



ANNEX 07

*26th Meeting of the
International Scientific Committee for Tuna
and Tuna-Like Species in the North Pacific Ocean
Taipei City, Chinese Taipei
22-29 June 2026*

REPORT OF THE SHARK WORKING GROUP WORKSHOP ¹

**May 7th and May 18th 2026
Virtual**

June 2026

¹ Prepared for the 26th Meeting of the International Scientific committee on Tuna and Tuna-like Species in the North Pacific Ocean (ISC) held June 22-29, 2026, in Taipei City, Chinese Taipei. Document should not be cited without permission of the authors.

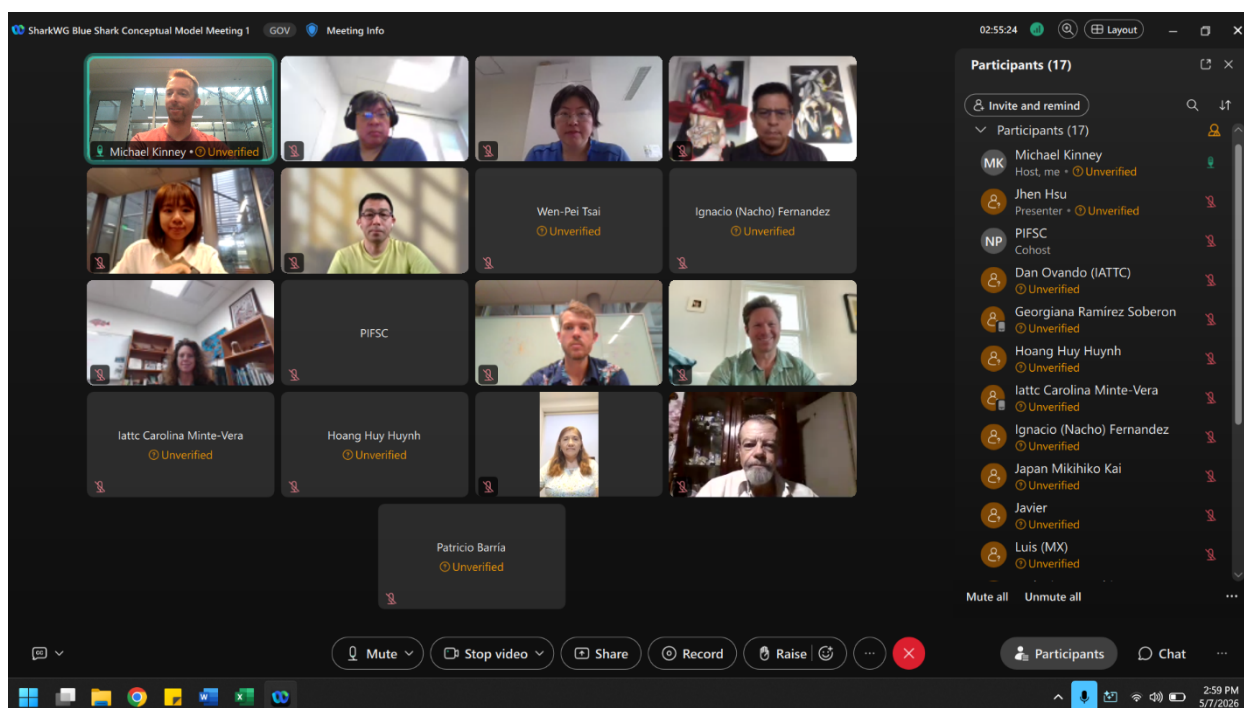
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REPORT OF THE SHARK WORKING GROUP WORKSHOP

International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean

Conceptual model meeting for North Pacific blue shark Virtual (Microsoft Teams)

May 7th and May 18th 2026



Executive Summary

Stock Structure

The working group discussed evidence bearing on the one- versus two-stock hypothesis for North Pacific blue shark. Stable isotope analyses (including Madigan et al. 2021) were noted to have important limitations related to tissue turnover rates (~6–12 months for muscle tissue), isoscape distinctiveness, and the movement potential of the animals, which may complicate interpretation of population structure. Genetic approaches were generally viewed as more informative for stock structure questions, though these methods also carry technique-

dependent limitations. The group noted a potential temporal mismatch in the eastern and western samples used in the Madigan study that warrants further consideration.

Unpublished tagging data (mostly from Hawaii, with fish also tagged in the California Current, currently being analyzed by Nicole Nasby-Lucas) appears to support a two-stock hypothesis with limited exchange between the eastern and western Pacific. A presentation of horizontal movement patterns from this tagging work was provided at the second day of the meeting. The Sippel et al. 2016 study, which shows strong connectivity between the eastern and western North Pacific—particularly between the California coast and Japan, with fish around Hawaii dispersing in multiple directions—was discussed as supporting a single-stock interpretation. The group noted that asymmetric movement (eastern fish appearing to move west, but limited evidence of westward-origin fish moving east) and fishery-dependent tag reporting patterns should be considered carefully when interpreting nominal movement data. No formal decision on the stock structure hypothesis was required at this stage; the matter will be revisited during the lead up to the blue shark data preparation meeting.

