



**SCIENTIFIC COMMITTEE
ELEVENTH REGULAR SESSION**

Pohnpei, Federated States of Micronesia
5-13 August 2015

ISC Shark Working group and Information Papers on Blue Shark

WCPFC-SC11-2015/SA-WP-09

Gerard DiNardo¹ and Suzanne Kohn²

¹ ISC Chair

² ISC SHARKWG Chair

ISC SHARKWG Working Group and Information Papers on Blue Shark

Gerard DiNardo¹ and Suzanne Kohin²

¹ISC Chair

²ISC SHARKWG Chair

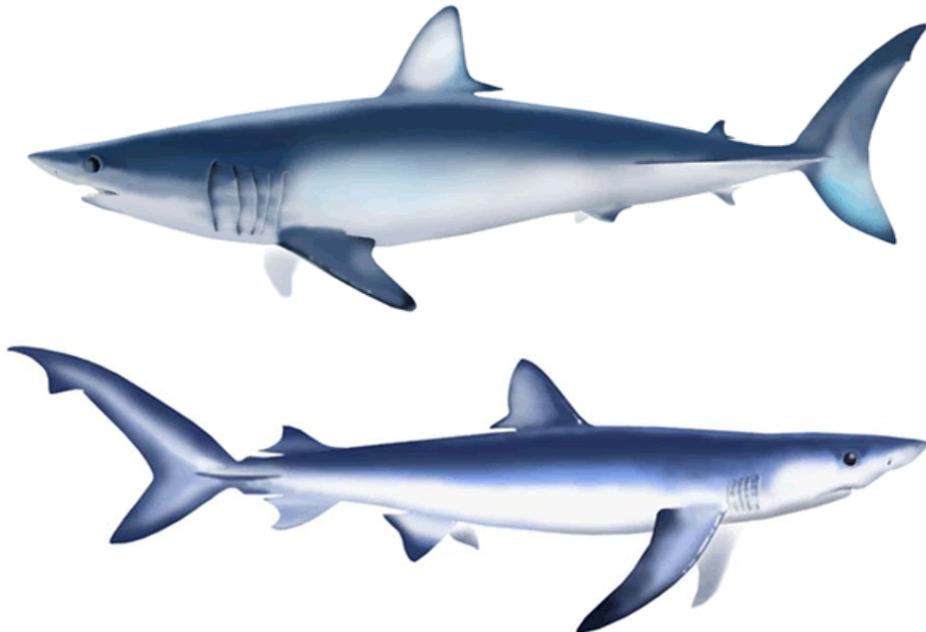
NOAA Southwest Fisheries Science Center

8901 La Jolla Shores Dr.

La Jolla, CA USA 92037

gerard.dinardo@noaa.gov

suzanne.kohin@noaa.gov



At the Tenth Meeting of the Northern Committee (NC10) of the Western and Central Pacific Fisheries Commission (WCPFC), the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific (ISC) was asked to provide information that would be useful to the Eleventh Scientific Committee (SC11) for their analyses on examining North Pacific blue shark as a Northern Stock. The ISC has reviewed numerous papers on fisheries in which blue shark interactions occur, catch, catch/effort, and life history of North Pacific blue shark. The ISC Shark Working Group has not conducted analyses specific to examining whether blue shark should be considered a Northern Stock, but information in the Working Group papers may be further examined by the SC as they move forward with their analyses. This paper contains an annotated bibliography of all the papers on blue sharks that have been discussed within the Working Group since its inception. The vast majority of these papers are posted on the ISC website (http://isc.ac.affrc.go.jp/working_groups/index.html). Papers not available on the website can be obtained through request to the lead author.

