

Report of the IWC-POWER Planning Meeting

Tokyo, Japan, 6-10 September 2022

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1. INTRODUCTORY ITEMS

The 2023 and 2024 planning meeting was conducted immediately following the meeting of the Technical Advisory Group Planning for the Medium-Long Term IWC-POWER Programme. The List of Participants is given in Annex A.

1.1 Election of the Chair

Matsuoka was elected Chair.

1.2 Adoption of the Agenda

The adopted agenda is given as Annex B. The focus of this meeting is planning the 2023 cruise. It is too early to discuss the 2024 cruise beyond the area to be surveyed (see Item 7). Detailed discussions about the 2024 cruise will be held during the 2023 planning meeting expected to be in October 2023.

1.3 Appointment of rapporteurs

Goetz, Donovan and Brownell were appointed as rapporteurs.

1.4 Review of documents

The List of Documents is given as Annex C.

2. REVIEW OF CRUISE DISCUSSIONS AT SC68D MEETING

The Committee welcomed the results of the 12th annual IWC-POWER cruise in the eastern North Pacific (Murase *et al.*, 2022) and reiterated the importance and great value of the data contributed by the IWC-POWER cruises which have covered many regions of the North Pacific Ocean not surveyed in recent years (IWC, 2022a, item 22.1). The Committee acknowledged the very small cost to the Committee compared with the extremely generous contribution of a vessel and crew by Japan. It noted the great value of biopsy samples in understanding the stock structure of large whales in the North Pacific and encouraged the collection of further samples, especially from blue and fin whales. The Committee recognised that the IWC-POWER cruise addresses important information gaps for several species and has already contributed greatly to the ongoing assessment work of the Committee. The Committee also stressed the importance of covering offshore areas where little information is available. It expressed sincere thanks to Murase for his excellent leadership as Cruise Leader for the 2021 IWC-POWER cruise.

2.1 Results of the 2022 Cruise

The 13th annual IWC-POWER cruise commenced on 4 August 2022 with the objective of surveying within the US EEZ (Southern Aleutian Islands). Meeting participants have been following the weekly progress of the cruise, but because it was still ongoing during the scheduled 2022 planning meeting (6-10 September 2022), the meeting agreed that this agenda item should be discussed at the 2023 Planning Meeting. The meeting briefly reviewed recommendations from the 2021 cruise team and agreed that photographs taken for photo-ID should be limited to fewer high-quality images. Additional recommendations from the cruise will also be discussed at the 2023 Planning Meeting.

3. 2023 CRUISE: GENERAL ISSUES

3.1 Availability of research vessel(s) from Japan and elsewhere

Japan hoped to provide the same type of vessel used in the 2022 survey for 2023.

3.2 Budget (including accommodation and food costs)

The Fisheries Agency of Japan stated that the budget is determined on an annual basis, and while the 2023 budget has not been secured yet, the Agency hopes to maintain the same level of funding as in 2022 with regards to the crew and type of research vessel. The IWC and Committee expressed **great appreciation** for Japan's contribution to the IWC-POWER programme. The Committee budget has been agreed for 2023 and 2024.

3.3 Research permit

The 2023 survey will occur in the high seas. A CITES permit should therefore not be required. However, as noted under Item 6.2.3, due to complications encountered when importing samples into Japan or the US, additional measures may need to be completed several months prior to the cruise.

¹Presented to the SC meeting as SC/69A/REP/03B.

4. 2023 SURVEY - PRIORITIES AND CRUISE PLAN

4.1 Research priorities

Covering these areas would make a valuable contribution to the work of the Committee on the conservation and management of large whale species in the North Pacific by providing:

- information for in-depth assessments of sei, humpback, gray and sperm whales in terms of abundance, distribution and stock structure;
- information on the critically endangered North Pacific right whale population in the Pacific;
- baseline information on distribution, stock structure and abundance for a poorly known area for several large whale species/populations, including those known to have been depleted in the past but whose current status is unclear (e.g., blue and fin whales); and
- essential information for the development of the medium-long term international programme in the North Pacific in order to meet the Commission's long-term objectives.

