

## Scallop Plan Team meeting minutes

February 17, 2016

Fishermen's Hall

Kodiak, AK

**Administrative:** The Scallop Plan Team held their annual meeting at Fishermen's Hall in Kodiak, AK on February 17, 2016. Quinn Smith chaired the meeting.

*Plan Team members present:* Quinn Smith (Chair, ADF&G Douglas), Jim Armstrong (Vice Chair, NPFMC), Ryan Burt (ADF&G Kodiak), Scott Miller (NMFS Juneau), Sarah Webster (APU), Mike Byerly subbing for Ken Goldman (ADF&G Homer), Ben Williams (ADF&G Juneau), Jie Zheng (ADF&G Juneau).

*Public and agency personnel present (for some or all of meeting):* Mark Stichert (ADF&G Kodiak), Nathaniel Nichols (ADF&G Kodiak), Jim Stone (Alaska Scallop Cooperative), John Lemar (F/V Polar Sea) Tom Minio (F/V Provider), and Bobbie Minio (F/V Provider).

*Present via phone connection:* Karla Bush (ADF&G Juneau), Jan Rumble (ADF&G Homer), Ken Goldman (ADF&G Homer), Elisa Russ (ADF&G Homer).

**Agenda:** The agenda for the meeting is attached.

### Updates on ADF&G scallop program staffing (Smith)

The ADF&G scallop program lost both a biometrician III and a fish and wildlife technician III position. These positions are not currently planned to be refilled and the State is not sure when or if these will be refilled in the future.

Quinn Smith is coordinating state-wide scallop assessment efforts. An assessment working group was established to examine assessment strategies going forward (fishery-dependent and independent).

Question from Scott - Assessment and cam sled work – what is the likelihood of funding going forward, due to potential state budget cuts

Quinn - scallops not funded with state funds - all EJ funds. Scallops are solid for the time being.

CamSled - shelved for the time being, FAST lab trying to get images that may have potential for assessment analyses in the future.

Potential for public private partnership was discussed.

The scallop aging program will continue from both survey and fishery, though an age structured assessment is not ready for presentation but work on it will continue.

Aging will be done out of Homer office, not Kodiak, ageing methods need to be standardized.

## **Status of statewide scallop stocks and SAFE report-catch specifications by area**

### **Southeast (Smith)**

Southeast Region fishery management biologist and Scallop Plan Team member Quinn Smith presented an update on the Southeast Region weathervane scallop fishery. Southeast Region scallop stocks occur in management Area D (Yakutat and District 16). There is no scallop fishery in Area A (Southeast). Separate guideline harvest levels (GHL) are set for the Yakutat and District 16 portions of Area D.

Weathervane scallops in the Southeast Region are not assessed. Management of scallops in Area D relies on fishery dependent data and information collected by scallop observers. The GHL is adjusted based on changes in catch per unit effort (CPUE) by bed, the size and age of the scallop catch, and changes in spatial distribution of effort over time. In 2013/14, managers began evaluating fishery performance in-season using a minimum performance standard (MPS) to determine possible time and area of a fishery closure. The MPS in Area D is defined as the lowest, cumulative CPUE observed since 1997. The MPS is evaluated at the point in the fishing season when 50% of the GHL has been harvested. At that point, if cumulative CPUE falls below the MPS, then managers may take action to close the fishery. To date, the cumulative CPUEs of scallops in the Area D fisheries have not fallen below the MPS.

The District 16 GHL has remained at 25,000 pounds of meats since 2009/10. Scallop harvests from District 16 are unpredictable from year to year. CPUE, meat yield, and meat quality are highly variable. For example, during the 2015/16 season, CPUE remained low (like the 2014/15 season) due mainly to small meat sizes. Meat quality was good but due to the small sizes of the scallops, limited effort was put in and only about 1,000 pounds were harvested.

The Yakutat GHL has remained at 120,000 pounds of meats since 2012/13 and harvests have been comparable. Over the past four fishing seasons there has been an increasing trend in CPUE, though harvests are lower than in the 1990s. Estimated shell height distributions from Yakutat show an increased range of sizes in 2013/14 and 2014/15.