Reproduction

Clear evidence of an annual reproductive cycle exists for the western North Pacific, while the cycle in the northeastern Pacific (NEPO) remains less certain due to data gaps. The group discussed the possibility of regional differences and agreed that alternative hypotheses for eastern and western areas could be carried forward into the assessment without a definitive conclusion at this time. The Runcie et al. 2016 paper was noted as providing evidence that parturition timing in the east may be broadly consistent with the west (late winter to spring).

Growth and Longevity

Differences among growth studies were attributed primarily to the size range of individuals sampled and methodological variation, with studies covering a wider size range considered more representative. Mexico noted that its domestic studies rely substantially on artisanal fisheries with strong size selectivity toward smaller, coastal individuals, which may bias age and growth estimates. Observer program data from Mexico indicate a size range of approximately 75–300 cm TL for both sexes. The group agreed that further discussion of longevity estimation methods would be deferred to the data preparation meeting.

Conceptual Model

A draft conceptual model was presented for group discussion. Key points raised included: (1) the number and spatial extent of pupping grounds may be underestimated due to gear selectivity and survey coverage rather than reflecting true distribution; (2) coastal pupping appears supported by data from both the US and Mexico in the east, while a longitudinally extended pupping ground that expands further from the coast was suggested in the western-central North Pacific based on wide-ranging experimental data; (3) vertical habitat partitioning by sex and maturity stage—particularly deep-water affinity of large mature females—may affect catchability in fisheries-dependent data and should be reflected in the model; and (4) the relative contribution of eastern and western pupping grounds to overall recruitment is currently unknown. The group reached consensus on a single draft conceptual model for the current meeting, but it was agreed that multiple conceptual model configurations may be appropriate given data uncertainties. Members were asked to review the draft model and provide additional feedback in the leadup to the data preparation meeting.

1. Introduction

The Shark Working Group (SHARKWG or WG) of the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC) worked intersessionally to conduct a literature review of blue shark (BSH; *Prionace glauca*) biology, life history, ecology, and fisheries interactions in order to develop a conceptual model for North Pacific (NPO) blue shark. The WG held two 2-hour virtual meetings where the group discussed the results of the literature review and developed the conceptual model. The WG also discussed future meeting plans leading up to the BSH data prep meeting (tentatively scheduled for January 2027).

Michael Kinney, SHARKWG Chair, opened both virtual meetings (May 7, and May 18) at 1:00 PM (Hawaii Standard Time). Participants included members from The Inter-American Tropical Tuna Commission (IATTC), Japan (JPN), Mexico (MEX), Taiwan (TWN), and the United States of America (USA) (**Attachment 1**), as well as guests from Chile. The SHARKWG Chair welcomed all participants and expressed his wish for a productive meeting.

2. Distribution of documents and numbering of working papers

No working papers were distributed during these virtual meetings, instead two presentations (one for each meeting) were provided to the WG prior to each meeting. Each presentation covered specific topics based on the materials collected during the group's literature review. Additionally, one further presentation file (1. Horizontal Movements of Electronically Tagged Blue Sharks in the Central and Eastern North Pacific) was provided to the WG with a short summary note, this information was based on analysis and work that are still under review (**Attachment 2**).

3. Review and approval of agenda

The draft meeting agenda was reviewed, and the agenda was adopted (**Attachment 3**).

4. Appointment of rapporteurs

One member of the WG served as rapporteur for each item of the approved agenda.

Item	Rapporteur
1-6.	N. Ducharme-Barth

M. Kinney lead the writing/updating of the meeting report in cooperation with WG members.

5. Conceptual model for NP blue shark (Day 1 – Biology, Movement, Population Structure)

The WG discussed the benefits of the conceptual model approach and how it would be used as the foundation for data input analyses and structure for the 2027 NPO blue shark benchmark stock assessment. The WG also reviewed the group’s overall literature review efforts in which 92 papers on blue shark were provided by group members in order to construct the conceptual model.

Summary

This presentation includes basic information about the biology, movement, and population structure of NPO blue shark, what is known, what is unknown, and what the group sees as key uncertainties from the last blue shark stock assessment. The end result of this work is to develop a conceptual model that captures all of this information in order to provide a direction for the WG to progress the next BSH benchmark assessment for 2027.