April 2011

WG Paper Number	Title and authors	Summary
ISC/11/SHARKWG-1/04	The analysis of length-weight relationship of commercial catch for blue shark (<i>Prionace glauca</i>) in Kesen-numa. Minoru Kanaiwa, Ritsuko Kuboi, Phalgi Chon, Mioko Taguchi, and Kotaro Yokawa. (m3kanaiw@bioindustry.nodai.ac.jp)	This paper examines the necessity of the development of fishery dependent L-W relationship using the size data collected by the sampling designed for this purpose.
ISC/11/SHARKWG-1/05	Preliminary compilation and analyses of shark catch data from the Hawaii-based pelagic longline fishery. William Walsh and Dean Courtney. (William.Walsh@noaa.gov)	This paper contains information on blue shark, shortfin mako, oceanic whitetip and silky shark including nominal catch, catch rate and length measurements reported from January 1995 into early 2010. Updated information on analysis of catch and catch rate data for blue shark and shortfin mako can be found in ISC/11/SHARKWG-2/2
ISC/11/SHARKWG-1/06	Catch and life history parameters of pelagic sharks in the northwest Pacific. Kwang-Ming Liu and Wen-Pei Tsai. (kmliu@mail.ntou.edu.tw)	This is paper has information on life history parameters including age, growth and reproductive biology of 11 species of pelagic sharks in the Northwest Pacific.
ISC/11/SHARKWG-1/08	Outline of new available catch and effort data of pelagic sharks caught by the Mexican shark longline fishery in the North Pacific. Javier Tovar-Avila, Luis Vicente Gonzalez-Ania, Alejandro Liedo-Galindo, and Fernando Marquez-Farias. (javiertovar.mx@gmail.com)	This paper has information from the longliner fleet on blue shark and on shortfin mako and consists of the number of animals caught and the percentage of males to females.
ISC/11/SHARKWG-1/09	Summary of available catch statistics of pelagic sharks caught by Japanese offshore and distant-water longliners. Yuko Hiraoka and Kotaro Yokawa. (yhira415@fra.affrc.go.jp)	This paper describes the new log book reporting system for Japanese longliners in which fishermen were mandated to report catch number and total processed weight by species. It also contains a table that displays estimated total catch of shortfin mako, blue shark and salmon shark caught by Japanese offshore and distant-water longliners and a graph of the annual catch weight.

November 2011

WG Paper Number	Title and authors	Summary
ISC/11/SHARKWG-2/01	Blue shark (<i>Prionace glauca</i>) bycatch statistics in Canadian fisheries. Jacquelynne King (jackie.king@dfo-mpo.gc.ca)	This paper contains information on bycatch CPUE for blue sharks in Canadian commercial fisheries by gear type.
ISC/11/SHARKWG-2/02	Preliminary Analyses of Catch and Catch Rate Data for Blue Shark and Shortfin Mako in the Hawaii-based Pelagic Longline Fishery in 1995–2010. William Walsh (william.walsh@noaa.gov)	This paper contains information on CPUE and catch for blue shark and shortfin mako from the Hawaii-based pelagic longline fishery in 1995-2010.
ISC/11/SHARKWG-2/04	A summary of blue shark (<i>Prionace glauca</i>) and shortfin mako shark (<i>Isurus oxyrinchus</i>) tagging data available from the North and Southwest Pacific Ocean. Tim Sippel, James Wraith, Suzy Kohin, Valerie Taylor, John Holdsworth, Mioko Taguchi, Hiroaki Matsunaga, and Kotaro Yokawa (tim.sippel@noaa.gov)	This paper summarizes blue shark and shortfin mako tagging data collected from several research programs. There is a map that shows the shark tag recaptures for both North and South Pacific Ocean.
ISC/11/SHARKWG-2/05	Preliminary Results of Blue shark (<i>Prionace glauca</i>) Stock Delineation in the Eastern North Pacific Based on Microsatellite Polymorphic Loci. Jacquelynne King, Mike Wetklo and Ruth Withler (jackie.king@dfo-mpo.gc.ca)	Describes preliminary results of microsat genetic analyses of blue sharks from British Columbia, California, Hawaii and Chile. High variation between years and regions was found. More work is being done.
ISC/11/SHARKWG-2/07	Preliminary estimated catches of blue and mako sharks from US West Coast fisheries. Steven L. H. Teo, Vardis Tsonetos, and Suzanne Kohin (steve.teo@noaa.gov)	This paper details the methods used to estimate catch of blue shark and shortfin mako by both US West Coast fisheries, primarily based on recorded logbook and observer data.
ISC/11/SHARKWG-2/08	Length frequencies of the blue shark (<i>Prionace glauca</i>) in the eastern Pacific Ocean. R.J. David Wells and Suzy Kohin (david.wells@noaa.gov)	This paper investigates the length frequency data available for the blue shark from U.S. west coast fisheries

