovering the marbled murrelet, it is anticipated that the proposed designation would exert a positive influence on this value, though, again, by how much is uncertain.

## **Overall Economic Effects**

Conceptually, at least, one measures the proposed designation's impact on national economic welfare by looking at the difference in the value society ascribes to two bundles of goods and services, one with the proposed designation and the other without it. In this case, the bundle of goods and services affected by the proposed designation has four major components—(1) the marbled murrelet and its habitat; (2) the natural-resource amenities and other elements of the local quality of life; (3) goods and services that would be affected by the proposed designation; and (4) the productivity of workers, households, firms, and communities that would be affected by the proposed designation.

Values ascribed to the marbled murrelet and its habitat commonly are separated into two groups—use values (e.g., consumptive use of the resource as a source of food or medicine, or passive use of the resource as a source of scenic beauty) and non-use values (e.g., benefits a person derives from knowing that a species or some other natural resource exists). Marbled murrelets currently have little apparent use value. They have essentially no value as a source of food to humans. They have some recreational value to birdwatchers, although the magnitude of this value is unknown. Marbled murrelets and their habitat have some non-use value but. again, the magnitude of this value is not currently quantifiable. Hence, the Service would have to rely on judgment to assess the magnitude of the proposed designation's impact on these values.

By reducing logging in certain areas, the proposed designation would increase the quality of life with respect to:

(1) The visual aesthetics of riparian areas. In general, the aesthetic value of these areas is higher, the more natural their appearance. Insofar as the proposed designation would maintain the natural appearance, it would maintain their amenity value. (2) The visual aesthetics of some upland areas that otherwise would experience timber harvests. The proposed designation would maintain the amenity values of these areas by maintaining their natural appearance. The aesthetics and water-related recreation associated with streams that experience improvements in water quality, including reductions in sediment, would be enhanced.

(3) The aesthetics and recreational opportunities, e.g., whitewater rafting, associated with changes in the quantity and timing of water runoff so that less runoff occurs as peak flow in the spring and more occurs as base flow during the summer.

(4) The visual aesthetics and recreational opportunities associated with increased populations of wildlife related to riparian areas.

The proposed designation may have a wide range of effects by preventing activities that would have spillover effects on habitat critical to the recovery of the murrelet and, hence, on the firms and households sensitive to activities inconsistent with the designation. These spillover effects include: (1) impacts on the structure of the local and regional economies, (2) sedimentation, (3) global climate change, (4) future listings of threatened or endangered species, (5) human morbidity and mortality, and (6) impacts on landuse. In general, there is insufficient information to estimate the value of these effects.

Similarly, there is insufficient evidence to support quantification of the effects on the productivity of labor and other factors of production. On balance, the proposed designations overall effect on the nation's productivity could be positive or negative, but the impact probably would be close to zero.

A major issue regarding the economic fairness of the proposed designation is its potential impacts on the value of private property. The proposed designation would have a negative effect on values that depend on Federal agencies engaging in or supporting the degradation of critical habitat. It would have a positive effect on values that otherwise would be depressed by the spillover costs from habitat degradation. It also would have a positive impact on values that depend on the habitat's contribution to the area's quality of life.

In sum, the evidence is insufficient to conclude whether the proposed designation would result in net economic benefits or costs. It does appear likely, however, that the overall net effect is close to zero.

Copies of the complete draft economic analysis are available upon request from the State Supervisor, U.S. Fish and Wildlife Service, Oregon State Office (see ADDRESSES section).

## Summary of Comments and Recommendations on the First Proposal

In the January 27, 1994, proposed rule for designation of marbled murrelet critical habitat, the Service requested all interested parties to submit information and comments concerning the proposal. Additional comments were taken at the public hearing on May 24, 1994, in North Bend, Oregon.

During the public comment period, the Service received 130 written comments. In addition, 25 people testified at the public hearing. All comments received are part of the administrative record and are available for public review. Issues raised during the public comment period that were not addressed in the body of the amended proposal are discussed next.

*Issue 1:* One commenter suggested that, due to aboriginal influences, only 5 to 38 percent of the land in the Douglas-fir Region was comprised of patches of 200-year-old trees prior to euroamerican settlement, a value different from those listed in the proposed rule.

Service Response: The little information that exists describing presettlement forests supports the Service's general conclusion that approximately 60 to 70 percent of the forested areas in range of the marbled murrelet in Washington, Oregon, and California contained an old-growth component, major portions of which were distributed in large, contiguous blocks. Human-caused factors have significantly reduced the amount of old-growth forests in the range of the marbled murrelet in Washington, Oregon, and California compared to pre-historic levels (Spies and Franklin 1988; Teensma et al. 1991; Booth 1991; Larsen 1991; Bolsinger and Waddell 1993; Ripple 1994; Perry 1995; Ralph et al. 1995b). The Service believes this material represents the best available scientific information.

*Issue 2:* Commenters suggested that prey distribution and abundance, rather than inland forest conditions, may dictate murrelet distributions at sea.

*Service Response:* The Service agrees that prey distribution and abundance is an important ecological factor for murrelets at sea.

However, particularly during the nesting season, marbled murrelets are found in high numbers in close proximity to areas where inland forested conditions are considered suitable for nesting throughout large portions of coastal Washington, Oregon, and