Discussion

- a. Stock structure discussion
 - i. USA
 1. Madigan study, were they looking at adults or juveniles? Juveniles may be more structured; adults may have more movement so that could impact the inference from this type of analysis.
 - a. USA: The ability of stable isotopes may have limitations for determining stock structure based on things like tissue turnover rates, the distinctiveness of isoscapes, the speed at which animals migrate, etc., due to such issues I tend to lean into genetics for stock structure more than isotopes although they both provide useful information.
 - b. USA: Genetics approaches may have limitations depending on technique. Also, stable isotopes for adults that have a greater movement potential may be more informative than for juveniles which may move less.

- ii. IATTC
 - 1. Unpublished data tagged mostly in Hawaii in California Current, currently being analyzed. It does seem to support the two-stock hypothesis with migrations back and forth between Hawaii and the California Current. Nicole Nasby-Lucas reanalysis of all the tagging data
 - a. USA: It would be great to have an informal presentation at the next meeting.
 - iii. JPN
 - 1. Will you present horizontal movement patterns based on the tagging study (Sippel et al. 2011)?
 - a. USA: Yes, Jhen will make a presentation of this later
 - b. JPN: So we don't need to decide between the two hypotheses at this time?
 - c. USA: Correct we are just presenting to the WG for discussion. We will need to make more formal decisions later on at the end when we discuss the conceptual model.
 - iv. JPN shared a reference on Pacific-wide genetic population structure on BSH that did not make it into the literature review but should also be incorporated into the conceptual model:
<https://meetings.wcpfc.int/node/19794>
- b. Reproduction discussion
- i. JPN
 - 1. This issue may be related to regional differences. Data gaps may be a possibility to explain the differences. We can give alternative hypotheses for the east and west but it remains to be seen which stock hypothesis we will support
 - 2. In the west there is clearly an annual cycle, a bit more uncertain in the NEPO
 - ii. USA
 - 1. There is a good amount of information from Japan specifying an annual cycle. The paper from Mexico does provide information for two years but there appears to be a critical data gap which can limit the interpretation of the reproductive cycle.
 - iii. USA
 - 1. We don't need to make any decisions now about how we treat the reproductive cycle in the east. We can consider both

hypotheses when developing the assessment. Also the Runcie et al. paper appeared to indicate apparent parturition in the east more in line with what is seen in the west, late winter to spring. This is based on the timing of the neonates recruiting to the survey gear in the summer.

c. Growth & Longevity discussion

i. JPN

1. Concerning Table 5 in Fujinami et al. (2019), there is a big difference in the size range of individuals used among studies. Fujinami analyzed much larger individuals than others. The difference in enhancement method on growth band used can also impact estimates. However, studies that consider a wider range of sizes are likely to be more representative.

ii. USA

1. There are method differences but the size range of the studies should be considered, Fujinami and the Natanson study in the Atlantic

iii. JPN

1. What is the size range of blue shark catch in Mexico? What is the maximum range of the NE pacific study? Is it a data issue or is the catch size smaller?

iv. USA

1. Can we get clarification from Mexico on the size range of the individuals considered

v. MEX

1. We can check the observer program data to see about the size range of the individuals

vi. US

1. Any comments on longevity, likely linked to sample size and the size of the individuals considered

vii. MEX

1. The studies in Mexico rely a lot on artisanal fisheries. There is a big selectivity problem with those fisheries because those gears typically target/capture smaller individuals. They are also very coastal fisheries which can impact the representativeness of the samples. This can have an impact on the age and growth studies. Even the observer data may also have selectivity problems

viii. MEX
Biológicos de Sphyrna

Especie:
 Prionace glauca

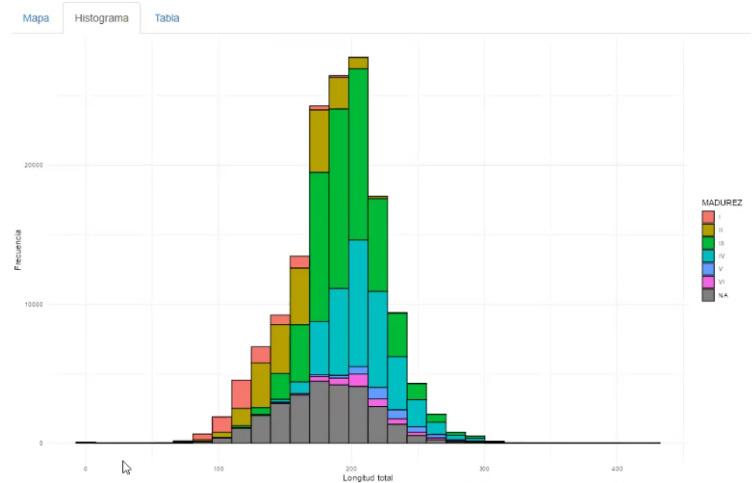
Sexo:
 Todos

Mes:
 Todos

Trimestre:
 Todos

Año:
 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023

Exportar tabla (CSV)
 Exportar mapa (JPG)
 Exportar histograma (JPG)