ISC/11/SHARKWG-2/09	The operation pattern of Japanese tuna longline fishery with the information for prefecture of vessels register and reporting rate in the North Pacific Ocean, 1994-2010. Yuko Hiraoka, Mioko Taguchi, Minoru Kanaiwa and Kotaro Yokawa (yhira415@fra.affrc.go.jp)	This paper looks at the number of operations and catch number of major fish species by fleet type, region, gear configuration, reporting rate and area to examine whether the existing filtering methods are applicable in the Pacific Ocean.
ISC/11/SHARKWG-2/10	Review of species aggregated sharks data caught by Japanese offshore and distant-water longliners in the north Pacific in 1975 – 1993. Kotaro Yokawa and Tsubasa Ando (yokawa@fra.affrc.go.jp)	In the present study, the sharks catch and effort data in the log-book of Japanese offshore and distant-water longliners in the period between 1975 and 1993 were reviewed to investigate adequate method to process these data for their use of stock assessments of major shark species in the north Pacific such as blue and mako sharks. Because only species aggregated catch data is available in the period analyzed, species specific patterns in the data were not reviewed in this study.
ISC/11/SHARKWG-2/11	Brief summary of fishery data of major shark species caught by Japanese offshore and distant-water longline in the north Pacific in 1994 – 2010. Kotaro Yokawa and Tsubasa Ando (yokawa@fra.affrc.go.jp)	This paper outlines some statistics described in another paper that went over the revisions to the Japanese longline fisheries.
ISC/11/SHARKWG-2/12	Reproductive biology of the blue shark, <i>Prionace glauca</i> , in the northwestern Pacific. Shoou-Jeng Joung, Hua-Hsun Hsu, Kwang-Ming Liu, and Tzu-Yi Wu. (kmliu@mail.ntou.edu.tw)	This paper contains information on the reproductive biology of blue shark from specimens captured by Taiwanese small longliners.
INFORMATION PAPERS		
ISC/11/SHARKWG-2/INFO 1	Swordfish and shark longline fishery of Baja California (Ensenada) Mexico, INAPESCA. José Leonardo Castillo-Géniz, Luis Vicente Gonzalez-Ania, Alejandro Liedo-Galindo and Francisco J. Martínez-García. (ptiburon@yahoo.com)	Describes shark fisheries in Mexico Pacific, Has some limited species comp information including on mako sharks

May 2012

WG Paper Number	Title and authors	Summary
ISC/12/SHARKWG-1/01	Preliminary age validation of the blue shark (<i>Prionace glauca</i>) in the eastern Pacific Ocean. Natalie Spear, R. J. David Wells, and Suzanne Kohin (David.Wells@noaa.gov)	This paper contains age and growth validation information for blue shark vertebrae using OTC.
ISC/12/SHARKWG-1/02	Catch Statistics, Length Data and Standardized CPUE for Blue Shark <i>Prionace glauca</i> taken by Longline Fisheries based in Hawaii and California. William A. Walsh, Steven L.H. Teo (William.Walsh@noaa.gov)	This paper presents compilations of catches, length distributions, CPUE standardizations and other information for blue shark in US Pacific longline fisheries.
ISC/12/SHARKWG-1/03	Preliminary time series for north Pacific blue and shortfin mako sharks from the U.S. West Coast drift gillnet fishery. Steven L. H. Teo, Tim Sippel, R. J. David Wells, and Suzanne Kohin (steve.teo@noaa.gov)	This paper describes the data sources and methods used to develop preliminary time series (catch including retained catch and dead discards, size composition, and standardized abundance indices) spanning 1971-2010 for upcoming stock assessments. Catch time series for shortfin mako were developed primarily from landing records.
ISC/12/SHARKWG-1/04	Catches of blue and shortfin mako sharks from U.S. West Coast recreational fisheries 1980-2010. Tim Sippel and Suzanne Kohin (tim.sippel@noaa.gov)	This paper describes how current recreational estimates of shark catch along the U.S. West Coast between 1980-2010 indicate higher catches in the 1980s with declining catch levels from 1990-present.
ISC/12/SHARKWG-1/05	Recent catch pattern of blue shark by Japanese offshore surface longliners in the northwest Pacific. Ko Shiozaki, Mioko Taguchi and Kotaro Yokawa (yokawa@affrc.go.jp)	This paper presents data on the relationship between sex and growth stage specific migration patterns of blue shark and operation pattern of Japanese surface longliners in the northwest Pacific.

