REPORT OF THE 26th MEETING OF THE SCIENTIFIC AND TECHNICAL COMMITTEE OF THE PARTIES TO THE CONVENTION ON THE CONSERVATION AND MANAGEMENT OF POLLOCK RESOURCES IN THE CENTRAL BERING SEA

Virtual Process Meeting hosted by Japan

4 October – 18 October 2021

1 Opening of the Meeting

Youichi Tsukamoto (Japan) opened the Scientific and Technical Committee (STC) Meeting as Chair this year. A list of the participants is provided in Appendix 1.

The Chair also served as rapporteur to compile the STC report. The following individuals served as the contact point and "voice" from each party for email exchange – the United States (Jim Ianelli), the Republic of Korea (Kyum Joon Park), Poland/EU (Kamil Kisielewski), Japan (Youichi Tsukamoto and Tomonori Hamatsu), the Russian Federation (Alexander Glubokov, O.A. Bulatov and I.V. Melnikov). The People's Republic of China did not participate.

2 Adoption of the Agenda

2.1. There were no comments to the presented Agenda. The Agenda (Appendix 2) was adopted.

3 Discussion of Science Issues

3.1 Update catch and effort statistics

The United States and the Russian Federation provided updated pollock catch statistics by year and region (Appendix 3). Two figures at the end of the report are provided to show the geographical/statistical areas of the Bering Sea (Appendix 4).

3.2 Review results of trial fishing

The parties reported that no trial fishing was conducted in the Convention area during the period of 2020–2021.

3.3 Review results of research cruises

Regular surveys within the U.S. zone of the Bering Sea include:

(1) Eastern Bering Sea (EBS) shelf: the annual bottom trawl survey to assess groundfish and crabs in the summer months (June to August) occurred and extended into the northern area outside of the standard survey grid (but within US waters).
Vessels chartered for the bottom-trawl survey (described in bullet above) also collected acoustic backscatter data that is compiled into a validated index for use in the EBS pollock stock assessment.

Cruise results from the U.S. surveys become available typically about mid-September and draft reports are made to the North Pacific Fishery Management Council (NPFMC) Plan Teams. Due to difficulties

fielding scientific parties in 2021, the schedule has been delayed and survey results will only be available to analysts during the middle of October. Subsequently, analysts compile stock assessment reports for review during the November and December meetings of the NPFMC so that they can deliberate on fishery management decisions for the following year. The website for these annual Plan Team reports can be found in at the NPFMC.org website. Pertinent parts of the U.S. survey and pollock stock assessments are discussed in section 3.4 below.

Japan conducts an annual salmon survey in the central Bering Sea. In the 2021 survey carried out in July and August, 4 pollock were caught (incidental to the salmon catch, 47–59 cm in fork length) in the central Bering Sea.

3.4 Review the status of Aleutian Basin Pollock stocks

The Aleutian Basin also encompasses the central Bering Sea Convention Area (see the 2 figures at the end of this report). Surveys covering the region are impractical due to the size of the area. However, the Convention established a specific area (defined in Convention Annex Part 1) around Bogoslof Island where an important component of the central Bering Sea pollock stock is thought to spawn. As noted above, the abundance of pollock is estimated during the February-March surveys conducted aboard the NOAA ship *Oscar Dyson* every 2 years and that these estimates provide an indirect indicator of central Being Sea Pollock stock abundance. The Annex details that the "specific area" represents 60% of the pollock stock in the entire Aleutian Basin at the time of the survey. The results of the surveys are shown in Figure 1 and show that the 2020 estimate is about 345,000 t which when expanded, suggest that the CBS stock is about 575,000 t. This 2020 estimate is 28% above the mean value since 2001 and ranks the third highest (with 2018 and 2016 ranking 1st and 2nd) over that same period. The most recent estimate seems to be in line with a general improved condition since 2016 and much better than the average value since 2001. Furthermore, the age distribution estimates indicate that the main year class appears to be from 2010 and these have diminished in recent years.