1. Nacho shared an image of the observer data records that Mexico has available: 75-300cm TL for both sexes. Males appear to be very slightly larger than females

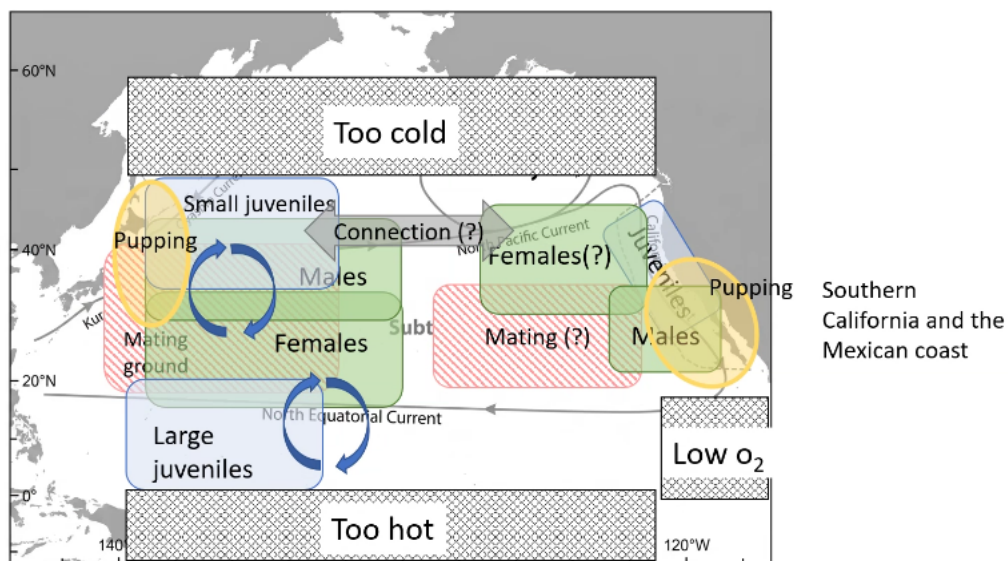
ix. TWN

1. There are several different methods to estimate longevity. Do we need to discuss them at this time?

x. USA

1. We can defer that discussion to the data prep meeting. At this stage we just want to highlight any limitations with what has been collated.

d. Draft conceptual model discussion



- i.
- ii. USA
 1. Using all of the literature information that we have all shared this is the draft model that Jhen has put together. Are there any comments at this time?
- iii. USA
 1. How confident are we that there are only two pupping grounds? Is this because of this is where we look or are there other places?
- iv. USA
 1. Could be two things, this is where we look but also there is a low likelihood of catching large sharks in the middle of the ocean with the pelagic gear.
- v. JPN
 1. My understanding is that pupping is more offshore and extensively distributed longitudinally. Are they separated or is there a central pupping ground that they then distribute more towards the coast
 2. The longline gear does not capture the neonates (i.e, individuals with 35~40cm PCL), in the rare case where they are captured, they are released at sea. We can see the size of the embryo in the adult females to infer pupping grounds and season from the distribution of near-term embryo data.
- vi. USA
 1. Just to clarify the coastal nature of pupping? Just off Japan or both
- vii. JPN

1. Just clarifying I am referring to the western area
- viii. USA
 1. It does appear from US and Mexico data that the pupping area might be quite coastal in the east
- ix. MEX
 1. I agree. The juveniles are very coastal in the Mexican coast. The vertical distribution might need to be considered in the conceptual model. The females may be lower in the water column than males and could explain why we are not catching them. We had a tagging cruise that did not catch large mature females until we put the longline very deep.
- x. USA
 1. We may need to revise the figure to account for selectivity differences between the fisheries dependent information that is feeding into our understanding of size/sex patterns at space
- xi. JPN
 1. [Sippel's study](#) clearly shows a strong connection between the east and the west, particularly from the California coast and Japan. Fish around Hawaii disperse in all directions. Based on this figure we should treat this stock as a single stock
- xii. USA
 1. We did consider this paper in the literature review. It does give evidence to a single stock hypothesis along with some of the genetic techniques
- xiii. USA
 1. Seems to be at least two pupping grounds based on appearance of neonates and seasonal timing, unlikely to come from one. Do we have natal homing of adults or straying? Can we refute either hypothesis at this point?
- xiv. USA
 1. East fish seem to move west, but west fish don't seem to move east
- xv. USA
 1. You have to consider the fisheries operating in the Eastern and Western Pacific to both catch tags and report them. With more fisheries operations that are capable of catching sharks occurring in the Western Pacific there are more chances for both capture

and reporting, the WG must be careful in interpreting the nominal movement from these conventional tag recaptures.

