

Assessment, Monitoring and Mapping of Biological Resources on Hawaiian Coral Reefs

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The closely related activities of assessment, monitoring and mapping are commonly undertaken on coral reefs for purposes of research and environmental management. Assessment provides us with a "snapshot" of the available biological resources at a given time, their general condition, possible anthropogenic influences, and describes the general ecological factors influencing a particular coral reef area. Monitoring adds a time component to assessment and requires that methods employed be repeated in a manner that allows us to detect biological changes over time with statistical confidence. Mapping typically involves rigorous techniques that can establish spatial extent of biological resources with a high degree of precision. The three activities overlap to some extent. For example, detailed mapping is a vital tool in assessment and can be used as a monitoring tool if repeated over time. Coral reefs can be viewed as geological structures constructed by living organisms over time. Thus, geologists and biologists meet on common ground when studying reefs. The traditional strengths of geologists in mapping technique compliment the ecological insights of biologists in such joint ventures. This paper defines and describes the role of assessment, monitoring and mapping of biological resources on coral reefs using exemplary data from the United States Geological Survey (USGS) - Hawaii Coral Reef Assessment and Monitoring Program (CRAMP) currently in progress off south Molokai, Hawaii.

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