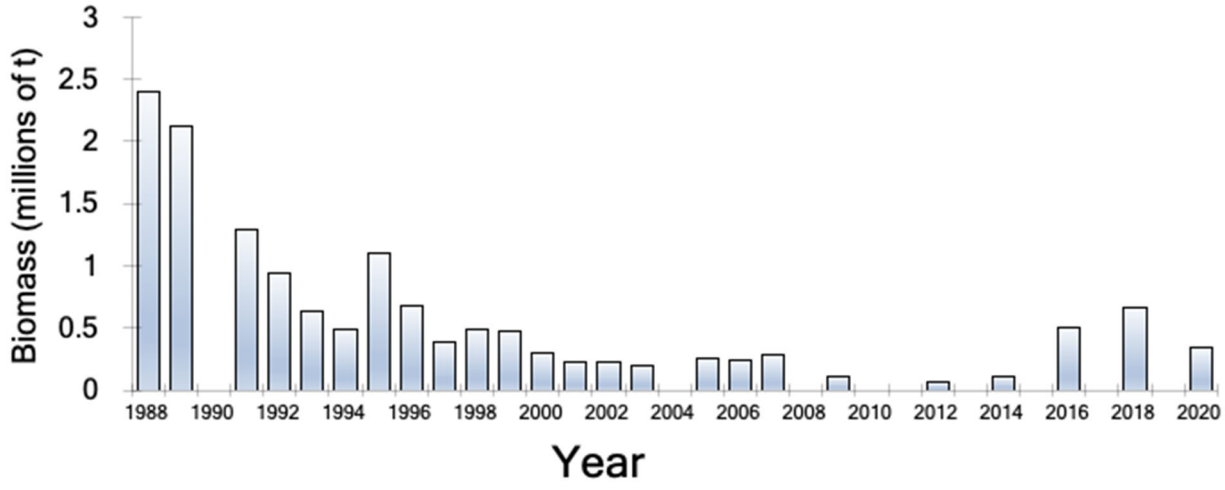

Figure 1. Biomass estimates obtained during acoustic-trawl surveys for walleye Pollock in the Bogoslof Island area, 1988-2020. The United States conducted all the surveys; except for the 1999 survey, which was conducted by Japan. There was no survey in 2021 (as planned).

Russian EEZ of the Bering Sea: Northwestern Bering Sea ecointegration midwatwer trawl (EIMWT) pollock survey was conducted aboard TINRO R/V TINRO during August-September 2020. Pollock biomass was estimated at 0.425 million tons and abundance 1.609 billion fish in the midwater (from 0.5 m above the bottom up to the surface layer). Pollock distribution are covered mainly the shelf and upper

continental slope in the northwestern Bering Sea. Pollock of the 2013-2014 year-classes dominated in midwater among mature fish and the abundance of the 2017-2019 year-classes immature fish appeared relatively high in the northwestern Bering Sea. These data indicate that the 2017-2019 year-classes may lead to a possible some increase in recruitment to the exploitable part of the pollock population in 2021-2023.

The bottom trawl survey in the northwestern Bering Sea was conducted aboard R/V TINRO, R/V Dmitry Peskov and R/V Professor Kaganovskiy during August-September 2020. Pollock biomass was estimated at 1,391 mln t, and abundance 5,48 billion fish off bottom. Pollock of the 2018-2019 year-classes dominated among immature fish and the 2012-2014 year-classes dominated among mature fish off bottom.

The 2017-2019 year-classes appeared during shifts in temperature conditions towards cooling in the Bering Sea. Usually, abundant pollock year-classes appear during such shifts in thermal regime in the Bering Sea (2000, 2006, 2008 and 2012). The appearance of abundant year-classes during periods with high annual gradients in water temperature is clearly seen across the entire period of recent observations in the Bering Sea. The appearance of high-abundant 2006, 2008 and 2012 year-classes were associated with thermal regime shift in the Bering Sea, when the abundance of large zooplankton species was relative high. This supports the idea on the existence of relationship between zooplankton abundance and survival of pollock yearlings during winter period.