- xvi. USA
 - 1. Thinking about the Madigan study. What is the turnover for the tissues involved? This is different from hard parts.
- xvii. USA
 - 1. Usually 6-12 month turnover for muscle tissue.
- xviii. USA
 - 1. So that doesn't necessarily preclude longer term movements. Maybe better modeled as one stock, but tough to say. Do we have an idea of the relative importance of the two pupping grounds to recruitment?
- xix. USA
 - 1. I don't think we have information to quantify which is more important
- xx. JPN
 - 1. It is tough to say at this time.
 - 2. Regarding Steve's comment about the isotopes, if table 1 in the Madigan et al. shows the data collected used in the study there appears to be a difference in the time periods compared in the east and west. Could this impact the interpretation?
- xxi. USA
 - 1. The delta Nitrogen signature would be more impacted by delta carbon given the coastal influence. Carbon may be more stable.
 - a. USA: It appears that he uses Nitrogen
- xxii. Let's get more feedback between now and the next meeting. Review the presentation and the conceptual model and provide some additional feedback. For conceptual models, we don't have to have a single map. Can have images by season or multiple images for different hypotheses.
- e. Additional references that need to be captured in the literature review & conceptual model
 - i. <https://meetings.wcpfc.int/node/19794>
 - ii. <https://doi.org/10.7554/eLife.62508>

6. Horizontal movements of electronically tagged blue sharks (*Prionace glauca*) in the central and eastern North Pacific Ocean (information paper, still under review)

Summary

The blue shark (*Prionace glauca*), a highly migratory species, faces significant fishing pressure in the North Pacific where they are captured as both a target or retained species and non-target or bycatch species often subject to discard. Understanding the link between the species and its environment is key to developing ways to reduce the impacts of fishing to the population. Most information on blue sharks in the central and eastern North Pacific currently comes from fisheries data and short-term tracking studies. Although range has been inferred from catch and conventional tag data, little is known about the migration patterns and behavior of blue sharks in this region. This study represents one of the largest electronic tagging datasets to date, comprising 106 blue sharks successfully tagged in the central and eastern North Pacific between 2002 and 2019.

Our results reveal horizontal movements of tagged blue sharks over a large portion of the central and eastern North Pacific, providing evidence of spatial segregation by sex and life history stage. We found that juveniles and subadults utilized a wide range of habitats, from the highly productive California Current region as far north as British Columbia, Canada, and offshore in the North Pacific Transition Zone. In contrast, adult sharks were restricted to areas south of central California, USA with adult males moving southwest into offshore waters and adult females traveling directly south toward the Equatorial Countercurrent. This ontogenetic shift in habitat preference is also reflected in their environmental choices, with adults utilizing warmer, more oligotrophic waters than juveniles. These data also revealed that sharks tagged in the central Pacific offshore region did not migrate into the California Current region, even after deployment durations of 360 days. However, adult males tagged in the California Current region were found to migrate offshore, overlapping with habitat utilized by sharks tagged in the Central Pacific before returning to the California Current region.

Discussion

- a. Nasby-Lucas tagging study synthesis discussion
 - i. USA
 1. Do you have any indication in vertical behavior changes for animals that are making directed movements
 - a. Author
 - i. I haven't analyzed the vertical data extensively, and it is not available for all tags. There is a lot more that can be done with this data
 - ii. JPN
 1. Regarding the trajectory of adult females, they are assumed to be adult from the length at tagging. Do you have any information on pregnancy status. We also conducted a similar study in the west

and pregnant females also conducted an extensive north-south and eastern migration

- a. Author
 - i. We did not check pregnancy status but they were tagged in the SCB which is a known pupping ground. Adults females were tagged in the SCB after pupping
- iii. USA
 - 1. Hawaii tags appeared to be unsexed which is surprising
 - a. Author
 - i. Tagged over the side of the boat so there may not have been a good visual indication of sex
- iv. IATTC
 - 1. Do we plan on revising the model based on the presentation that we just saw?
 - a. USA
 - i. Perhaps expand the female box further south. Males can be expanded north and west
 - b. IATTC
 - i. Mature females went all the way to 0
 - ii. Males can be stretched a bit to the west towards Hawaii
 - 2. Given this, where do we think an index of abundance for adult females should be based on? Equator up to Canada in the east?
 - a. USA
 - i. This is an important question and something that we can come back to at the next virtual meeting once the conceptual model is more finalized. The working group can discuss this further prior to the data prep meeting
 - 3. Also the connection between the east and west, what data supports this or is it a question mark?
 - a. USA
 - i. It's a question mark. The conventional tagging data only shows 2% of eastern tags were recaptured in the west, but not much other data supports it