ISC/12/SHARKWG-1/06	Comparison of CPUEs of Blue Shark Reported by Logbook of Japanese Commercial Longliners with Japanese Research and Training Longline Data. Norio Takahashi, Yuko Hiraoka, Ai Kimoto, Kotaro Yokawa and Minoru Kanaiwa (norio@affrc.go.jp)	This paper looks at unreported catch of blue shark by comparing blue shark catch recorded in logbooks from Japanese commercial longliners with "reference" catch (catch and effort data recorded by research and/or "fisheries high school" training vessels for which all of their catch were observed and reported).
ISC/12/SHARKWG-1/07	Extraction of blue shark catches from species-combined catches of sharks in the log-book data of Japanese offshore and distant-water longliners operated in the North Pacific in the period between 1975 and 1993. Yuko Hiraoka, Minoru Kanaiwa and Kotaro Yokawa (yhira415@affrc.go.jp)	This paper examines models of extraction of blue sharks catches from species combined catch data.
ISC/12/SHARKWG-1/08	Estimation of total blue shark catches including releases and discards Japanese longline fisheries during 1975 and 2010 in the North Pacific. Yuko Hiraoka, Minoru Kanaiwa and Kotaro Yokawa (yhira415@affrc.go.jp)	This paper contains total catch number including all live releases and dead discards estimated using fishery category specific standardized CPUE values as well as the results of comparison of catch rate of blue shark between commercial and non-commercial operations.
ISC/12/SHARKWG-1/09	Estimation of abundance indices for blue shark in the North Pacific. Yuko Hiraoka, Minoru Kanaiwa and Kotaro Yokawa (yhira415@affrc.go.jp)	This paper contains abundance index of the north Pacific blue shark for 1975-1993 and 1994-2010 using the newly developed GLM model to standardize CPUE as well as the blue shark only catch and effort data of Japanese longliners.
ISC/12/SHARKWG-1/10	Blue sharks caught by Japanese large mesh drift net fishery in the north Pacific in 1981 - 1993. Kotaro Yokawa (yokawa@affrc.go.jp)	In this paper, catch and effort data for blue shark caught by Japanese high seas large mesh drift net fishery in the period between 1981 and 1993 was reviewed and its CPUE standardized.
ISC/12/SHARKWG-1/11	Historical catch amount of blue shark caught by the Japanese coastal fisheries. Ai Kimoto, Toshikazu Yano, and Kotaro Yokawa (aikimoto@affrc.go.jp)	This paper provided the estimation of historical catch of blue shark by Japanese coastal fisheries since 1951.

ISC/12/SHARKWG-1/12	Review of size data of blue shark caught by Japanese training vessels in the central Pacific. Kotaro Yokawa (yokawa@affrc.go.jp)	This document provided information on the size data of blue shark collected by the Japanese training and research vessels as well as conducted additional analysis about the seasonality and sex specific migration pattern.
ISC/12/SHARKWG-1/13	Genetic population structure and demographic history of blue shark (<i>Prionace glauca</i>) in the Pacific Ocean: a lack of genetic divergence of pelagic cosmopolitan species. Mioko Taguchi, Jacquelynne King, and Kotaro Yokawa (tagu305@affrc.go.jp)	This paper looks at population structure and demographic history of blue sharks in the Pacific Ocean. This has since been published: Marine and Freshwater Research 66.3 (2015): 267-275.
ISC/12/SHARKWG-1/14	Blue shark catch of Japanese surface longliners based on Kesenuma fishing port. Kotaro Yokawa and Ai Kimoto (yokawa@affrc.go.jp)	This study looks at what percentage of blue sharks were retained from surface longliners catch based on the skipper's notes.
ISC/12/SHARKWG-1/15	The catch of shark caught by Taiwanese offshore longline fisheries in 2001-2010. Kwang-Ming Liu and Chien-pang Jin (kmliu@ntou.edu.tw)	This paper contains the catches and trends of sharks caught by Taiwanese offshore longline fisheries.
ISC/12/SHARKWG-1/16	Age and growth of the blue shark, <i>Prionace glauca</i> , in the central and south Pacific. Hua-Hsun Hsu, Guann-Tyng Lyu, Shoou-Jeng Joung, and Kwang-Ming Liu (hsuhuahsun@yahoo.com.tw)	This paper contains age and growth information from 87 female and 180 male blue sharks captured by Taiwanese far sea long-liners in the central and south Pacific between 2009 and 2011.
INFORMATION PAPERS		
ISC/12/SHARKWG-1/INFO-1	Gill net mesh selectivity for the blue shark. Nakano, H. and Shimazaki, K. 1989. Bulletin of the Faculty of Fisheries Hokkaido University, 40(1): 22-29	A geometric series research gill net was used to collect blue shark in the N Pacific.
ISC/12/SHARKWG-1/INFO-2	A Status Snapshot of Key Shark Species in the Western and Central Pacific and Potential Management Options. Clarke, S. 2011. WCPFC-SC7-2011/EB-WP-04, 36.	This report synthesizes all of the shark assessment work completed to date under the Western and Central Pacific Fisheries Commission's Shark Research Plan and discusses existing and potential conservation and management measures for sharks.

