

Rationale for Maryland's Oyster Sanctuary Range of 20-30%

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Maryland's closure goal of 20-30% of productive oyster bottom is based on both theoretical and actual performance of marine protected areas as well as recommendations made by marine conservation experts. The National Research Council (NRC 2001) reviewed 35 studies examining the amount of protected habitat necessary to yield conservation benefits. Several studies recommended protecting 10-35% of a habitat type to achieve adequate representation and replication. With excellent management outside reserves, the NRC concluded that a reserve system covering approximately 10% of the habitat of concern would improve conservation. With less effective management outside reserves, protection of 20% or more of the habitat may be necessary to achieve conservation goals. Gell and Roberts (2003) reviewed 40 theoretical and modeling studies addressing the size of the area that must be protected from fishing to yield conservation benefits. Most of the studies predicted maximum benefits with closures of 20-40%, and indeed convincing demonstrations of fishery benefits occurred when protected area size fell within this range.

In 2006, the Food and Aquaculture Organization of the United Nations (FAO) convened a workshop to review issues related to fisheries and marine protected areas (FAO 2007). Based on the workshop, FAO issued guidelines for size of marine protected areas based on reproduction (FAO 2011). A review of empirical evidence suggested that protection of 20% of the lifetime spawning per recruit (SPR) is the minimum necessary to sustain populations, and protection of 35-40% or higher may be necessary to achieve maximum sustainable yield. FAO also recommended that 20% of habitat be protected to achieve protection of 20% lifetime SPR for sedentary species.

In 2016, the International Union for the Conservation of Nature World Conservation Congress recommended creating well-connected networks of marine protected areas to protect both biodiversity and ecosystem services, with at least 30% of each habitat type protected (IUCN 2016).

Based on the work referenced above, protection of 20-30% of productive oyster bottom is in line with the recommendations of the best available science, and is a prudent step toward ensuring the long-term sustainability of Maryland's oyster resource.

References

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