Tanner crab bycatch remained relatively low in Area D with an estimated 2,100 crab caught during the 2015/16 season. The majority of Tanner crab measured by observers ranged from 20 mm to 50 mm carapace width. No crab bycatch cap has been established in Area D.

### **Central Region (Byerly)**

Central Region research biologist Mike Byerly presented an update on the Prince William Sound and Cook Inlet management areas scallop surveys and commercial fisheries. During the 2015/16 season, the Prince William Sound area was closed but the Cook Inlet area was open. In Prince William Sound, scallop beds occur near Kayak Island and are identified as the West Kayak Subsection (WKS) and East Kayak Subsection (EKS). The WKS has been closed to commercial fishing for weathervane scallops since 2010/11, and the EKS has been closed since 2012/13. In Cook Inlet, two scallop beds are located in Kamishak Bay, the north and south beds. The commercial fishery for scallops had been closed in the north bed since 2013/14 but was open for the 2015/16 season with a GHL of 10,000 pounds. The south bed has been closed since 2009/10.

Prince William Sound and Cook Inlet scallop beds are assessed in alternating years. Recent surveys have documented a declining trend in scallop abundance and biomass in both of these areas. The most recent assessment, in the Kamishak Bay district, was completed in 2015. Survey results showed a small increase in scallop abundance in the northern portion of the district and an age structure that included both older and younger scallops. Results also showed a concentration of smaller scallops in the southern portion of the north bed. Therefore, the southern portion of the north bed was closed to conserve younger scallops while a GHL of 10,000 pounds was established for the northern portion of the north bed 2015 season. The entire southern bed was closed for the 2015 season.

The most recent weathervane scallop assessment near Kayak Island was completed in May 2014. Recent surveys have documented a declining trend in scallop abundance and biomass in both the WKS and EKS. Commercial scallop fishing has been closed in the WKS since the 2010/11 season and in the EKS since the 2012/13 season. Members of the fishing industry inquired about details of the Kayak Island survey and if there are any options for the fleet to help survey the area and/or do a little fishing there to compare catch rates to the ADF&G survey.

#### **Westward Region (Stichert)**

Westward Region fishery management biologist Nat Nichols presented an update on the Westward Region weathervane scallop fisheries. Westward Region includes four registration areas: Kodiak, Alaska Peninsula, Bering Sea, and Dutch Harbor. Scallops in the Westward Region are not assessed. Managers use fishery dependent data, MPSs, and information from the scallop observer program to establish GHLs and manage harvests in-season. Crab bycatch in Westward Region scallop fisheries is limited by crab bycatch caps.

In 2013/14, managers established a district wide GHL for the Kodiak Northeast District and discontinued use of bed and statistical area GHLs. However, if in-season observer data indicate poor scallop CPUE or localized depletion, then managers may use MPSs to close individual areas before the total district GHL is harvested. The Westward Region began setting MPSs in the Northeast District in 2003/2004. The Kodiak Northeast District GHL of 55,000 pounds of meats was reached in 2015/16. The 2015/16 CPUE declined from the 2014/15 CPUE but this is mostly due to fishing effort being more spread out around the district in 2015/16. The distributions of scallop shell heights from 2014/15 season observer data showed a narrower size range of scallops harvested than from the previous 5 seasons - this is mainly due to the fleet concentrating fishing effort on one bed that season.

Despite lowering the Kodiak Shelikof District GHL three times since the 2010/11 season, the 2015/16 cumulative CPUE is the lowest since the district was managed for a GHL. The preliminary estimate of harvest for 2015/16 is 39,876 pounds. The CPUE declined to 30 lb/hr and is the lowest seen since 1994/95. CPUE was low from the outset of the 2015/16 season and managers closed the fishery after approximately 50% of the GHL had been harvested. Estimated Tanner crab bycatch was approximately 3,000 crab out of 19,107. The reason for the decline in CPUE is unknown but a survey is planned for the Shelikof bed in the spring of 2016 to be gathering fishery independent stock information.

The Kodiak Southwest District opened in 2009/10 with a GHLL of 25,000 pounds. The fishery is allowed by ADF&G Commissioner's permit and managers are debating whether to continue exploratory fishing or implement management regulations. The GHLL was reached in three out of the last five years. The district was closed early during the 2015/16 season due to high Tanner crab bycatch rates. The Tanner crab bycatch cap was reached after approximately 44% of the scallop GHLL was harvested. The area is very exposed to weather and dominated by large, old scallops.

