

American Fishermen's Research Foundation News

In this edition we had space only to cover the recent stock assessment on North Pacific albacore which AFRF science advisor, David Itano attended and gave the following report. We focus on this issue as it will affect every aspect of our fishery in the future. That includes MSC recertification, establishing future harvest control rules and biological reference points that could limit effort or catch if stocks suddenly fail. AFRF and WFOA continue to stay on top of the issues despite high costs and investment in time required. We hope the fleet supports this effort through selling to AFRF buyers.

2017 ISC Stock Assessment:

Albacore Working Group – Intersessional Workshop (Stock Assessment): David Itano

The ALBWG met in La Jolla, CA in mid-April 2017 to develop and complete a new stock assessment for North Pacific albacore. The work was carried out by scientists from Canada, China, Chinese Taipei, Japan, USA and the IATTC. AFRF was represented by its science advisor, David Itano who has been endorsed as a member of the ALBWG, replacing Dr. Vidar Wespestad who retired in 2015.

The effort went beyond an update of the previous model (2014) and incorporates some revised inputs, assumptions and model structure. After examining available data and estimated abundance trends the working group agreed to focus on building a stable, scientifically robust base model that can be improved over time as additional data becomes available. However, the new model incorporated some important improvements that more accurately represent albacore fisheries and life history traits.

Note that details of the assessment were presented to the Plenary session of the ISC that met in July 2017 as noted below. The meeting endorsed the stock assessment as described later in this report. A full reporting of the model structure, results, approved research projects and management recommendations will be made available on the ISC website later this year.

During the workshop, research recommendations were drafted and approved to be addressed on an ongoing basis building up to the next formal development of the stock assessment (2019). Most of the proposed research projects will examine data quality issues or improved data collection with some initial exploration into the use of tagging data and the role of ocean productivity on albacore catchability and stock dynamics. Management Strategy Evaluation and an MSE work plan was also discussed in preparation for the MSE workshop scheduled for Vancouver, Canada in late 2017 or early 2018. The stock assessment has also been presented to the WCPFC Scientific Committee meeting in Rarotonga, Cook Islands (August 8-17, 2017) and available as Working Paper SC-13-SA-WP-09 on the WCPFC website.

17th ISC, Vancouver, B.C. Plenary Session ISC Plenary Session: July 12 – 15, 2017

David Itano, AFRF Science Advisor

[July 12, 2017 Albacore Working Group activities](#)

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John Holmes, ALBWG Chair provided a summary of albacore related activities of the ISC Albacore Working Group since ISC 16. The ALBWG held a data preparation workshop in Nanaimo, BC in November 2016 to select and agree on data inputs for stock assessment. The group agreed that most of the movement in NP Albacore is expressed by juveniles north of 30N. An age based selectivity pattern was chosen for surface fisheries north of the 30N line, mainly utilizing Japanese pole and line data. This fishery catches a wider size range of juveniles compared to the surface troll fishery and can show clear modal year classes in its CPUE data.

At the Stock Assessment workshop conducted in April 2017 in La Jolla resulted in a new and improved (Benchmark) stock assessment for NPALB that was presented on Day 2 of ISC 17. Steve Teo had already presented this draft stock assessment to the IATTC Scientific Advisory Committee in May 2017. Steven Teo presented the final version as approved and adopted by ISC 17 to the WCPFC Scientific Committee 13 in Rarotonga, Cook Islands (August 2017) and John Holmes will present it to the Northern Committee 13 meeting.

Albacore MSE Workshop: Vancouver, BC

A Management Strategy Evaluation (MSE) Managers and Stakeholders meeting to be held in Vancouver, BC was discussed. The objectives of the workshop need to be more clearly defined. It was noted that the goal of the workshop will be to gain input from managers and stakeholders and develop a roadmap for the development of an MSE strategy for NPALB while looking at the application of Harvest Control Rules for the stock. Elections were held this week for new leadership of the ALBWG as John Holmes has stepped down due to new work commitments. Hidetada Kiyofuji (Japan) will serve as the new ALBACORE WORKING GROUP Chair, assisted by Steve Teo (US) as vice-chair.

Albacore Working Group – John Holmes

John Holmes described the 2017 benchmark stock assessment for NP Albacore, essentially completed in April 2017 at the ALB WG Stock assessment workshop. I attended this meeting and reported out at that time and little has changed since then. Basically, the model assumes or incorporates:

- 1) Most of movement expressed by juveniles north of 30 N
- 2) Mature fish moving south to spawn, across a wide band from Hawaii to the Philippines
- 3) Fishery areas defined by fisheries with similar size selectivity
 - a) Model split into five distinct model regions in the North Pacific
- 4) Utilizes data from 1993-2015 to avoid very different CPUE trends in earlier data
- 5) Age based selectivity i.e. for juveniles north of 30 N to model changes in availability due to movement
- 6) Dome shaped selectivity (does not level off at a maxima)
- 7) Incorporates 29 separate albacore fisheries across Pacific
- 8) Note: Sex ratio data very limited
- 9) Parameters include:
 - a) 2 sex growth model
 - b) Sex specific natural mortality
 - c) Seasonally varying L/W relationships
 - d) Maturity of L50 set at Age 5, with 100% maturity at Age 6
 - e) Maximum age of 15 years

This model is considered a vastly improved Stock Assessment from the simple 2014 assessment, incorporating many improvements that basically make it “smarter”, such as recognizing two sex growth and natural mortality schedules and including updated biological data. The stock status of NP Albacore is evaluated relative to a Limit Reference Point (LRP) of 20%SSB0 as adopted by the Northern Committee.

