

AFS Policy Statement #18:  
Report on the Concept of Marine Wilderness  
(Full Statement)

## **ABSTRACT**

The Marine Wilderness Committee of the AFS Marine Fisheries Section recommends that the American Fisheries Society endorse the concept and work toward the establishment of marine wilderness areas. A suggested definition of a marine wilderness is: A unique or representative ecosystem or subset with geographically defined boundaries that is set aside, or "protected" for non-consumptive usage. The major distinction between marine wilderness areas and other managed areas is that significant consumptive usage would not be permitted. The primary use for marine wilderness will be for research, education, and fisheries management. Marine wilderness areas offer several practical benefits for marine resource management which are not being realized under present conditions. Marine wilderness areas could (1) complement traditional fisheries management by allowing undisturbed population reservoirs to act as sources of recruitment and repopulation for exploited areas; (2) help maintain natural age structure of populations, ecosystem balance, and the genetic diversity of exploited populations; (3) act as environmental insurance in case of resource management failures by providing unexploited populations.

## **Definition**

The committee recommends defining a marine wilderness as: A unique or representative ecosystem or subset with geographically defined boundaries that is set aside, or "protected" for non-consumptive usage. Marine wilderness is distinguished from existing marine sanctuaries, reserves, and parks in that these latter efforts usually protect a unique feature and/or allow exploitation at some level.

## **Justification**

All marine ecosystems are experiencing increased exploitation, interference, and alteration. Human exploitation significantly alters the natural population structure and community dynamics even though resource management attempts to achieve the continued existence of biological diversity and resource stocks. For example, managed fisheries at maximum sustainable yield (MSY) usually maintain only a fraction of the virgin standing stock biomass. In addition, larger members of a population are likely to be absent or at least considerably reduced in numbers. These alterations may have unforeseen and unpredictable consequences to the continued existence of specific populations and marine ecosystems. This selection process could potentially remove certain genes from exploited populations.

Although various marine parks, reserves, monuments, and sanctuaries have been established, to our knowledge none totally protect its resources from exploitation. We are

not aware of any location in the Caribbean, Gulf of Mexico, or Atlantic where all fishing is prohibited. In some cases it may be prohibited but not enforced.

## **Purpose**

Marine wilderness can serve a number of purposes:

- \* to provide an example of a unique, singular ecosystem for educational and scientific use that will be subject to natural phenomena and only be exposed to limited anthropogenic influences; to protect into perpetuity entire or representative portions of natural ecosystems in a state that is, as near as possible, natural. The management goal would be to maintain natural specific diversity and composition;
- \* to provide "environmental insurance" in case of catastrophe or mismanagement of exploited areas;
- \* to complement resource management by protecting spawning stocks that provide recruits for exploited areas. This effect recognizes the widespread dispersal ability of most marine species;
- \* to complement resource management efforts by providing protected populations that can directly recolonize exploited areas by dispersal.

## **Operational Standards**

### *A. Activities allowed*

Non-consumptive usage (diving, sightseeing, etc.). Research and education would be allowed as long as no significant impacts are observed. Routine monitoring of physical parameters and populations would be encouraged and considered necessary with emphasis on non-destructive sampling methods. Research on ecosystem function should be encouraged. Management oriented research on impacts of allowed usage (i.e. diver visitation, boat traffic) and uncontrolled factors (i.e. pollution, natural disturbance) should be permitted. Research and education in the wilderness area should be encouraged. Destructive sampling and habitat manipulations may be allowed provided that disturbance is restricted to small areas or affects only a very small portion of the total resident populations.

### *B. Activities prohibited*

Consumptive usage (commercial, subsistence, and recreational fishing; mining; collecting; etc.). Activities that significantly disturb populations (e.g., jet skiing, excessive sound-producing activity, fish feeding, animal harassment, etc.).