There was no exploratory effort to harvest scallops in the Kodiak Semidi Islands District in 2015/16.

The Alaska Peninsula Registration Area supported a scallop fishery in the mid- to late-1990s near the Shumagin Islands between 160° and 161° west longitude. In 2014/15, the area between 160° and 161° west longitude was open with a GHLL of 7,500 pounds. Effort in the area was deterred because of the presence of Pacific cod pot gear. In 2012/13, the Alaska Board of Fisheries authorized exploratory fishing in Unimak Bight under the authority of an ADF&G Commissioner's permit to harvest a GHLL of 15,000 pounds. The GHLL has been achieved each season since 2012/13. Shell height and age distribution data for those two years indicate the population has a broad range of age classes most represented by ages 7 to 10.

The Bering Sea Registration Area opened with a GHLL of 50,000 pounds for the 2014/15 season. Two vessels participated in the fishery and harvested 12,445 pounds with an overall fishery CPUE of 24 lb/hr. The two participating vessels quit fishing voluntarily due to low CPUE and signs of high natural mortality throughout the scallop bed. Fishermen and observers both reported high numbers of scallops in which the meat slid off the shell or ripped in half when shucked. In January 2015, samples of scallops were collected and sent to the ADF&G Anchorage Pathology Lab for analysis of any evidence of diseases and/or parasites. The results showed that the scallops were infected with an apicomplexan-like parasitic organism. In 2015/16, the area opened with a GHLL of just 7,500 pounds to allow the fleet to look around the bed to better gauge the extent of natural mortality. One vessel harvested the entire 7,500 pound GHLL but the natural mortality event has not yet subsided. Estimated crab bycatch during the 2015/16 season was 22,000 Tanner crab (bycatch capped at 260,000 Tanner crab), 8,760 snow crab (bycatch capped at 300,000 snow crab), and 60 king crab (bycatch capped at 500 king crab). To further evaluate the geographic extent and infection rates of this parasite, a sampling effort was initiated in July 2015 for observers to collect samples from select locations across the state, from Yakutat to the Bering Sea.

The Dutch Harbor Registration Area reopened to fishing in 2008/09 with a GHLL of 10,000 pounds of meats, which was split between the Bering Sea and Pacific Ocean. Due to poor fishery performance on the Pacific side, the GHLL was reduced to 5,000 pounds in the Bering Sea from 2012/13 through 2014/15. The 2015/16 GHLL was raised to 10,000 pounds, split between the Bering Sea and Pacific Ocean, to allow for exploration on the Pacific Ocean side. The 5,000 pound GHLL in the Bering Sea has been reached each year with the harvest coming from one bed outside Inanudak Bay. Effort was put in on the Pacific Ocean side but no scallops were harvested.

### **Update on APU FAST Lab projects (Webster)**

The Scallop Plan Team received a presentation by Sarah Webster, Program Manager, at the Alaska Pacific University Fisheries, Aquatic Science, and Technology Laboratory (APU FAST). Ms. Webster reported preliminary findings of scallop shell analysis of mud blisters and shell boring worms in Kamishak District shell samples. Webster also provided an update on CamSled image analysis being conducted at the laboratory. Study participants are Dr. Brad Harris of APU FAST, Dr. Ken Goldman at ADF&G, Rich Gustafson ADF&G retired, graduate student Victoria Batter, and many undergraduate students.

This research has analyzed approximately 4,500 shells to date using the scallop shell collection from ADF&G. Students cataloged and imaged shells using backlit light board and photos using fixed height and pixel measuring in the Image J software to identify and analyze shell boring worms and mud blisters. The analysis considered prevalence of worms and blisters as well as intensity, or proportion, bored or blistered.

The preliminary findings show differing results in the North versus South Kamishak beds. In the North bed abundance relative to prevalence of shell boring worms and mud blisters shows higher proportion as abundance of Weathervane scallops declines. It is not clear what causes mud blisters but they are full of anoxic mud that taints meat if broken open during shucking. The blister can also weaken the shell and cause it to break away.