4.2 Research area(s)

The proposed area for the 2023 survey is an area in the Gulf of Alaska that overlaps with the 2010 and 2011 cruises (Fig. 1). The area proposed for 2023 has not been covered in 12 years and IO data is still needed to allow for $g(0)$ correction. The Chukchi/Beaufort Seas is the area under consideration for the 2024 survey and has not been previously surveyed by the IWC-POWER programme (Fig. 2). The proposed areas for the 2023 and 2024 cruises will focus on the collection of line-transect data and biopsy/photo-ID/acoustic data for large whales. Preliminary discussion of surveys beyond 2024 included smaller scale targeted surveys for Bryde's, right and blue whales (Fig. 2). These will be discussed further at the 2023 TAG meeting.

4.3 Research vessel and days available (general itinerary)

It is expected that the research vessel *Yushin-Maru No.2* (YS2) will be available. The YS2 is equipped with a top barrel (TOP), independent observer (IO) platform and upper bridge. The ICR research data collecting system is set onboard. Searching will occur at the most comfortable cruising speed, normally 11.5 knots. It will have space for a maximum of four researchers.

The Cruise will last a total of 70 days (including transit time) using home ports for refueling, resupplying, researchers on-offboard (Table 1). Based on experience elsewhere in the North Pacific (e.g., north of 40°N), and allowing for poor weather conditions and time for both photo-ID and biopsy sampling, an average of 45-50 n.miles per day are expected to be covered in primary searching effort. Table 2 shows the tentative itinerary for the 2023 surveys. Estimated experiment days are approximately six days (one day for the distance and angle experiment, five days for photo-ID and biopsy experiments).

Table 1
Proposed plans for 2023.

Plan	Number of days	Research area	Home port	International researchers	Biopsy	Acoustic	Remarks
2023	70	South Gulf of Alaska (High Seas)	Shiogama/Dutch Harbour (Twice)	Japan (Murase (CL) +1), US (2)	Yes	Yes	Line-transect survey (NSP and IO models)

Table 2
Proposed cruise schedule for 2023.

Date (ship's time)	Event
27 July 2023	Pre-cruise meeting at Shiogama
28 July 2023	Vessel departs Shiogama
5 August 2023	Vessel arrives Dutch Harbor
8 August 2023	Vessel departs Dutch Harbor
11 August 2023	Vessel starts the survey in the research area Research Area (39 days)
18 September 2023	Vessel completes the survey in the research area
22 September 2023	Vessel departs Dutch Harbor
25 September 2023	Vessel arrives Dutch Harbor
5 October 2023	Vessel arrives Shiogama
6 October 2023	Post-cruise meeting at Shiogama

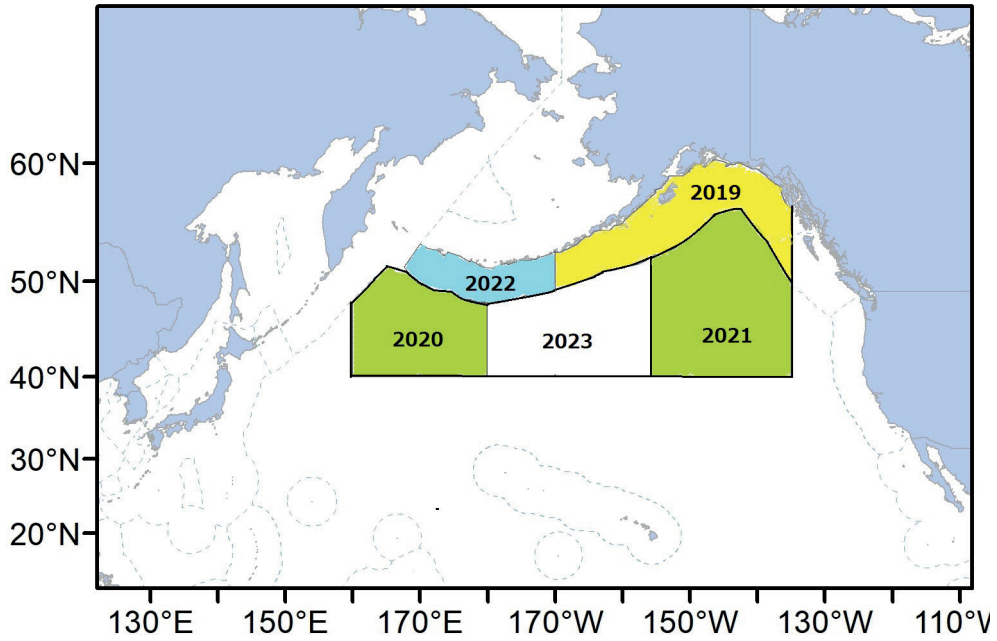


Fig.1. Recent IWC-POWER areas with the proposed area for 2023 shown in white.

