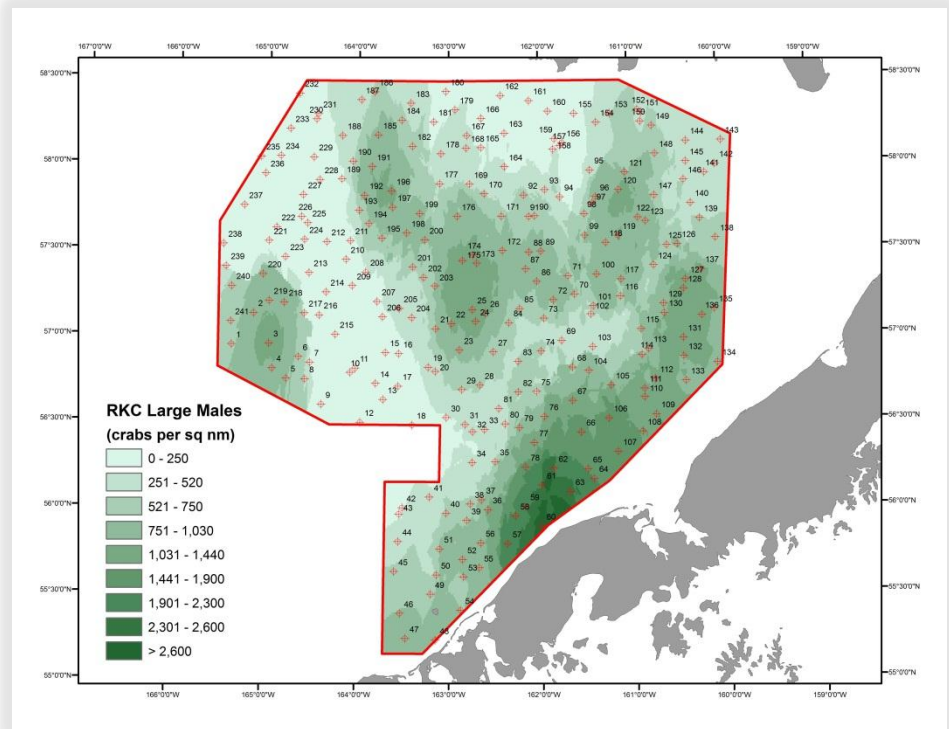


## 2007 Bristol Bay Red King Crab Cooperative Survey

The Bering Sea Fisheries Research Foundation (BSFRF) cooperating with the National Marine Fisheries Service (NMFS) conducted a 40 day assessment survey of Bristol Bay red king crab (BBRKC) in late May-early July 2007 aboard the chartered 120 ft F/V *American Eagle* using specialized trawl gear, a new survey design and new analytical methods. The BSFRF survey was coordinated with the long standing NMFS survey of this resource to test the hypothesis that a different trawl design, a new survey methodology and principals of geostatistics would estimate mean and variance of BBRKC abundance with more accuracy and precision than the standard NMFS annual trawl survey.

The BSFRF survey was completed in April 2007 following a successful pilot study conducted during the summer of 2005 and testing of purchased survey gear and trawl mensuration sensors during the fall of 2006. The 2007 BSFRF survey was conducted over an approximate 24,000 square

nautical mile region consisting of 241 random site tows. The area swept estimates for each trawl tow were accurately measured by the trawl mensuration equipment and estimates benefited greatly from use of a new and improved trawl bottom contact sensor developed by NMFS. The new survey gear, sampling methodology and geostatistics proved highly effective and generated more precise BBRKC abundance estimates than those from the standard NMFS survey in the same area and time. Precision estimates (95% CI) for large male BBRKC from the standard NMFS survey have averaged +/- 37% over the past 10 years compared to +/- 13% from the



BSFRF survey. A standard normal test for a difference in population means (Z-test) was used to test the differences between BSFRF and NMFS surveys. Results showed statistically significant higher estimated mean abundance and reduced variance from the BSFRF survey for all sizes and sexes of BBRKC. Separate from the assessment survey, the F/V *American Eagle* and the two NMFS survey vessels worked together over a two day period and completed a planned pilot study of 20 paired side by side tows. Further reporting of the entire survey and results are available in NPRB Final Report #625.