This analysis has provided a preliminary indication that changes in intensity, or the proportion, bored or blistered, both increase as abundance of scallops has decreased. However, sample sizes are not the same and haven't been adjusted, as sampling and analysis is not complete at this time. Further, spatial analysis has not yet been conducted. These preliminary findings also show that intensity of mud worms and blisters, by scallop age, varies widely with relatively low intensity in the South bed. However, it does not appear that the worms kill the scallops.

Preserved worms have been analyzed by Dr. Jerry Kudenov at the University of Alaska Anchorage. The worm analysis has identified the genus as either *Polydora websteri* or *ligni*. In the future live worms will be provided to Dr. Kudenov for improved analysis of species. At present, the researchers are working to complete shell analysis for all years, 1996-2011, in the shell catalog. Their focus is now on analysis of scallops as preferred habitat for worms as prevalence and intensity increase as abundance declines, and whether worms affect scallop stock decline.

Ms. Webster also provided an update on CamSled research. CamSled photo images are being processed within software developed by Richard (Ric) Shepard at ADF&G in Kodiak. The analysts are currently reviewing images from CamSled tracks off Kodiak. They are working on Chiniak gully North and South and around the "Christmas Tree" with half of the Chiniak area and a third of the Christmas Tree completed thus far. They also plan to start on the Barnabas and Albatross Banks areas. They are using a 1 km grid sampling station design, developed by Gregg Rosenkrantz and Ric Shepard, to overlay and select stations. The image processing software, developed by Ric Sheppard, is used to estimate scallop counts and will be used to estimate scallop abundance. The analysts are able to process 45 images an hour and will be able

to show prevalence of bottom type and species present. As this work continues they are plan to extract laser measurements from the images and APU FAST graduate student Victoria Batter (in attendance) is working on a species distribution model using the CamSled imaging for her M.Sc. Thesis.

### **Update on new scallop assessment program (Williams)**

Dr. Ben Williams updated the scallop assessment programs in Alaska. The update includes two parts: fishery dependent samplings and fishery independent surveys. Fishery dependent samplings include observer data and logbook data. In the past, there are problems that shell height and aging samples may not be matched, usually too many old scallops for aging. In the future, we need to change the sample collection to better sample scallops for both shell height measurements and aging determination. Hopefully, aging sample data are a subset of shell height sample data. There are also other issues needing to be addressed in the future, such as improvement of shell height / meat weight relationship, dealing with “shucking house” discards, and better logbook data to deal with fishing efforts. Special stations may be used to address these issues.

Future improvement in fishery independent surveys includes expanding the Central Region survey. There are a few issues needed to be addressed, including bed determination outside of the Central Region and sampling intensity by bed. The beds will be determined by using the cumulative catch data during 1996-2014 (>2000 lbs, basket round weight) and 1x1 nm grids. The current sampling intensity of the Central Region survey (every other nm grid) is not feasible for larger beds. ADF&G used simulation analysis from the past Central Region survey data to decide the sampling intensity, and about 30% of sampling areas sampled generally provide a good trade-off between sampling intensity and change in survey standard deviation. In 2016, the survey will include beds of YAK1, YAK2 and YAKB in Area D, WK1 in Area E, and KSH1, KSH2 and KSH3 in Area K.

To answer the question by Jim Stone why no survey in bed EK1 of Area E, Ben thought that the abundance trend was down in EK1 and the abundance was very low, so no survey for it in 2016. The team also noted that bed YAKB was cut off by 144.0° W. line, the management area boundary. Ben mentioned that although the fishing may not pass the management area line, the survey can run pass the line. Quinn Smith added that the survey will be every year but in different areas, the survey in 2017 will primarily be in the western areas, and the approximate triennial rotation of survey in different areas of the state is dependent on funding.

### **Discussion of fleet based sampling and assessment (Smith)**

Quinn Smith lead a discussion of both the survey and observer based stock assessment. Jim Stone mentioned that we was worried that the new sampling protocols would over task the observers and noted that the observer program already has a hard time retaining observers for more than one year. Quinn responded that any new observer tasks would be instead of tasks currently done.