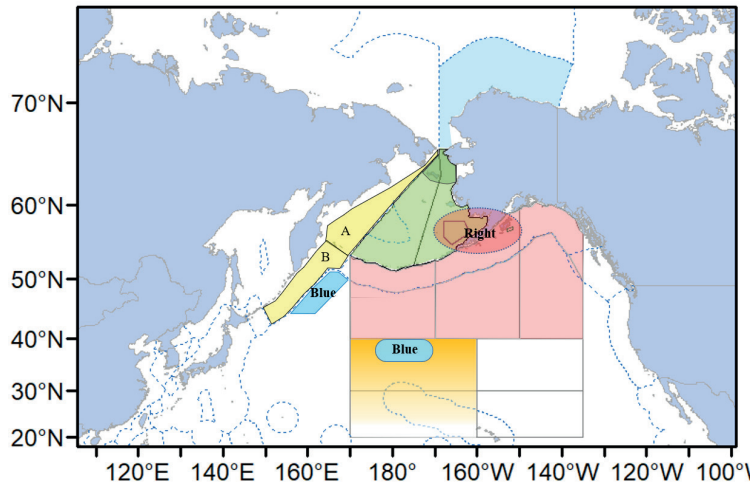


Fig. 2. Potential research areas for the future survey plans for 2024 (light blue, Chukchi and Beaufort Seas) and beyond with possible targeted species. Areas for future targeted surveys were considered for the following species: blue whales (blue), right whales (green), and Bryde's whales (orange/yellow). The pink area is the last area to be surveyed. The lighter yellow area is inside the Russian EEZ, 'A' being top priority for any potential surveys in this area and 'B' being lower. Dotted blue line: EEZs.

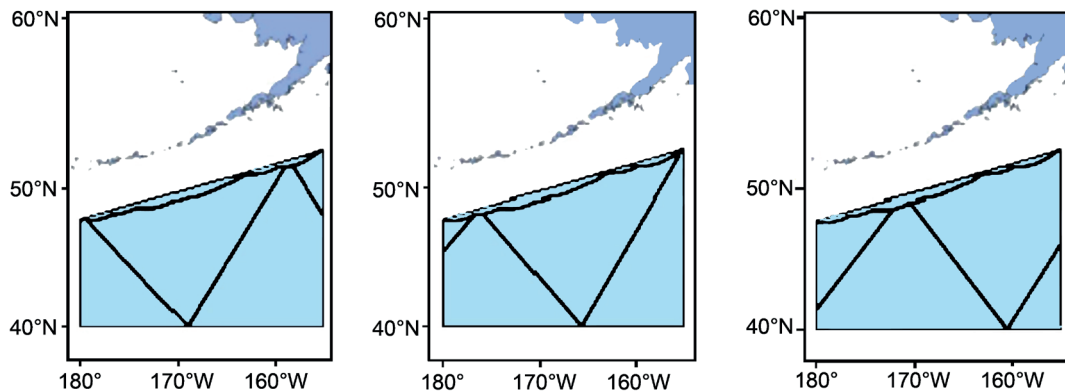


Fig. 3. Three proposed trackline designs assuming equal coverage probability (left: 1,707 n.miles; middle: 1,747 n.miles, chosen; right: 1,697 n.miles).

4.3 Cruise track design

Proposed trackline designs for the 2023 IWC-POWER survey are shown in Fig. 3. Every location within the survey area has an equal probability of being sampled which is calculated by the software 'DISTANCE'. The starting points of transect lines within the study area were randomised following Committee Guidelines (IWC, 2012). Discussion focused on selecting a trackline design to best accommodate Dutch Harbour port calls. The first two trackline design options are preferable for this reason. The meeting **agreed** on the middle trackline. While there was some discussion on whether stratification might be useful based on differences in ocean temperature in the northern and southern limits of the research area, it was decided that any stratification would be done post-survey to facilitate better comparison with previous surveys.