4. If you think about it in a stock context, will fishing in one area interfere with another area. If you only have 2% movement that might not be enough to make a difference to the other area
 - a. USA
 - i. We have two pupping grounds, similar to mako but not a lot of indication from data at this time to make conclusive statements of what stock structure is
5. **If this uncertainty persists, multiple hypotheses (2 stocks or joint model) is a sensible way forward.**

7. Conceptual model for NP blue shark (Day 2 – Fisheries structure, additional Biology, Movement, Population Structure if needed)

Summary

This presentation includes fundamental information about the fisheries structure for fishing fleets that impact NPO blue shark, what is known, what is unknown, and what the group sees as key uncertainties from the last blue shark stock assessment. The end result of this work is to develop a conceptual model that captures all of this information in order to provide a direction for the WG to progress the next BSH benchmark assessment for 2027.

Discussion

2. General discussion
 - a. USA
 - i. We should develop a conceptual model (or models) that doesn't have the connection between the east and west
 - b. JPN
 - i. Regarding connection, it is clear that there is less connection between east and west. Not so much mixture. It is possible to consider east and west sub stocks. When we consider the SS model it is possible to consider the spatial structure but will need to assume a migration rate. But this is uncertain. From the perspective of the modelling it is difficult to clearly explain the model structure so this is my concern
 1. USA
 - a. SS3 can be setup as a spatial model but the stock recruit relationship will be pooled across both regions which is a concern. It may be better to have two separate models

2. USA

- a. How many models? One pan-pacific, one spatial with mixing, and two separate regional models?
 - i. USA
 - 1. Without better information (tagging, kins) it is tough to rule anything out. Carolina suggested that we are on a spectrum and I agree, there could be any number of models that span complete separation between the two sub stocks to complete panmixia.

3. IATTC

- a. Just to give some perspective with YFT. We didn't have enough tagging data to investigate movement. We had pan-EPO, two separate models, and a spatial model that tried to estimate movement. I set-up a single EPO model with spatial areas-as-fleets nested within and it was easy to turn on and off fisheries to go between the multiple stock hypotheses.

4. USA

- a. Support Carolina and Nico's idea. We will need a single mixed-stock model at least as a bridging analysis. But probably need to look into some of these other hypotheses. The western model is probably fine in terms of an index and catch. The eastern model will be tricky in terms of the index and data. The likely candidate for an index could be the Hawaii shallow, but there is some weirdly small fish and a sex bias. But we still need a good candidate for index, and what to do about the catch history in the EPO
 - i. USA
 - 1. Some shallow set sets are actually in the California current at least earlier on and seasonally. That is why they catch many small fish so may not necessarily be representative of the NCPO.