ISC/12/SHARKWG-1/INFO-3	A stock-recruitment relationship based on pre-recruit survival, illustrated with application to spiny dogfish shark. Taylor, I. G., Gertseva, V., Methot, Jr. R. D., and Maunder, M. N. 2012. Fish. Res. http://dx.doi.org/10.1016/j.fishres.2012.04.018	Examined a new, pre-recruit survival based stock–recruitment model
ISC/12/SHARKWG-1/INFO-4	Synopsis of Biological information on blue shark in the North Pacific. Nakano, H. and Seki, M. P. 2003. Bull. Fish. Res. Agen. No. 6, 18-55.	Summary of blue shark papers to identify what is known, where gaps exist and where additional and future research efforts should be focused.
ISC/12/SHARKWG-1/INFO-5	Age, reproduction and migration of blue shark in the North Pacific Ocean. Nakano, H. 1994. Bull. Nat. Res. Inst. Far Seas Fish., No. 31, 141-256.	Discusses the life history of blue shark including age, growth, reproduction and migration.
ISC/12/SHARKWG-1/INFO-6	Bycatch of high sea longline fisheries and measures taken by Taiwan: Actions and challenges. Hsiang-Wen Huang. 2011. Marine Policy, 35: 712–720.	This paper reviews the existing information on bycatch and the actions taken by Taiwan in the past ten years

July 2012

WG Paper Number	Title and authors	Summary
ISC/12/SHARKWG-2/01	Trials for the estimates of blue shark catches caught by Japanese longliners and drift netters in the North Pacific. Kotaro Yokawa, Ko Shiozaki and Ai Kimoto (yokawa@affrc.go.jp)	Summary of total catch estimation of blue shark by the coastal longline and drift net fisheries using variety of information including data collected by on-board observers.
ISC/12/SHARKWG-2/02	Estimation of historical catch amount and abundance indices for blue shark caught by the Japanese offshore and distant water longline. Yuko Hiraoka, Minoru Kanaiwa, Ai Kimoto, Momoko Ichinokawa and Kotaro Yokawa (yhira415@affrc.go.jp)	Estimated catch in number and weight of blue shark from 1971 to 2010 and the recalculated abundance indices with improved models.

January 2013

WG Paper Number	Title and authors	Summary
ISC/13/SHARKWG-1/01	Report from the Bayesian Surplus Production model (BSP) workshop: Yokohama, Japan – November 2012. Tim Sippel and Norio Takahashi (tim.sippel@noaa.gov)	This report contains information on appropriate models for the blue shark assessment.
ISC/13/SHARKWG-1/02	Preliminary catch estimates of north Pacific blue shark from California experimental shark longline fisheries. Steven L. H. Teo (steve.teo@noaa.gov)	This report contains catch estimates of blue shark for the experimental longline fishery in California.
ISC/13/SHARKWG-1/03	Re-estimation of abundance indices and catch amount for blue shark in the North Pacific. Yuko Hiraoka (yhira415@affrc.go.jp)	This report provides abundance indices by standardizing CPUE of blue shark caught by Japanese surface longliners registered in Tohoku and Hokkaido area and to estimate catch numbers using the standardized CPUE for the use of the stock assessment of blue shark.
ISC/13/SHARKWG-1/04	Estimates of Mexico's blue shark catch from 1976 - 2010. Tim Sippel (tim.sippel@noaa.gov)	This report details how blue shark catches have been estimated for Mexico from 1976-2010 (for small (artisanal: shark target); medium (drift gillnet and longline: swordfish and shark target); and large (longline: tuna target) size classes), using a combination of catch statistics from INAPESCA (Mexico) and publicly available information.
ISC/13/SHARKWG-1/05	Catch Statistics, Length Data and Standardized CPUE for Blue Shark <i>Prionace glauca</i> taken by Longline Fisheries based in Hawaii and California. William A. Walsh and Steven L. H. Teo (william.walsh@noaa.gov)	This report updates previously reported compilations of catch, dead removals, length distributions, catch per unit effort (CPUE) standardizations and other information for blue shark <i>Prionace glauca</i> from US Pacific longline fisheries based in Hawaii and California.