Results: The model converged (it's stable and useful for management) and fit fishery size composition data very well and could detect fishery impact on the stock. Basically, this is a good thing and suggests the model is behaving well which bodes well as to predictive power. Female SSB is predicted to be well above the LRP of 20%SSB0. The Stock status was considered to be consistently within the Green sector of the Kobe plot throughout the time series of the assessment. **The recommendation was that the stock was likely not overfished and overfishing likely not occurring.**

The exact wording of the above may have changed slightly in later discussion, but the idea was to not state “overfished” or “overfishing”, when F based reference points have not been set for a stock. Instead, use numbers and numerical values. It was noted by some members that this approach may be less clear to managers. A definition of “fishing intensity” was also added.

Data Working Group: It was noted that the updated ISC data tables contained some errors in historical catch for two countries. The Chair stated that these errors would be addressed and final data tables would be posted to the ISC website by October 2017.

Tagging Tuna: Lessons Learned – summary of presentation

David Itano provided a presentation on lessons learned and advice for designing and conducting tagging experiments, primarily for conventional plastic dart tag studies. The large-scale tuna tagging programs implemented by the South Pacific Commission since 1977 were used as examples of scientifically designed and well executed studies. These programs used Japanese pole and line vessels that were capable of tagging and releasing more than 4000 tuna in good condition in a single day. The system was based on cloning the tagging operation and tag release protocols to minimize tag shedding and tagging induced mortality or morbidity. In other words, each tagged tuna should have an equivalent chance of survival and recapture with the tag firmly in place.

It was noted that tagging studies should be designed to address management issues with clear objectives through input from scientists and industry. It was suggested that the success of a conventional tagging project depends on adequate numbers of reliable tag recapture data for statistically valid analysis. Early and ongoing tag program publicity in a multi-media approach with all potential sources of tag recovery is considered one of the most important components of a successful tagging study. The presenter noted that a well-designed tagging study should:

- Address fishery management concerns and be designed to address clearly stated objectives
- Utilize existing data and expertise when planning projects
- Include scientific colleagues and fishermen in the planning process
- Keep taggers and tagging vessels to a small group to maintain consistency
- Develop and enforce standardized tagging protocols
- If possible, use pole and line gear, if not barbless and circle hooks where appropriate
- Develop strict rejection criteria for fish selected for tagging and release
- Test tagging gear and attachment systems (especially for electronic tags)

- Begin tag publicity early and continue on an ongoing basis
- Develop tagging vessel and crew incentives if appropriate
- Do not anticipate project results but provide release and recovery updates and other interesting metadata to public to maintain interest
- Do not provide recapture rewards unless the tag has been provided
- Hire a very good Tag Recovery Officer and experienced Cruise Leaders
- Maintain contact with the fishery, fishermen, processors and industry to increase recapture data
- Publish results and provide feedback, publications and information to the fishing industry, public and all sources of tag recovery.

I mentioned the use of sonic, archival and PSAT tags for tuna but Chuck Farwell went into greater detail on the application of electronic tags, including instant read SPOT tags for animals that break the surface to allow direct GPS transmission of location. Erin provided a detailed description of the use of sonic tags in conjunction with the Ocean Tracking Network and their own network of large-scale acoustic receiver arrays in British Columbia to track salmon smolts and returning adults to the Frazer river system and neighboring rivers. The tagging talks opened up an interesting discussion on the role of ISC and HMS tagging studies. It was noted that the ISC actually has provision for a Tagging Working Group that is currently inactive. Holmes posed the question: is HMS tagging something that ISC should engage in?

Countries around the table voiced general support for the tagging work with a focus on addressing management issue. There was general consensus that ISC could serve a useful role in fostering international cooperation in addressing issues, especially for the trans-oceanic migrators like albacore, Pacific Bluefin and billfish. Specific supporting statements were made by Mexico, Japan, USA, Chinese Taipei and Korea.

The meeting tasked the incoming ISC Chair to develop a timeline and way forward to activate a tagging sub group within ISC and report back to future ISC meetings. Tasks discussed included:

- Identify someone to lead this group and interested members
- Begin by developing an inventory of existing HMS tagging projects in the North Pacific Ocean and present this information to ISC 18
- Determine how outside researchers can participate in the group
- Identify key management issues that can be addressed by tagging studies.

Korea agreed to host ISC 18 Plenary meeting, tentative dates July 11-17, 2018.

A Working Group meeting schedule was fleshed out that I can circulate when finalized.

NOTE that the Albacore MSE meeting, originally scheduled for October 17-19, 2017 will change to accommodate schedules of ISC members. Dates are TBD at this time.

AFRF Contracted Buyers: Bornstein Seafoods Inc., Bumble Bee Seafoods, C2C Premium Seafood, Chicken of the Sea International, Driscoll's Wharf, Hag Fish LLC, High Seas Tuna Inc., Interocean Fisheries, Island Trollers Inc., Jessie's Ilwaco Fish Company, JK Fisheries, Ilwaco Landing LLC, Oregon Seafoods, Pacific Seafood Group, Papa George Gourmet Albacore, Pelican Packers Inc., Seafood Producers Co-op, Star Kist Foods, Trident Seafoods, Tri-Marine International, Westport Seafood Inc, Wild Planet Foods Inc

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