4.4 Sighting survey (including transit)

4.4.1 Survey modes and allocation of effort (including number of crew, research speed)

Following previous advice from the Committee and the TAG, the 2023 survey will normally alternate modes between NSP and IO mode (*ca.* every 50 n.miles). However, use of IO mode should be flexible at the Cruise Leader's discretion. If the high density of whales causes problems for discriminating between different schools under IO mode, the searching mode will be changed to NSP.

Research hours during the cruise will be the same as in recent cruises: a maximum 12 hours per day between 6:00 and 19:00, including 30 minutes for lunch and supper, only during IO mode, beginning 60 minutes after sunrise and ending 60 minutes before sunset. For biopsy sampling/photo-ID work on priority species (North Pacific right, blue, fin, sei and humpback are higher priority for these cruises), there may be occasions when it is beneficial to extend research outside the normal research hours. The basis for special extension of research hours will involve mutual agreement between the Captain and Cruise Leader and an allocation of equivalent time-off the following morning or evening. Details of biopsy and photo-ID work are shown under Items 5.6 and 5.7.

During transit, the research day will begin 30 minutes after sunrise and end 30 minutes before sunset, with a maximum of a 12-hour research day. Time-zone changes will be in 30-minute intervals, coming into effect at midnight.

As in the previous cruises, two top-men will observe from the barrel at all times in passing mode. Two primary observers will be in the TOP barrel (and IOP barrel when in IO mode) whenever full searching effort using reticle binoculars and angle board is conducted. Two primary observers (Captain and Helmsman) will be at the upper bridge with binoculars with reticles, regardless of the research mode. Also present on the upper bridge, whenever the sighting survey is conducted, will normally be the Chief Engineer (or an alternate). With four researchers on board, the Cruise Leader should ensure that the number of researchers searching from the Upper Bridge is standardised.

4.4.2 Acceptable conditions

As in previous cruises, a speed of 11.5 knots will be maintained during research. It was noted that searching speed might have to be reduced in conditions of heavy swell. The usual guidelines for acceptable conditions will apply: i.e., visibility (to see a minke whale) is greater than 2.0 n.miles and wind speed is <21 knots; the sea state should be <Beaufort 6; the Cruise Leader will take the ultimate decision as to whether conditions are 'acceptable'.

4.4.3 Angle and distance experiment

The experiment is designed to calibrate and identify any biases in individual observers' estimation of angle and distance. The experiment should be conducted during weather and sea conditions representative of the conditions encountered during the survey. Following TAG recommendations, the experimental procedure was improved from that used in the 2015 cruise through: (1) relatively inexpensive GPS technology on the buoy to improve detectability: (a) at greater distances; and (b) in more realistic sea/weather conditions than may be possible using the present radar system; (2) two buoys which can: (a) reduce the potential lack of independence, with one buoy under the correct experimental protocols; and (b) allow increased efficiency and greater distance range by including researchers and crew in the experiment (multi-buoy experiments have been successfully conducted in the North Atlantic).

4.4.4 Data recording and format

The survey will be conducted using the same data forms (see the Guide for Researchers) as the 2022 POWER cruise.

4.5 Biopsy sampling

The meeting agreed that a small group of meeting participants will work with Brownell to determine what actions are needed under CITES to import tissue samples into Japan/US waters.

4.5.1 Priority species

As appropriate and decided by the Cruise Leader, research time will be given for biopsy sampling of North Pacific right, blue, fin, sei, common minke, humpback and gray whales. Biopsy of killer, Bryde's and sperm whales will be attempted on an opportunistic basis. The meeting discussed the importance of Bryde's whales biopsy samples. It was decided that this species is low priority and that priority should be given to the other species.