ISC/13/SHARKWG-1/06	Examining size-sex segregation among blue sharks (<i>Prionace glauca</i>) from the Eastern Pacific Ocean using drift gillnet fishery and satellite tagging data. Laura Urbisci, Rosa Runcie, Tim Sippel, Kevin Piner, Heidi Dewar and Suzanne Kohin (lurbisci@gmail.com and suzanne.kohin@noaa.gov)	This report presents the use of fishery-dependent size composition for the U.S West Coast drift gillnet fleet and electronic tag data to validate the spatial model of Nakano (1994) which does not extend to coastal waters. Results support the conclusions of significant size-sex structure in the North Pacific Ocean and the authors recommend that the ISC Shark Working Group consider this when assessing blue shark stock status.
ISC/13/SHARKWG-1/07	Catch and standardized CPUE of the blue shark by Taiwanese large-scale longline fishery in the North Pacific Ocean. Wen-Pei Tsai and Kwang-Ming Liu (kmliu@mail.ntou.edu.tw)	This report analyzes the blue shark catch and effort data from observers' records of Taiwanese large-scale longline fleets operating in the North Pacific Ocean from 2004-2010.
ISC/13/SHARKWG-1/08	Catch and abundance index of the blue shark by Taiwanese small-scale longline fishery in the North Pacific Ocean. Chien-Pang Chin and Kwang-Ming Liu (kmliu@mail.ntou.edu.tw)	This report estimated the blue shark catch and abundance index of the small-scale Taiwanese longline fishery from 2001 to 2010.
ISC/13/SHARKWG-1/09	Genetic population structure of blue sharks (<i>Prionace glauca</i>) in the Pacific Ocean inferred from the microsatellite DNA marker. Mioko Taguchi and Kotaro Yokawa (tagu305@affrc.go.jp)	This report investigated the genetic population structure of blue shark in the Pacific Ocean and found that there is a weak genetic structure in the western Pacific Ocean.
INFORMATION PAPER		
ISC/13/SHARKWG-1/INFO 1	IATTC Purse Seine estimates (clennert@iattc.org)	Preliminary estimates of total purse-seine bycatch of blue sharks.

April 2013

WG Paper Number	Title and authors	Summary
ISC/13/SHARKWG-2/01	Catches of blue sharks from U.S. West Coast recreational fisheries during 1971-2011. Tim Sippel and Suzy Kohin (tim.sippel@noaa.gov)	Update to preliminary estimates of blue shark catches from recreational fisheries on the US West Coast.
ISC/13/SHARKWG-2/02	Summary of estimation process of abundance indices for blue shark in the North Pacific. Hiraoka, Y., Kanaiwa, M. and Yokawa, K. (yhira@affrc.go.jp)	Summarizes previous papers on estimation of abundance indices for blue shark in the North Pacific.
ISC/13/SHARKWG-2/04	Estimate of the intrinsic rate population increase for the blue shark in the North Pacific. Chien-Pang Chin and Kwang-Ming Liu (kmliu@mail.ntou.edu.tw)	Estimate the intrinsic rate of increase of blue shark in the north Pacific
ISC/13/SHARKWG-2/05	Updated historical catches and standardized CPUE series of blue shark by Taiwanese tuna longline fisheries in the North Pacific Ocean. Wen-Pei Tsai and Kwang-Ming Liu (kmliu@mail.ntou.edu.tw)	Analyzed the blue shark catch and effort data from observers' records of Taiwanese large longline vessels in the N. Pacific from 2004-2011
INFORMATION PAPER		
ISC/13/SHARKWG-2/INFO-01	Unofficial blue shark catches estimations for the Mexican Pacific (1976-2011). Oscar Sosa-Nishizaki (ososa@cicese.mx)	Estimates blue shark catches along the Pacific coast of Mexico.

January 2014

WG Paper Number	Title and authors	Summary
ISC/14/SHARKWG-1/01	Progress on the updated Stock Synthesis stock assessment of Blue Shark in the North Pacific Ocean. Joel Rice and Shelton Harley (joelr@spc.int)	This paper provides an update on progress since SC9 towards an updated assessment for blue shark in the North Pacific Ocean using stock synthesis.
ISC/14/SHARKWG-1/02	Update of Japanese abundance indices and catch for blue shark <i>Prionace glauca</i> in the North Pacific. Mikihiko Kai, Ko Shiozaki, Seiji Ohshimo (kaim@affrc.go.jp)	This paper provides an update of Japanese abundance indices from 1994 to 2012 for North Pacific blue shark, with emphasis on the evaluation of the impact on the target effect of swordfish.