The abundance and biomass of the Bering Sea pollock became at average level in 2020.

The western Bering Sea pollock biomass in the Karaginskiy and Olutorskiy Bays area still stable at a low level since the late 1990s, at the same time had appeared some trend of recruitment increasing.

Pollock in the U.S. Eastern Bering Sea (EBS): The EBS pollock spawning biomass in 2008 was at the lowest level since 1980. The stock increased steadily and peaked in 2016 and since has averaged a decline of about 12% per year. Recent biomass estimates (of spawning and age 3+ biomass) appear to be mainly impacted by the decline in abundance of the 2012 and 2013 year classes. Spawning biomass was projected to be above B_{MSY} in 2021; consequently, the stock condition is not being subjected to overfishing, is not overfished nor approaching an overfished condition.

Aleutian Islands region: The estimated spawning biomass reached a minimum level in 1999 and then has generally increased. Low levels of fishing mortality along with improved recruitment is thought to be responsible for the increase in stock condition. The Aleutian Islands pollock stock is not being subjected to overfishing, is not overfished, nor is approaching an overfished condition.

Bogoslof region: The estimated biomass in the Bogoslof Island area has been increasing in recent years. The latest survey (2020 by the NOAA ship Oscar Dyson) resulted in a biomass estimate of 345,000 t (note that the management advice will use a recent survey average value for catch advice). There have been no directed fisheries on the stock since 1991. Total allowable catches have been set to zero under terms of the Convention on the Conservation of Pollock Resources in the Central Bering Sea. The trigger level for a TAC to be authorized has been specified in the Convention.

The United States provided the following summary information on pollock stocks status for the Bering Sea by region. The table below is extracted from the U.S. document that summarizes the status and catch specifications of the pollock stocks in the Bering Sea-Aleutian Islands (BSAI) management areas in the U.S. EEZ. All units are in metric tons. The catches for 2021 are projected estimates for the year.

Area	Year	Biomass	Overfishing Level (t)	Acceptable Biological Catch (t)	Total Allowable Catch (t)	Catch (t)
1.E Bering Sea	2014	8,622,000	2,795,000	1,369,000	1,267,000	1,297,422
	2015	12,073,000	3,330,000	1,637,000	1,310,000	1,321,584
	2016	15,486,000	3,910,000	2,090,000	1,340,000	1,352,681
	2017	13,794,000	3,640,000	2,800,000	1,345,000	1,359,182
	2018	10,964,000	4,797,000	2,592,000	1,364,341	1,379,287
	2019	9,892,000	3,914,000	2,163,000	1,397,000	1,409,337
	2020	8,693,000	4,085,000	2,043,000	1,425,000	1,367,229
	2021	8,145,000	2,594,000	1,626,000	1,375,000	1,338,252
2.Aleutians	2014	198,795	42,811	35,048	19,000	2,375
	2015	223,489	36,005	29,659	19,000	913
	2016	239,584	39,075	32,227	19,000	1,257
	2017	250,881	43,650	36,061	19,000	1,507
	2018	256,899	49,291	40,788	19,000	1,860
	2019	255,323	64,240	52,887	19,000	1,664
	2020	257,233	66,973	55,120	19,000	3,205
	2021	292,967	61,856	51,241	19,000	1,512
3.Bogoslof	2014	67,100	13,413	10,059	75	427
	2015	67,063	21,200	15,900	100	733
	2016	106,000	31,906	23,850	500	1,005
	2017	106,000	130,428	60,800	500	185
	2018	434,760	130,428	60,800	450	14
	2019	434,760	183,080	137,310	75	8
	2020	378,262	183,080	137,310	75	9
	2021	378,262	113,479	85,109	250	49

2021 catch estimates are preliminary

3.5 Factors affecting recovery of the stocks

No new information was provided.

3.6 The effects of the moratorium and its continuation

No new information was provided.

3.7 Methodologies to determine Acceptable Biological Catch (ABC) and Allowable Harvest Level (AHL)

There were no new methods proposed.