Jim Stone also asked why not manage the fishery based on number of animals harvested rather than pounds of shucked meats. There was some agreement in the room that it would make more sense to do so, but that it would take a longer process to figure out the details of this form of management.

It was suggested by the fleet that it is more important to survey all of the EK1 and YAKB bed complex to determine if it is one full bed, or actually two. Discussion ensued for some time and it was decided that ADF&G would change its survey plan to survey the whole bed complex and not survey the YAK2 bed.

A further discussion centered on how the sampling expansion would work, and if a plan of surveying every 3<sup>rd</sup> grid square would work for all beds. It was explained that ADF&G would conduct sensitivity analyses after the surveys to determine the most appropriate spatial survey plan for each bed based on the variation seen in the survey.

### **Review/respond to SSC comments**

#### **2015 SSC comments:**

**Comment 1:** The majority of scallop GHs are based on fishery-dependent observer data. Therefore, validation of fishery-dependent CPUE as an index of local abundance is important. The SSC thought that calculating CPUE in units of shucked meats might introduce more variability than a CPUE based on the number of scallops. The SSC also noted that fluctuations in meat weights and condition might be a good area of research to identify environmental conditions in addition to its application to scallop management. **The SSC recommends that analysts review the processes that may influence fishery CPUE and compare CPUE based on shucked meats versus number of scallops per hour of dredging during the workshop planned for 2015/16.** However, we recognize that a reliable index of abundance may not be available from observer data alone.

**Response:** An index of abundance derived from observer data is currently being evaluated and will be presented in the 2017 SAFE. Further, changes to observer sampling protocols are being implemented during the 2016/17 fishing season to specifically address fluctuations in meat weight. These changes will establish so called “special hauls”. During these hauls the sampling program will change slightly. First, is a request for vessel captains to record the dredge start and stop times as accurately as possible. This request arose because fishing time is often rounded to the nearest 5 minute interval in logbooks that can skew estimates of CPUE. Second, observers will be responsible for sampling and collecting scallops for meat weight, shell height, and aging. The collection of meat weight is to address a current data gap, whereby the round weight of retained scallops is recorded before they are shucked and a retained meat weight is recorded after they are shucked. However there is no record of discards in the shucking shack, as the management of this species is based upon retained meat weight this scenario could lead to substantial exploitation rates (number of scallops) that may not be reflected in the amount of meat retained.

**Comment 2:** The SSC was concerned about the potential loss of fishery-independent surveys (e.g. Kamishak Bay and Kayak Island), staff positions, and expertise due to state budget

problems. Although the current wholesale value of \$4.5 million dollars in the scallop fishery precludes large expenditures for monitoring and providing management advice, the SSC thought several factors should be taken into consideration in determining the appropriate level of research expenditures. The current lack of fishery-independent data has likely kept harvests well below sustainable levels. Better data would lead to more confidence in the assessments and likely increase GHs. Consequently, the loss of survey data from the Central Region will necessarily result in a more conservative approach to management of these stocks, reducing future permissible GHs in some areas.

The SSC notes that survey results from the Central Region provide a baseline to assess the quality of indices of abundance derived from observer CPUE and evidence for demographic isolation of adjacent scallop beds from the observed lack of correlation in recruitment. Because of the critical nature of this survey, the SSC suggests alternative means of continuing surveys be investigated, such as a cost-recovery model to fund fishing vessels for the survey (e.g. a research set-aside approach has been successful in the Northeast). The SSC also strongly supports further development and potential implementation of the CamSled technology as a potentially cost-efficient survey methodology.

**Response:** The SPT agrees with the need for fishery independent surveys and is holding a workshop with a subset of SSC member with extensive scallop survey expertise to identify improved methods.

**Comment 3:** The SSC considers continued development of the age-structured assessment approach as an urgent priority for the Council. Because of differences in growth among regions, location-specific survey data might be required to apply the model outside of the Kamishak and Kayak Island regions. There are several lines of evidence that suggest that the stock is composed of regional meta-populations including: (a) regional differences in growth rate, age composition (possibly an indicator of regional differences in recruitment or mortality), and morphology; (b) weak evidence of genetic partitioning between the Bering Sea and GOA populations; and c) age samples show uncorrelated recruitment in adjacent scallop beds. **The SSC recommends that alternative management methods suited to a metapopulation structure, such as rotating harvest among scallop beds, be considered during the planned workshop in 2015/16.**

**Response:** The SPT agrees that location-specific survey data might be required to apply the model outside of the Kamishak and Kayak Island regions. As the surveys are conducted in new areas area specific metric will be developed.