ISC/14/SHARKWG-1/03	Blue shark catch and effort data collected by Japanese research and training vessels. Kotaro Yokawa, Mikihiko Kai, Ko Shiozaki and Seiji Ohshimo (yokawa@fra.affrc.go.jp)	This paper reports the results of analysis of catch and effort data of blue shark indicates the fact that the under reporting of research and training vessels began as small scale in the early 2000s and it gradually expanded in terms of the number of vessels and/or areas, and in the mid 2000s, the under reporting activity becomes more apparent.
ISC/14/SHARKWG-1/04	Comparison of CPUE level of blue shark in Japanese longline research activities before and after the world war II. Seiji Ohshimo, Ko Shiozaki, Mikihiko Kai, and Kotaro Yokawa (oshimo@affrc.go.jp)	The level of standardized CPUE of blue shark between the period before and after the World War II was compared using blue shark specific catch and effort data, to offer more concrete information for the stock assessment of the North Pacific blue shark.
ISC/14/SHARKWG-1/05	Description of the Hawaii Longline Observer Program. Tim Sippel, Nicole Nasby-Lucas and Suzanne Kohin (Tim.Sippel@noaa.gov)	This paper discusses the Hawaii long-line deep-set fishery observer coverage over the years. This paper was updated and presented in Nov 2104 as ISC/14/SHARKWG-3/01.
ISC/14/SHARKWG-1/06	Blue shark catch rates in the Hawaii-based pelagic longline fishery in 2000–2012: A re-evaluation of observer catch data and standardizations for both fishery sectors. William A. Walsh and Gerard T. DiNardo (William.Walsh@noaa.gov)	This paper provides the revised blue shark Hawaii longline indices with the truncated time series because of non-representative observer data in the early period. R scripts and tests used to re-evaluate the indices are provided.
ISC/14/SHARKWG-1/07	Updated and revised historical catch and standardized CPUE series of the blue shark by Taiwanese large-scale tuna longline fisheries in the North Pacific Ocean. Wen-Pei Tsai and Kwang-Ming Liu (kmliu@mail.ntou.edu.tw)	This paper presents the analysis of the blue shark catch and effort data from observers' records of Taiwanese large longline fishing vessels operating in the North Pacific Ocean from 2004-2012.
INFORMATION PAPERS		

ISC/14/SHARKWG-1/INFO01	Stock assessment of blue sharks in the north Pacific Ocean using Stock Synthesis. Joel Rice and Shelton Harley (joelr@spc.int)	This paper provides a stock assessment of blue sharks in the north Pacific Ocean using Stock Synthesis. It was not reviewed by the WG and was updated in 2014 as ISC/14/SHARKWG-2/02.
ISC/14/SHARKWG-1/INFO02	Standardization of blue shark catch per unit effort in the North Pacific Ocean based on deepset longline observer data for use as an index of abundance. Joel Rice and Shelton Harley (joelr@spc.int)	This report presents a CPUE series of blue shark taken in longline fisheries in the North Pacific, based on observer data held by the SPC-OFP. This is used to develop a candidate time series of standardised CPUE for use as an index of abundance in an updated stock assessment.

June 2014

WG Paper Number	Title and authors	Summary
ISC/14/SHARKWG-2/01	Stock Assessment and Future Projections of Blue Shark in the North Pacific Ocean by Bayesian Surplus Production Model using Revised Data. Norio Takahashi, Minoru Kanaiwa, Seiji Ohshimo, Tim Sippel, and Kotaro Yokawa (norio@affrc.go.jp)	This paper reports results of the revised stock assessment for north Pacific blue shark using a state-space Bayesian surplus production (BSP2) model.
ISC/14/SHARKWG-2/02	Stock assessment of Blue Shark in the North Pacific Ocean using Stock Synthesis. Joel Rice, Mikihiko Kai and Shelton Harley (joelr@spc.int)	This paper presents an updated age-based statistical catch-at-length stock assessment of blue shark in the North Pacific Ocean using the stock assessment model and computer software Stock Synthesis.
ISC/14/SHARKWG-2/03	Age and Sex Specific Natural Mortality of the Blue Shark (<i>Prionace glauca</i>) in the North Pacific Ocean. Joel Rice & Yasuko Semba (joelr@spc.int)	This paper looks at age and sex specific natural mortality estimates for blue shark for a length based integrated stock assessment model.