### *C. Operational criteria for action*

Planning should consider threshold levels of natural populations such that restrictions be implemented or removed. For example, educational areas may be rotated periodically

when certain measures of stress hit threshold levels. Activities may be allowed or curtailed (i.e. sightseeing permitted outside critical breeding areas or nesting seasons).

## **Characteristics**

### *A. Size.*

Will vary in each case but should be large enough to maintain populations without human interference. Thus, an entire ecosystem need not be designated but a subset should be large enough so that essential and characteristic species can maintain their populations (e.g., a coral reef complex).

### *B. Buffer zones.*

Should be established around core areas where minimal influence is allowed. Specific sites or perimeter areas should be designated for research and nonconsumptive educational purposes.

### *C. Permitted consumptive use.*

Legitimate research activities usually require some manipulations or consumptive use. Permitted single-event manipulations and collections should be operationally defined for each wilderness but must be decided on a case-by-case basis. For example, a policy might be established that collections will be limited to less than 1% of a resident population or that temporary disturbance be limited to 1% or less of a habitat area. Greater disturbance may be justified in some cases.

### *D. Administration and enforcement.*

Is essential to monitor resources, activities, and enforce regulations. Administration could be on an international, national, or local level as appropriate although local involvement, education, and cooperation is essential and critical.

### *E. Proximity to human population centers.*

Has little relevance except in the administration and enforcement of the boundaries and activities.

### *F. Recognized uniqueness.*

The only one or the best example of an ecosystem in an area (i.e., the only reef tract in the Gulf of Mexico). However, "representative areas" should have preference over "marginal areas." For example, the most southern kelp bed may be unique but perhaps has less importance (and more environmental problems) than a representative kelp area in the middle of its range.

### *G. Rare or endangered species.*

If the area is used for primary support (i.e., turtle nesting, bird rookery) then this should be a consideration.

### *H. Degree of present and potential human use or disturbance.*

Should be a definite consideration, especially if the area is unique.

## **Practical Consequences and Considerations**

A. Probably no marine ecosystem exists in a pristine state so success would depend on designated areas returning to a near natural state if exploitation activities are curtailed or prevented.

B. Marine wilderness designation is not expected to prevent insidious environmental degradation from large scale activities such as pollution.

C. Marine wilderness designations are not expected to be effective for widely ranging pelagic or migratory species. The concept is expected to be effective for philopatric species and ecosystems where the post-settlement home ranges most of the residents are included within the boundaries.

D. Local involvement and education is critical to the establishment and success of marine wilderness areas. Local individuals and political bodies should be closely involved in all aspects of the process.

E. Marine wilderness without enforcement is useless.

F. Marine wilderness areas may be useful when human conflicts prevent protection of large areas or entire species. An example is the total protection of the sea otters (and other marine mammals) which may become more difficult to achieve when protected populations grow and start affecting resources that humans use. Marine wilderness areas may be solutions to potential conflicts with human use in that the target protected populations can be maintained in some areas while other areas are dominated by human use.

G. Marine wilderness areas may not be effective if major supporting subecosystems are not also protected. For example, an offshore wilderness area would not benefit populations that spend a portion of their life cycle in estuaries that are degraded by pollution or lost to landfill. Excessive exploitation inshore could also affect populations offshore.

H. Sufficient cooperation between governments and agencies within governments is a major hurdle, especially when marine wilderness designation results in loss of control, power, or authority of the affected governmental units.

I. Several programs are in existence that in theory could manage marine wilderness without creating a new program. At present, however, the "multiple use" requirement in some legislation and political pressure by fishing and mining interests, effectively prohibits the establishment of marine wilderness areas.

## Other Considerations

The following are relevant but unresolved issues.

- A. Can wilderness areas be established in international waters?
- B. What if desirable areas are in private holdings or vestments?
- C. How can public support, especially local support, be generated?
- D. How and who will enforcement and administration be paid for?
- E. How can present and historical usage be phased out with minimum or no social and economic disruption?
- F. Should the program start out small and expand as public acceptance and resources grow?
- G. Would establishment of wilderness areas without monitoring be useful?