- ii. USA

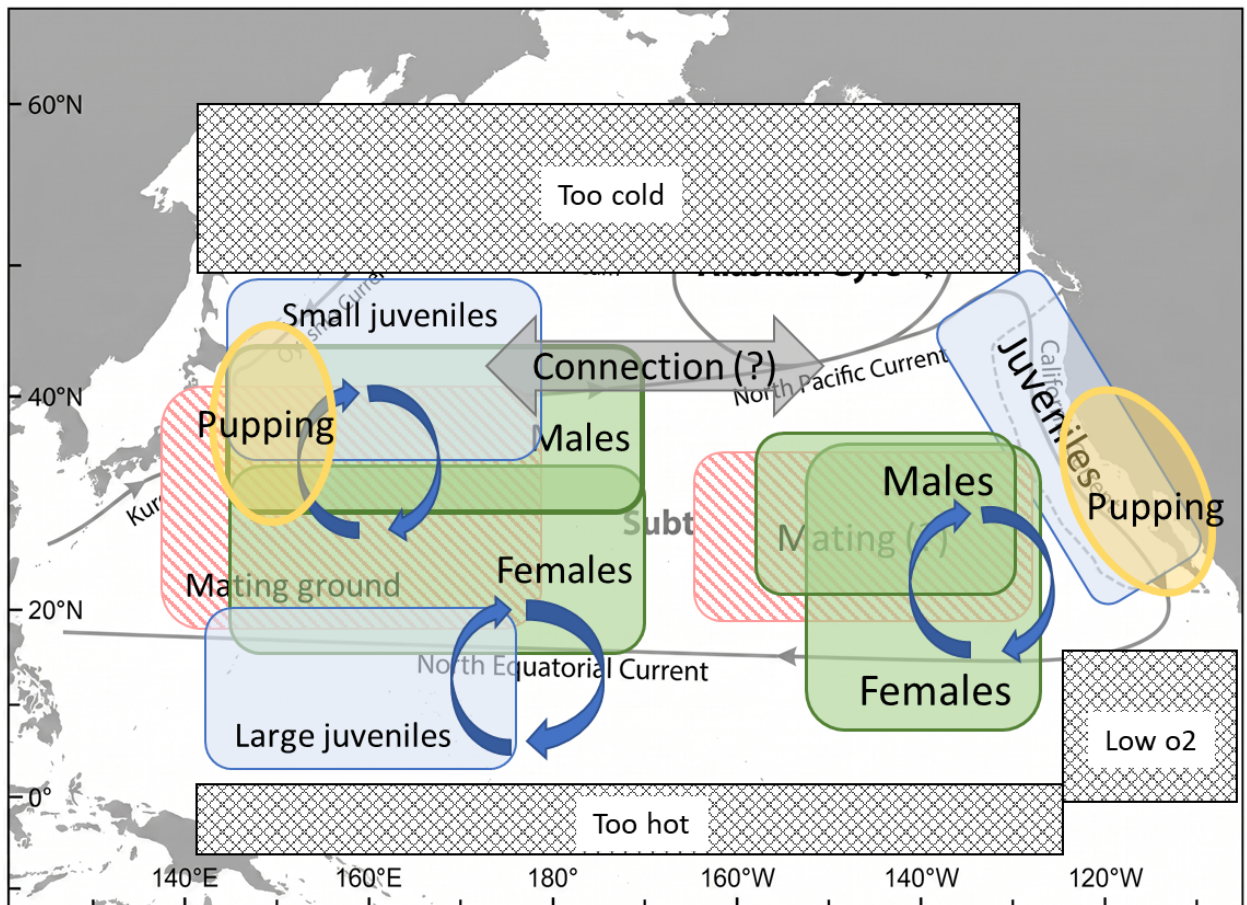
1. Can confirm when gas prices were cheaper had boats fishing closer to CA
5. IATTC
 - a. Could fleets with large spatial coverage, such as TWN or JPN. could they provide indices for both sides, either independently or a joint analysis
 - i. USA
 1. We had thoughts of looking at TWN north south but looking at east west we may need to look at combining
 - ii. IATTC
 1. So splitting the same flag in different areas but combining the different flags in the same area
- c. JPN
 - i. Targeting effect for Japanese shallow set fleet. It is true that the Kessenuma fleet targets swordfish (20-30N) in winter and spring, in the summer they move north to target blue shark (30-40N). Clear spatial separation. I used a spatiotemporal model with a seasonal spatiotemporal effect. I think it is possible to account for this in a spatiotemporal model. I would like to keep the same method for the next assessment
 1. USA
 - a. Have you considered just analyzing just the q2/q3 data north of 30 and comparing it to the results of the joint analysis
 2. JPN
 - a. I have not done this before. The absolute CPUE does differ by season. I think it is a similar pattern every year with CPUE higher in the summer months
 3. USA
 - a. Is it possible to investigate this for the data prep meeting?
 4. JPN
 - a. Suggestion is to filter only q2/q3 north of 30N and standardize. It could be possible. Filter to shallow set only or both with deep set?
 5. USA

- a. Just for the shallow-set would be fine
 - ii. Should we separate the index east and west?
 - 1. USA
 - a. It would be good to have indices split east and west if possible
 - 2. JPN
 - a. What is the line to use for splitting? Maybe just west of Hawaii
 - 3. USA
 - a. For Taiwanese longline vessels, the ones further north fish Q1/Q4 targeting albacore
 - 4. USA
 - a. Suggest tabling the east/west split discussion to the next virtual meeting when we can have a more informed discussion
 - 5. USA
 - a. Agree with Nico to take up the split issue at the next meeting
- d. USA
 - i. I vaguely remember clustering, was that BSH or SMA?
 - 1. USA
 - a. We did do some for BSH
 - 2. USA
 - a. You may be thinking about the work you did for SMA. We might need to come back to redoing that analysis for the next meeting
- e. IATTC
 - i. We have the tree analysis software that Haikun improved for the YFT assessment that can be used
 - ii. What about east/west differences in biology? Sex-specific growth? Differences in biology or differences in studies
 - 1. USA
 - a. We were able to look at this for makos because we had a nice data set and that suggested it was study based. Not sure if we have the same information for blue shark
 - 2. JPN