ISC/14/SHARKWG-2/04	Standardization of blue shark catch per unit effort in the North Pacific Ocean based on SPC held longline observer data for use as an index of abundance. Joel Rice & Shelton Harley (JoelR@spc.in)	This report presents a CPUE series of blue shark taken in longline fisheries in the North Pacific, based on observer data held by SPC-OFP. This is used to develop a candidate time series of standardized CPUE for use as an index of abundance in an updated stock assessment.
ISC/14/SHARKWG-2/05	Hawaii longline blue shark catch rate standardizations: a summary and recompilation of information submitted to the ISC SHARKWG in 2011-2014. William Walsh and Gerard DiNardo (Gerard.DiNardo@noaa.gov)	This paper consists of information on the blue shark catch rate standardization analysis from 2012, providing an updated analysis in response to inquiries by the SHARKWG about data quality, use and preparation, statistical accuracy and validity, and conformity to appropriate standards of scientific rigor and integrity.

November 2014

WG Paper Number	Title and authors	Summary
ISC/14/SHARKWG-3/01	Description of the Hawaii Longline Observer Program. Tim Sippel, Nicole Nasby-Lucas and Suzanne Kohin (tim.sippel@noaa.gov)	An update to ISC/14/SHARKWG-1/05 (prepared for the January 2014 SHARKWG meeting) which discusses the Hawaii longline deep-set fishery observer coverage over the years.
ISC/14/SHARKWG-3/04	Distribution, body length and abundance of blue shark and shortfin mako in the Northwestern Pacific Ocean based on longline research vessels from 2000 to 2014. Seiji Ohshimo, Yuki Fujinami, Ko Shiozaki, Mikihiko Kai, Yasuko Semba, Nobuhiro Katsumata, Daisuke Ochi, Hiromasa Matsunaga, Hiroshi Minami, Kotaro Yokawa (oshimo@affrc.go.jp)	Summarizes the information of blue shark (<i>Prionace glauca</i>) and shortfin mako (<i>Isurus oxyrinchus</i>) obtained by the National Research Institute of Far Seas Fisheries longline survey cruises conducted in the period between 2000 and 2014.

March 2015

WORKING PAPERS	Title and authors	Summary
ISC/15/SHARKWG-1/01	Size and standardized CPUE of two pelagic sharks in the North Pacific based on salmon driftnet surveys. Seiji Ohshimo, Ko Shiozaki and Kotaro Yokawa (oshimo@affrc.go.jp)	Analyzed catch and effort data for salmon shark and blue shark to investigate their distribution pattern in association with environmental factors.
ISC/15/SHARKWG-1/08	Estimation of productivity of blue shark and shortfin mako under the different biological parameters based on the matrix model. Hiroki YOKOI, Seiji OHSHIMO and Kotaro YOKAWA (yokoih@fra.affrc.go.jp)	Estimated the productivity (intrinsic rate of increase of the population) of blue shark and shortfin mako based on two-sex matrix model, and was analyzed by the different biological parameters, such as growth coefficient, maturity periodicity, first maturation age, natural mortality and longevity.
INFORMATION PAPERS		
ISC/15/SHARKWG-1/INFO-02	Indicator based analysis of the status of New Zealand blue, mako and porbeagle sharks. M.P. Francis, S.C. Clarke, L.H. Griggs, S.D. Hoyle. New Zealand Fisheries Assessment Report 2014/69	This report performs indicator analyses for SW Pacific blue, porbeagle and mako sharks – three shark species that are taken primarily as bycatch in the New Zealand tuna longline fishery. Data sources are primarily the fishery catch and effort data and observer programs.
ISC/15/SHARKWG-1/INFO-05	Using pop-up satellite archival tags to inform selectivity in fisheries stock assessment models: a case study for the blue shark in the South Atlantic Ocean. Felipe Carvalho, Robert Ahrens, Debra Murie, Keith Bigelow, Alexandre Aires-da-Silva, Mark N. Maunder, and Fabio Hazin. ICES Journal of Marine Science, doi: 10.1093/icesjms/fsv026.	This study looks at blue shark popoff (PSAT) tag data to provide evidence that externally derived estimates of selectivity using PSATs data can assist implementing stock assessments that capture some of the spatial variability of pelagic fish species.