As of writing only one paper from the Lowell-Wakefield data poor workshop has been received by the editors. Once all papers are in the SPT will review the report and consider alternative management approaches.

### Research priorities

An overview of the Council’s revisions to its terminology associated with research priorities was provided by Jim Armstrong. Armstrong then led the Plan Team through its existing list of list of research projects. The table on the following pages comprises the modified research priorities identified by the Plan Team. All of the priority rankings were revised to conform with the new terms. Other modifications are indicated in red font in the table.

|            |   |                  |
|------------|---|------------------|
| <b>141</b> | <b>Estimate scallop stock abundance</b>   |                  |
|            | <b>Status: No Action</b>  | Critical         |
|            | Estimate scallop stock abundance in un-surveyed areas using fishery independent methods including computerized image analysis of current camera sled data.  |                  |
| <b>New</b> | <b>Computerized image analysis of current camera sled data.</b>   |                  |
|            | Assessment of existing database of camled images is needed to provide scallop counts and sizes, contributing to abundance estimates. Additionally, sediment and habitat type and presence of other organisms can be assessed.   |                  |
|            | <b>Status: Underway</b>   | <b>Urgent</b>    |
| <b>151</b> | <b>Acquire basic life history information (e.g., natural mortality, growth, size at maturity) for data-poor stocks.</b>   |                  |
|            | <b>Status: Partially Underway</b>   | <b>Important</b> |
|            | Acquire basic life history information needed for stock assessment, PSC, and bycatch management of data-poor stocks, such as scallops, sharks, skates, sculpins, octopus, grenadiers, squid, and blue king crab (Bering Sea), golden king crabs (Aleutian Islands), and red king crab (Norton Sound). Specifically, information is needed on natural mortality, growth, size at maturity, and other basic indicators of stock production/productivity). Source/sink dynamics for scallop stocks is critical to understanding stock structure [note highest overall priority for assessment] |                  |
| <b>163</b> | <b>Expanded studies to identify stock and management boundaries</b>   |                  |
|            | <b>Status: Partially Underway</b>   | <b>Important</b> |
|            | To identify stock boundaries, expanded studies are needed in the areas of genetics, mark-recapture, reproductive biology, larval distribution, and advection. Such boundaries are to be evaluated so that consequences of management and risks are clear. Verify stock structure and source/sink dynamics including physical oceanographic, genetic and life-history studies.[Note refer to 151 as well]  |                  |

|                |  |               |
|----------------|--|---------------|
| 166            | <b>Develop age-structured models for scallop assessment</b>  |               |
|                | <b>Status: Partially Underway</b>  | <b>Urgent</b> |
|                | Age structured models for scallop are needed to increase understanding of population dynamics and harvestable surpluses.   |               |
| <del>154</del> | <del><b>Conduct multivariate analysis of bycatch data from the scallop observer program</b></del>  |               |
|                | <del><b>Status: Completed</b></del>  |               |
|                | <del>Conduct multivariate analysis of bycatch data from the scallop observer program (haul composition data) and camera sled data.</del>   |               |
| 316            | <b>Ocean Acidification and Scallops: monitoring water quality</b>  |               |
|                | <b>Status: No Action</b>   | <b>Urgent</b> |
|                | Seasonal water quality monitoring in known scallop areas - find extent of existing data  |               |
| 317            | <b>Effects of Ocean Acidification on Scallops</b>  |               |
|                | <b>Status: No Action</b>   | <b>Urgent</b> |
|                | Studies to understand the mineralization of scallop shells through life cycle and across spatial variability . Studies to understand the vulnerability of larval scallops to acidification.  |               |
| 106            | <b>Improve discard mortality rate estimates for scallop</b>  |               |
|                | <b>Status: Partially Underway</b>  | <b>Urgent</b> |
|                | Field studies estimating Alaskan scallop discard mortality: relationship between capture, release condition and survival of scallops   |               |
| 112            | <b>Analyses of fishery effort and observer data for scallop</b>  |               |
|                | <b>Status: Partially Underway</b>  | <b>Urgent</b> |
|                | <b>Potential for standardization of CPUE data. Evaluate factors contributing to variable CPUE. Assess impacts of temporal and spatial effort by a limited number of vessels on CPUE and observer data for management purposes.</b> |               |