3.8 Recommendation on AHL

No new information was provided. In the past, the Parties have used Annex Part 1 of the Convention to establish AHL. The AHL level has been set at zero; because the minimum biomass level needed to trigger a non-zero AHL according to the Convention Annex has not been reached.

The Russian Federation recommends that the AHL remain at zero since the Convention Annex Part 1 trigger level has not been reached.

3.9 Research Plans

The United States plans to conduct its next survey on pollock in the Bogoslof area in 2022 (during a 2 week period in February-March). Other survey plans by the Parties (United States and Russia) in their EEZ waters are expected to continue as in previous years.

Japan plans to conduct its salmon survey (that may catch pollock incidentally) in the central Bering Sea in 2022.

4 Discussion of Enforcement and Management Issues

The US Coast Guard monitors the region and noted that no known fishing vessel incursions occurred based on their surveillance.

4.1 Violations of the Convention.

No new information was provided; but no IUU fishing in the Convention area was known to have been reported in 2020.

4.2 Terms and conditions for trial fishing for the following year

The Committee recommended that the terms and conditions for trial fishing remain the same as in the previous years. Trial Fishing is addressed in Article X, paragraph 4 of the Convention. In general, any trial fishing intention needs an application and trial fishing plan to be approved by the Scientific and Technical Committee. No Party has applied for trial fishing in 2020 to the Scientific and Technical Committee.

5 Other Issues and Recommendations

5.1 Future Meetings of the Scientific and Technical Committee

Unless otherwise noted, the next meeting of the Committee will be held virtually as they have since 2010. The Party that will host this meeting shall be determined at the Annual Conference. Given improvements on how virtual meetings can be held, the STC:

- **recommended** that if a virtual meeting occur in the future, that set hours and presentations be made via virtual meeting software (instead of just exchanging emails);
- **recommended** that a document sharing system be adopted and to the extent practical, presentations and working papers be distributed in advance to encourage and stimulate discussion; and
- **noted** that measures to ensure the preservation and future record system of STC meetings be maintained via the internet.

6 Report to the Annual Conference

The Chair of the Scientific and Technical Committee will convey the Scientific and Technical Meeting Report to the Annual Conference.

7 Closing Remarks

The Chair thanked all participants of the STC for their discussions and help in compiling this written report. The Chair closed the STC Meeting on 18 October 2021.

Appendix 1. List of Participants

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Appendix 2. Agenda

1. Opening of the Meeting

2. Adoption of the Agenda

3. Discussion of Science Issues

    3.1 Update catch and effort statistics
    3.2 Review results of trial fishing
    3.3 Review results of research cruises
    3.4 Review the status of Aleutian Basin Pollock stocks
    3.5 Factors affecting the recovery of the stocks
    3.6 The effects of the moratorium and its continuation
    3.7 Methodologies to determine the Allowable Biological Catch (ABC) and Allowable Harvest Level (AHL)
    3.8 Recommendation on AHL
    3.9 Research plans

