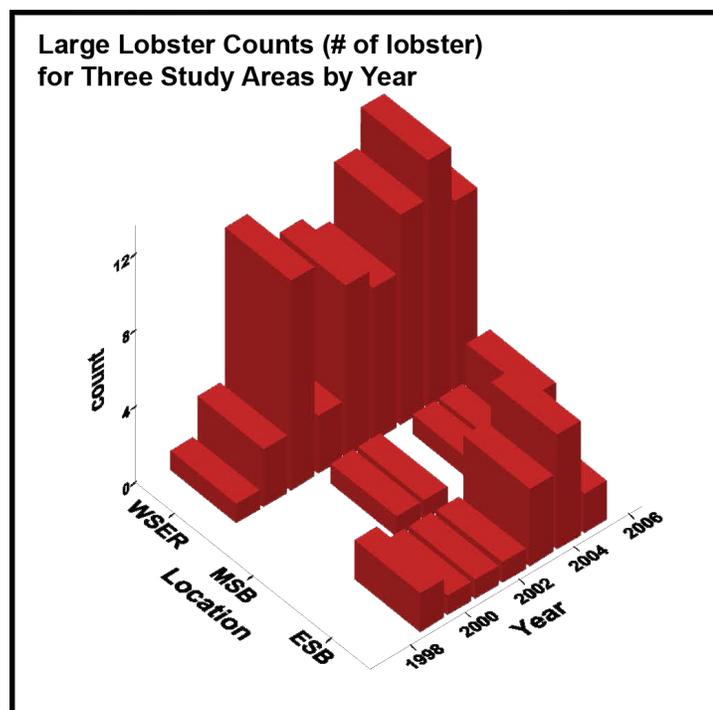


LARGE SPINY LOBSTERS ARE MIGRATING FROM RESERVE

Research Project Description: Western Sambo Ecological Reserve (WSER) is a fully protected marine zone that includes diverse habitats ranging from the shoreline to the reef tract. In 1997, Florida Keys National Marine Sanctuary implemented WSER, along with other smaller no-take zones called Sanctuary Preservation Areas and Research-only Areas. Adult spiny lobsters are common inhabitants of reef and hard-bottom habitats and are a valuable commercial and recreational fishery in the Florida Keys. To determine the effects of zone protection on lobster populations, science divers surveyed lobsters living in WSER and at nearby study sites from 1997 to 2007. This long-term study compared the number and size of lobsters in WSER with those at nearby smaller no-take zones and at study areas outside of protected zones.

Research Results: Lobster survey results have shown that a population of resident lobsters is becoming established in WSER and that the greatest proportion of large lobsters is found within the reserve. At the time of reserve formation, few lobsters in the Western Sambo area were larger than legal-sized (3 inch carapace). However, ten years later, the number of large lobsters was significantly greater in WSER when compared to nearby smaller no-take zones and study sites outside of zones. Essentially, some lobsters are residing for a portion of their life in the reserve where they grow older and larger.

Long-term abundance trends also suggest that large lobsters (carapace greater than 3.94 inches) are migrating from the WSER to nearby areas both inside and outside of zones. Large lobsters first appeared in WSER and then periodically appeared in Eastern Sambo (ESB) and then Middle Sambo (MSB) (see graph below). Middle Sambo is located outside of a protected zone, but is located on the reef line between WSER and ESB. The full benefits of reserve protection may become more evident as protected lobster can live for a relatively long time.



Large lobsters may be migrating from Western Sambo Ecological Reserve (WSER) to nearby areas. Lobster surveys show that large lobsters appear in WSER in 1998 and then periodically appear in Eastern Sambo Research-only Area (ESB) and Middle Sambo (MSB), located outside of a fully protected zone. WSER has the greatest proportion of large lobsters compared to other sites. In this graph, the number of lobsters counted in three study areas is plotted by year.

Figure: Florida Fish and Wildlife Conservation Commission

Reference: R.D. Bertelsen, *et al.*, Florida Fish and Wildlife Conservation Commission. *Spiny Lobster Movement and Population Metrics at the Western Sambo Ecological Reserve*. Linking Science to Management: A Conference and Workshop on the Florida Keys Marine Ecosystem. 2010.