

NEWSLETTER – RESEARCH UPDATE

July 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 2nd 2014 newsletter to all contributors and other parties in their continuing effort to keep everyone informed about the Foundation’s important ongoing research and to maintain current momentum. The Foundation is broadening 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 Q2 Newsletter for 2014 and we are planning to provide Fall and Winter updates. Please direct any questions about the BSFRF or this Newsletter to Gary Painter (gpainter33704@gmail.com) or Scott Goodman (sgoodman@nrccorp.com). Stay in touch for later newsletters highlighting BSFRF accomplishments.

Current Research – 2014 RKC Surveys

The BSFRF cooperative crab surveys were successfully completed just recently finishing in Dutch Harbor on June 18 – focusing on two red king crab research projects: the 2nd survey of a two-year effort to experimentally measure the trawl selectivity of the NMFS standard Bering Sea survey trawl for red king crab in Bristol Bay, and the 2nd of a multi-year survey to improve understanding of Bristol Bay red king crab pre-recruit abundance. Both projects were completed from two separate vessels (Ocean Hope 3 and Sunset Bay, Icicle Seafoods) under charter to BSFRF. Close collaboration with the NOAA survey was an important part of this work again, especially for the side-by-side sampling which prescribed two boat pairs sampling with survey trawls as close together as possible (~400m).

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.

The cooperative efforts for this year’s BSFRF surveys continued to rely on not only strong industry support but also, close coordination from both agencies – NMFS, Alaska Fisheries Science Center and the Alaska Department of Fish and Game. Both agencies placed researchers on the science teams for BSFRF charters, and for the 2nd season Dr. Bob Foy of the Kodiak NMFS lab was onboard, participating first hand in BSFRF research.

Both the NOAA and BSFRF surveys covering Bristol Bay RKC (leg 1) areas are complete at this time. There are no final results available from either the BSFRF or NOAA surveys yet to report – with respect to standardized catches of crab. There are some details that show a bit of promise – both surveys captured small RKC that were not seen in either survey last year. The abundance and distribution of these crabs are not known at this time – but will be available in mid-August.



The BSFRF survey observed bottom temperatures during sampling that were typical of a warm-water Bering Sea survey year. No bottom temperatures were observed during either survey of leg 1 sampling that were below 3.5° C – indicating that the cold pool of bottom water that endures into the summer in Bristol Bay has receded further offshore beyond the stations completed during June sampling. Warmer temperature survey years in Bristol Bay are usually paired with RKC abundance and

distribution centers that are further offshore which is consistent with lower catches observed in the stations closest to the Alaska Peninsula. Final reporting of survey results will be presented at the Crab Plan Team meeting in September, 2014 (Seattle).



RKC Surveys – Further Collaboration

Special projects are a typical and important part of the NOAA surveys each summer where a suite of extra samples, additional tows, retained specimens or other research is conducted concurrent with the main survey – to take advantage of the window of opportunity onboard the chartered vessel. BSFRF surveys have also completed special projects concurrent with their main surveys. The special project opportunity is an enduring part of BSFRF research with its cooperative research partners. This year, BSFRF surveys took further advantage to conduct parts of four special projects including: trawl video recording to observe RKC condition near the footrope in relation to bottom temperature, collection of cod stomach contents data for documenting Bering Sea commercial crab species as cod prey items, collection of RKC eye stalks for age and growth research, and collection of larval samples from bongo net tows. All four of these projects support the main research objectives of BSFRF surveys to improve understanding of RKC abundance, year-class strength, estimates of natural mortality and growth per year.

The goal of the BSFRF video work during RKC surveys in 2014 was to correlate observed RKC condition near the Nephrops trawl footrope with measured bottom temperatures taken from other instruments attached to the survey trawl. There is some prior evidence from both NOAA and BSFRF surveys that bottom temperatures may influence the stance or position on the seafloor of RKC (standing, moving/active, partially burrowing or inactive) that were observed in survey trawl catches. Measuring the activity of crabs on the

seafloor could help further understanding of trawl selectivity related to bottom temperatures. Video taken from survey bottom trawls in the Bering Sea surveys is difficult to obtain because of poor visibility, minimizing effects of camera gear on trawl performance, attaching sensitive instruments to industrial fishing gear, and trawling hazards. The efforts to record video footage of the BSFRF Nephrops trawl were completed for a handful of tows in the nearshore, rocky trawlable area of the Bristol Bay RKC survey grounds this year onboard the Ocean Hope 3. Dr. Bob Foy from Kodiak was able to place the video camera on the Nephrops trawl during sampling early in the pre-recruit RKC survey. Several minutes of video footage showed promise of further developing this effort for placement of cameras on the Nephrops trawl headrope, with some modifications to obtain video with more clarity to best identify crabs in the path of the survey trawl. Unfortunately, early progress of the video footage was interrupted by trawl hazards in the inshore survey area where two Nephrops trawls were heavily damaged by boulders – and the video camera was lost during sampling.

During BSFRF crab surveys there has been substantial evidence of Pacific cod predation on Bristol Bay RKC, particularly in the nearshore survey areas. Both of the BSFRF vessels surveying RKC this June cut stomachs from approximately 250 cod to examine and document the prey items. Several stomachs contained crab or crab pieces among prey items. Further analysis of this data will be completed in collaboration between NMFS and BSFRF, and some preliminary results are expected to be reported this Fall.

For the additional special projects, eye stalks were collected on one vessel and the crab larvae were sampled with a bongo plankton net from the



other vessel. The collection of eye stalks from a variety of RKC sizes/sexes, and the collection of larval samples during the BSFRF charters were both completed as part of larger research efforts to increase samples available to evaluate growth, natural mortality and larval distribution. Collaboration on the analyses and final reporting of information collected will be completed primarily by agency crab scientists.

Industry Collaborates - Research Results

In our March Newsletter we highlighted the placement of additional, specially trained observers onboard crab vessels fishing during the 2013/14 bairdi season to collect the final information needed to complete NMFS research on handling and discard mortality for Tanner crab. Several BSFRF industry members helped to expedite the placement of the final observers needed to take advantage of sampling during extreme weather – filling the final gap in data and obtaining an adequate sample size to complete this research. In May 2014, the CPT reviewed preliminary results from the recently collected data and based on the new data, chose to approve a reduction in the handling/discard mortality rate currently used in the Tanner crab stock assessment model down from 50% to about 30%. The CPT will review the final results again in September and make their approval of the reduced mortality estimate official. Congratulations to those who participated in pulling this off and getting the important samples collected to provide the managers with the data they needed to further refine the model.



BSFRF Transition - New Research/Support

The Foundation has a well developed cooperative relationship with both agencies responsible for managing crab in the Bering Sea. The NMFS Alaska Fisheries Science Center has played a key role in the successful planning and completion of

the BSFRF cooperative surveys for crab. Currently, BSFRF is undertaking an expanded effort to better define its mid-range and long term research priorities, and to further develop the cooperative research relationship with ADF&G – to potentially collaborate on more specific projects led or defined by them. In the near future (July 15), principals from ADF&G will be meeting with BSFRF Board and science advisors in Seattle to further develop research planning more closely with ADF&G. The BSFRF research planning committee will also be meeting soon, and in addition to the outcome of the ADF&G meeting will be providing an update to the Board – and further to the Foundation supporters in the Fall newsletter. Recently, the Board received notice of two retirements: Steve Hughes as BSFRF Executive Director, and Terry Cosgrove from the Board. The Board voted to appoint Anne Vanderhoeven as a new member in May. Stay tuned for further updates on important BSFRF research progress this year.

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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