4. Discussion of Enforcement and Management Issues

    4.1 Violations of the Convention
    4.2 Terms and Conditions for Trial Fishing for the following year

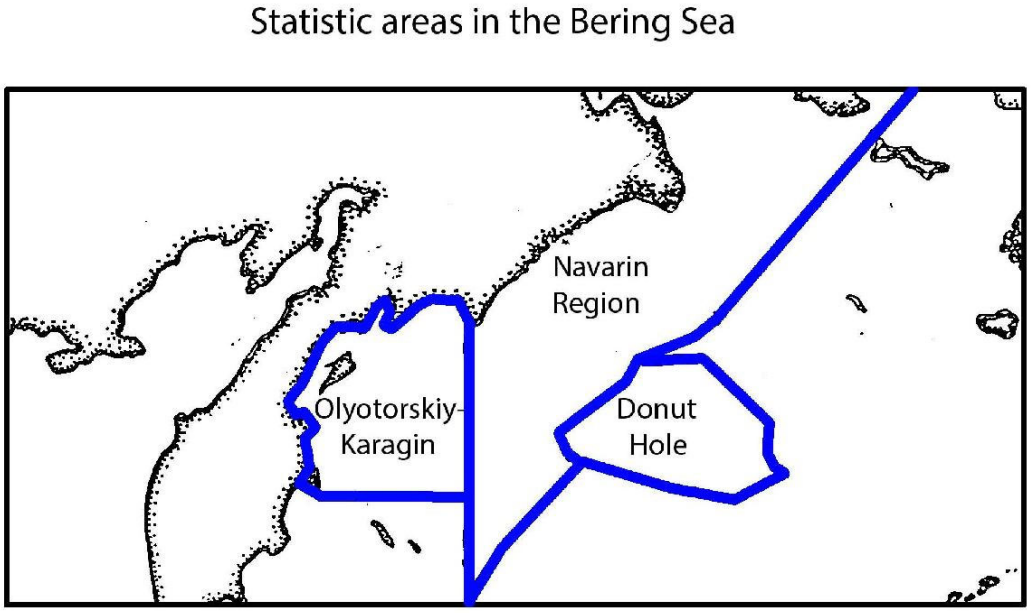
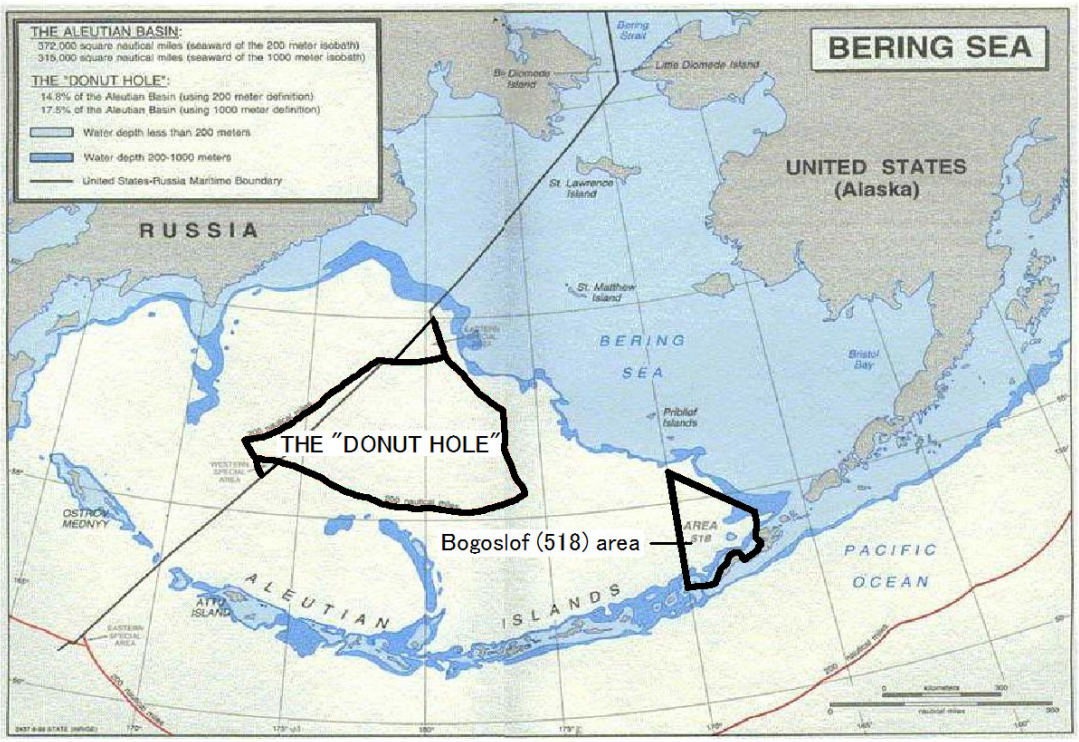
5. Other Issues and Recommendations

6. Report to the Annual Conference

7. Closing Remarks

Appendix 3: Table of pollock catches in the Bering Sea.