- a. We have not estimated a sex-aggregated parameter, because the statistical significance was suggested for growth between the sexes. Regarding the western site, Fujinami's paper suggested sex-specific growth. I'm not sure of any study doing the same in the east
- b. USA
 - i. There is only the one study, but only one year of data and lack of small samples
 - ii. Different labs used different methods
- c. USA
 - i. Maybe we can borrow the information from makos on lab differences since similar techniques were used to age blue sharks as makos
- d. USA
 - i. Please look closer at any sex-specific differences
- 3. IATTC
 - a. Differences in growth may be more related to method than differences in east-west biology?
 - i. USA
 - 1. It is possible but absent the overlapping data set that we had for makos we can't say for sure. However, I suspect that is what might be happening.
- f. JPN
 - i. Taiwanese CPUE (small-scale and large-scale), split at 25N. In the previous discussion Nico suggested splitting at 30N for Japanese. Which line is better to use
 - 1. USA
 - a. The line at 25 was based on a visual inspection of the size data
 - 2. USA
 - a. Could move to 30N but not critical that JP/TW are aligned
- 3. Missing reference
 - a. Hawaii post-release mortality
 - i. <https://repository.library.noaa.gov/view/noaa/28914>
 - ii. IATTC

1. Bayesian projections under average conditions showed that only 18% survive to one year. High at vessel survival, most mortalities occurred within a couple days of release but over time survival was influenced by leader material and trailing gear. We also saw high predation on BSH released with long trailing gear
2. BSH had the lowest post-release survival rates (62%) of the 5 species tagged in this study. BSH tags also revealed delayed mortalities recorded out to 307 days post-release. Several of the BSH tags were ingested post-release (n = 6, on days 6, 9, 26, 30, 148 and 307 post-release). The ingestions were also considered mortalities and contributed to the overall mortality estimate. Of the BSH mortalities that were not ingestions, 53% occurred within 1 day of release and 76.5% were within 13 days of release.

4. Final model



8. Other matters

No discussion.

9. Future SHARKWG meetings

Discussion

The WG discussed the venue and time for the following meetings.

- a. ISC Plenary (June 23-29, 2026; Chinese Taipei)
- b. Interim virtual pre data prep meeting (Oct 2026)
- c. Blue shark data prep (Week of January 12, 2027; Japan)

10. Clearing of report

A draft of the report was reviewed by the participants and the content accepted. The Chair will make minor editorial changes and circulate a draft for comments before finalizing the report.

11. Adjournment

The WG Chair thanked everyone for a productive meeting! The meeting was adjourned at 14:57 on Monday May 18, 2026 (Hawaii Standard Time).

Literature Cited

See [Appendix 1](#).

Attachment 1:
List of Participants

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Observers / Invited guests

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Attachment 2

Meeting Documents, Presentations, and Information Papers

PRESENTATIONS

- | | |
|---------------------|---|
| ISC/26/SHARKWG-1/P1 | 2026 ISC blue shark conceptual model – Meeting 1. Jhen Hsu (Jhen.Hsu@noaa.gov) |
| ISC/26/SHARKWG-1/P2 | 2026 ISC blue shark conceptual model – Meeting 2. Jhen Hsu (Jhen.Hsu@noaa.gov) |
| ISC/26/SHARKWG-1/P3 | Horizontal Movements of Electronically Tagged Blue Sharks in the Central and Eastern North Pacific. Nicole Nasby-Lucas , (Nicole.Nasby-Lucas@noaa.gov) |

Attachment 3:

Attachment X –Draft Agenda (May 2026)

**SHARK WORKING GROUP (SHARKWG)
INTERNATIONAL SCIENTIFIC COMMITTEE FOR TUNA AND TUNA-LIKE SPECIES IN THE NORTH
PACIFIC**

Virtual SharkWG Meeting DRAFT AGENDA

May 7 and May 18, 2026

Meeting Hours: 13:00-15:00 (Hawaii Standard Time).

Day 1: May 7

- 1) Opening of SHARKWG virtual meeting
 - i) Opening remarks (*SHARK WG Chair*)
 - ii) Working Group member introductions
 - iii) Appointment of rapporteurs (*Nicholas Ducharme-Barth*)
- 2) Review of meeting goals
- 3) Blue shark conceptual model presentation and discussion
 - i) Biology
 - ii) Movement
 - iii) Population Structure

Day 2: May 18

- 1) Opening of SHARKWG virtual meeting
 - i) Opening remarks (*SHARK WG Chair*)
 - ii) Working Group member introductions (if anyone is new)
 - iii) Appointment of rapporteurs (*Nicholas Ducharme-Barth*)
- 2) Review of meeting goals
- 3) Blue shark conceptual model presentation and discussion
 - i) Biology, movement, and population structure (cont.)
 - (1) Presentation from SWFSC on tagging data (*Nicole*)
 - ii) Fisheries structure
- 4) Future SHARKWG meeting
 - (1) ISC Plenary (June 23-29, 2026; Chinese Taipei)
 - (2) Interim virtual meeting (Oct 2026)
 - (3) Blue shark data prep (Week of January 12, 2027; Japan)
- 5) Other matters
- 6) Meeting Adjournment