|                |  |                           |
|----------------|--|---------------------------|
| 160            | <b>Develop and evaluate global climate change models (GCM) or downscaled climate variability scenarios on recruitment, growth, spatial distribution</b>  |                           |
|                | <b>Status: No Action</b>   | Important                 |
|                | Quantify the effects of historical climate variability and climate change on recruitment, growth, and spatial distribution, develop standard environmental scenarios (e.g., from GCMs) for present and future variability based on observed patterns.  |                           |
| <del>161</del> | <del>Climate and oceanographic information covering a wider range of seasons is needed</del>   |                           |
|                | <del>Status: Partially Underway</del>  | <b>Duplicate with 160</b> |
|                | <del>There is also a need for climate and oceanographic information that covers a wider range of seasons than is presently available.</del>  |                           |
| 315            | <b>Area-specific variability in scallop population processes</b>   |                           |
|                | <b>Status: Partially Underway</b>  | Important                 |
|                | Investigate area-specific variability in vital population processes including growth, recruitment, natural mortality and movement, including mark-recapture tagging studies. <b>Bed-specific growth could be analyzed from archived shells.</b>  |                           |
| 472            | <b>Evaluate non-parasitic causes of variable meat size, undersize meats in scallops</b>  |                           |
|                | <b>Status: Partially underway</b>  | Important                 |
|                | Exploratory tows in the Bering Sea (District Q) and Some areas open to harvest around Yakutat (District D) have shown scallops with disproportionately small meats relative to shell height. The cause of this condition as well as potential for recovery is unknown to industry.   |                           |
| <b>New</b>     | <b>Evaluate extent and importance of parasites in scallop populations</b>  |                           |
|                | <b>Status: Partially underway</b>  | Important                 |
|                | In January 2015, the captain of the F/V Provider informed ADF&G that he was seeing "weak meats" in Bering Sea scallops he was catching so samples were collected and sent to the ADF&G Anchorage Pathology Lab for analysis of any evidence of diseases and/or parasites. The results showed that the scallops were infected with an apicomplexan-like parasitic organism. To further evaluate the geographic extent and infection rates of this parasite, a sampling effort was initiated in July 2015 to collect samples from select locations across the state, from Yakutat to the Bering Sea. |                           |

**SPT meeting for 2017**

The 2017 Scallop Plan team meeting will be held in Kodiak on February 22<sup>nd</sup> in Kodiak.

The Plan Team hopes to invite Dr. Robert Foy (AFSC in Kodiak) to speak to the team on the current monitoring of Ocean Acidification and its potential effect on the Scallop stocks, and Dr. Gordon Kruse (UAF in Juneau) to speak on his recent fishery review of the scallop fishery off of Tasmania.

**Scallop Plan Team meeting**

February 17, 2016

Fishermen's Hall

Kodiak, AK

**Wednesday February 17:**

**9:00am – 5:00pm**

9:00 am

- Introductions and approval of agenda, schedule for SAFE compilation / minutes assignments (Smith)

9:15 am

- Status of Statewide Scallop Stocks and SAFE report-Catch specifications by area
  - Central Region (Goldman)
  - Westward Region (Stichert)
  - Southeast (Smith)

10:00 am

- Update on APU FAST Lab projects (Webster)

11:00-11:15 am

- Break

11:15-12:30

- Update on new scallop assessment program (Smith)
  - Fishery Independent
  - Fleet based sampling

*12:30-1:30pm Lunch*

1:30 pm

- Discussion of fleet based sampling and assessment (Smith)

3:30 pm

- Review/respond to SSC comments
- Research Needs
  - Research priorities: review and revise (Armstrong)
  - Potential for additional analyses on MSY
- New business
  - SPT meeting for 2017

Adjourn