Table 1. All-nation historical catch of pollock from the Bering Sea, in metric tons, 1977-2021.
Sources: Reported by the Parties to the Convention, *2021 values preliminary

Year	Olyotorskiy-Karagin (W of 170W)	Navarin Region (E of 170W)	Donut Hole	Bogoslof	Aleutian Region	Eastern Bering Sea	Total Bering Sea
1977	265,000	-	-	-	7,625	978,370	1,250,995
1978	417,000	-	-	-	6,282	979,431	1,402,713
1979	546,000	-	-	-	9,504	935,714	1,491,218
1980	825,000	-	-	-	58,156	958,280	1,841,436
1981	1,133,000	-	-	-	55,516	973,502	2,162,018
1982	976,000	-	-	-	57,978	955,964	1,989,942
1983	1,006,000	-	-	-	59,026	981,450	2,046,476
1984	252,000	503,000	181,200	-	81,834	1,092,055	2,110,089
1985	134,000	488,000	363,400	-	58,730	1,139,676	2,183,806
1986	297,000	570,000	1,039,800	-	46,641	1,141,993	3,095,434
1987	349,000	463,000	1,326,300	377,436	28,720	859,416	3,403,872
1988	475,000	852,000	1,395,900	87,813	30,000	1,228,721	4,069,434
1989	345,000	684,000	1,447,600	36,073	15,531	1,229,600	3,757,804
1990	582,000	232,000	917,400	151,672	79,025	1,455,193	3,417,290
1991	326,000	178,000	293,400	316,038	98,604	1,195,664	2,407,706
1992	282,000	315,000	10,000	241	52,352	1,390,309	2,049,902
1993	288,000	389,000	1,957	886	57,132	1,326,609	2,063,584
1994	204,000	288,900	NA	556	58,659	1,329,373	1,881,488
1995	79,000	427,300	Trace	334	64,925	1,264,247	1,835,806
1996	34,000	753,000	Trace	499	29,062	1,192,781	2,009,342
1997	30,000	735,000	Trace	163	25,940	1,124,433	1,915,536
1998	25,000	719,000	Trace	8	23,798	1,102,159	1,869,965
1999	46,000	639,000	Trace	29	1,010	989,680	1,675,719
2000	15,000	507,000	Trace	29	1,244	1,132,710	1,655,984
2001	25,000	526,000	-	258	825	1,387,197	1,939,280
2002	8,000	370,000	-	1,042	1,177	1,480,776	1,860,995
2003	14,600	411,200	-	24	1,649	1,490,779	1,918,252
2004	6,200	424,500	-	0	1,158	1,480,552	1,912,410
2005	4,400	446,800	-	0	1,621	1,483,022	1,935,843
2006	3,900	462,500	-	0	1,745	1,488,031	1,956,176
2007	62,600	587,900	-	0	2,519	1,354,502	2,007,521
2008	50,632	507,127	-	9	1,278	990,578	1,549,624
2009	26,052	328,517	-	73	1,662	810,784	1,167,089
2010	43,352	319,543	-	176	1,289	810,186	1,174,546
2011	37,189	336,690	-	173	1,208	1,199,041	1,574,300
2012	26,300	390,040	-	71	975	1,205,222	1,622,608
2013	29,800	358,900	-	57	2,964	1,270,770	1,662,491
2014	15,100	342,400	-	427	2,375	1,297,422	1,657,724
2015	11,000	383,500	-	733	913	1,321,584	1,717,730
2016	6,900	442,600	-	1,005	1,257	1,352,681	1,804,442
2017	6,300	431,300	-	185	1,507	1,359,182	1,798,474
2018	8,000	392,100	-	14	1,860	1,379,287	1,781,261
2019	12,300	403,300	-	8	1,664	1,409,337	1,826,609
2020	9,116	360,889	-	9	3,205	1,367,229	1,740,448
2021	-	-	-	49	1,512	1,338,252	--

Appendix 4: Map of the Bering Sea and the Bogoslof (518) area