

NEWSLETTER – RESEARCH UPDATE

March 7, 2014

The BSFRF Board THANKS all industry voluntary contributors and supporters! With the current high levels of participation and funding, research planning is more efficient, more coordinated with cooperative partners, and current projects are completed with fewer challenges. Great job Bering Sea crabbers and processors!



Hello Crab Industry & Interested Parties,

The BSFRF Board of Directors is providing this brief update to all contributors and other parties in a renewed effort to keep everyone informed about the Foundation's important ongoing research and to maintain current momentum. The Foundation is continuing to broaden its scope of research each year, providing funding for several projects that support the improvement of baseline science used in management of Bering Sea crab stocks including: surveys, modelling, crab growth and mortality, and science-policy support. This is the first Newsletter for 2014 and we are planning to provide quarterly updates. Please direct any questions about the BSFRF or this Newsletter to Gary Painter (gpainter33704@gmail.com) or Steve Hughes (shughes@nrccorp.com). Stay in touch for Q2 newsletter highlighting BSFRF accomplishments.

Current Research

Currently, BSFRF is funding the placement of additional observers onboard crab vessels fishing this season's *bairdi* Tanner crab in support of NMFS handling mortality research. In June of this year, field work led by BSFRF is continuing with year-two of Bering Sea trawl surveys focusing on Bristol Bay red king crab. Some details are provided below for these two projects that will provide data and results to be reviewed in May and September this year.

Discard and handling mortality is an important element within the Bering Sea crab stock assessment models. The current *bairdi* Tanner crab model relies on a "best estimate" for the mortality rate (50%). At-sea data collection during this cooperative project will continue through several warm-cold temperature periods of this season's Tanner crab fishery to record important response variables from individual crab to accurately estimate mortality. Results from

this year's work are expected to be based on a good sample size – and robust enough to revise the estimate within the model. Expected outcomes from this research are a more accurate, lower discard/handling mortality rate.

Trawl surveys for Bristol Bay red king crab in June of this year will be completed to follow the first year of trawl selectivity and pre-recruit abundance surveys conducted in 2013. The trawl selectivity research is a two-year project to collect a large enough sample size of the relatively patchy distribution of king crab typically seen during the summer NMFS survey. BSFRF charters will shadow the NMFS vessels to collect king crab during side-by-side sampling. The catch rates from the NMFS trawl and BSFRF trawl will be standardized and compared to calculate a trawl efficiency of the standard NMFS trawl – to be used within the BBRKC stock assessment model to improve the accuracy and precision of model outputs. Year one (2013) of this work showed promising preliminary results but will be improved by the second year of collection to increase sample size across all sizes of male and female BBRKC.

The BBRKC pre-recruit survey will immediately follow the trawl selectivity project on the same two BSFRF led charters. This project is a multi-year (3-5) approach to improve the understanding of pre-recruit and recruit BBRKC. Those familiar with the latest BBRKC stock trends are aware that the current NMFS survey has shown very little sign of recruitment for several

consecutive years. Preliminary results from 2013 BSFRF pre-recruits of BBRKC do not show a strong difference from the concurrent NMFS survey, and this year's results will be used to determine the future continuation of this work and future plans for surveys of BBRKC.

Ongoing Research

The Foundation has continued its strong support of improving the stock assessment modeling efforts for Bering Sea crab species. Along with the Foundation's research to collect empirical data for use within the current crab assessment models, it initiated the development of a new, improved "generic model" for crab assessment. In 2009, an effort to develop a Generic Crab Model (GCM) was supported initially by BSFRF working with leading stock assessment experts. Currently, several scientists are cooperating on this GCM project which was initiated by the Foundation. This project has been a methodical, slow-moving progression from the development, design and coding of the GCM structure, to the review and testing of different GCM elements – to the most recent model testing conducted at a recent NPFMC modelling workshop (JAN 2014). Current progress on finalizing GCMs is showing promise and BSFRF is continuing support of this important effort which is expected to be peer reviewed, approved and used in the management process by the fall of 2015.

FACT: BSFRF snow crab research on survey trawl selectivity in 2009-2010 influenced management in 2013/14 accounting for a snow crab TAC of 53.9 million lbs instead of 35.4 million lbs.

Other ongoing research includes crab growth projects for improving the understanding of growth per molt for both Bering Sea *opilio* and *bairdi* Tanner crab. Snow crab growth results from this work are currently incorporated into Bering Sea snow crab management, with collaborators also publishing these results. Collections of more pre-molt *bairdi* crab are pending during the current season (APR 2014). BSFRF provided vessel charters for this work while ADF&G and NMFS scientists were principal cooperative research partners for monitoring crab during holding and completion of final reporting.

New Research/Support

Early BSFRF research focused on trawl survey methods for crab, but as funding, support and momentum have increased the Foundation has branched out more to other projects. BSFRF is currently planning a wider range of short to long range research that includes habitat assessment with video and sonar, tag development and crab tagging studies, ocean acidification research, science-policy-management reviews of Bering Sea

crab fisheries, crab aquaculture and others. The current Foundation Board is expanding its medium-to-long term research planning to broaden the base of research – but to continue to select research priorities that meet BSFRF goals of improving baseline science to improve the sustainable management of Bering Sea crab resources.



Brief History

Strong alliances have been built by the Foundation with several industry and cooperative research partners since its inception in 2004. The Foundation's efforts to help inform and improve the sustainable management of Bering Sea crab resources have been very successful and 2013 marked the 10th field season of research. Each year since 2004, BSFRF has gained momentum with our cooperative research, partnering with the NMFS and ADF&G. Final results from a number of BSFRF research projects have been incorporated into the management of Bering Sea snow/*bairdi* Tanner and Bristol Bay red king crab and are improving the science used to manage Bering Sea crab stocks. BSFRF is primarily funded by voluntary contributions from the Bering Sea crab industry but has received important funding and other support from the North Pacific Research Board (NPRB), NMFS, ADF&G and other public/private sources.



The BSFRF Website is:

www.bsfrf.org

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