4.5.2 Equipment

Projectile biopsies will be collected using the Larsen system. As noted in Item 5.5.1, the estimated daily number of miles to be steamed in searching mode has a built-in allowance for such work. During any single encounter, no more than five biopsy sampling attempts per individual will be made. It is rare that an animal would be targeted for biopsy more than twice during one encounter, but the option for five sample attempts is to allow for occasional low success rates. If signs of harassment, such as rapid changes in direction, prolonged diving and other behaviours, are observed from an individual or a group, the biopsy activities will be discontinued on that individual or group. The animals to be sampled will either approach the vessel on their own or be approached by the main research vessel during normal survey operations. The projectile biopsy sample will be collected from animals within approximately 10-50m of the vessel's bow.

For large cetaceans, small samples (<1 gram) will be obtained from free-ranging individuals using a biopsy dart with a stainless-steel tip measuring approximately 4cm in length with an external diameter of 9mm and fitted with a 2.5cm stop to ensure recoil and prevent deeper penetration (so that only 1.5cm of the tip is available to penetrate the animal). Between sample periods, the biopsy tips will be thoroughly cleaned and sterilised with bleach. Biological samples may be collected from adults, juveniles, females with calves, and calves. The same size biopsy dart would be used for calves as for adults. No biological samples will be taken from newborn calves. The age of a calf would be determined by the judgement of field biologists who have up to 20+ years' experience in the field.

The meeting noted that calves seen in the proposed research areas would be several months old and therefore would not be considered 'newborn'.

4.5.3 Sample storage

Samples collected for molecular genetic analyses are to be divided in half, with one half of the sample for IWC (to be sent to the SWFSC) and the other half for Japan (ICR). All samples will be frozen. In addition, when biopsy samples have a significant amount of blubber attached, the blubber will be separated from the skin, wrapped in aluminium foil and frozen. Details can be found in the 'Information for researchers'.

4.6 Photo-ID studies

4.6.1 Priority species

As appropriate and decided by the Cruise Leader, priority research time will be given for photo-ID and/or video taping of North Pacific right, blue and humpback whales. As noted at Item 5.3, the estimated number of miles to be completed on search mode each day allows time to collect images for photo-ID. While lower priority, it is also expected that fin, sei and Bryde's whales will also be photographed for possible photo-ID, at least when approached for biopsy sampling. The meeting noted that other researchers should be consulted about the usefulness of fin and sei whale photographs for photo-ID. Killer whales are 'non-target' species which are lower priority and will be photographed on an opportunistic basis. Photographs will be available under the standard IWC Guidelines. Generally, large whales will be approached within approximately 15-20m. Photo-ID of adult and juvenile males and females will occur. If the opportunity arises, females accompanied by calves may be approached for photo-ID, but efforts will cease immediately if there is any evidence that the activity may be interfering with pair bonding, nursing, reproduction, feeding or other vital functions.

4.6.2 Equipment and collection

The rules for data availability, shipping and storage will be the same as for the previous IWC-POWER cruises. It also noted that existing IWC equipment used in the 2022 cruise could be used on the 2023 cruise if allowed/required. The meeting noted the importance of collecting fewer high-quality photos to reduce the burden of processing photos.

4.6.3 Analysis and archiving

All photo-ID digital photographs of this cruise are to be sent to IWC Secretariat under the responsibility of the Cruise Leader and ICR. The data will be shared with Japan (ICR). If possible, researchers will incorporate photographs into the IWC Lightroom database during the cruise according to guidelines provided. Japan and the IWC share all the data from IWC-POWER cruises, which are also available to Committee members upon request.

4.7 Acoustic studies

It was agreed that an acoustic survey would take place in 2023 to avoid issues with permit applications. If the backup area is surveyed, passive acoustic monitoring using sonobuoys will occur (approval for their use from the Government of Japan was confirmed for the 2022 backup plan). Sonobuoys similar to those used during past IWC-POWER surveys will be deployed every ca. 25 n.miles along the trackline to ensure even coverage within the survey area.

4.7.1 Priority species

The acoustic buoys will be able to pick up large and small cetacean calls. If high-priority species are acoustically detected (i.e., North Pacific right and blue whales), the Acoustician will alert the Chief Scientist, at whose discretion, the vessel will cease standard visual survey operations and break trackline. Additional sonobuoys will be deployed simultaneously to

attempt to localise the calling animal. If an estimated position is obtained, the Acoustician will alert the Chief Scientist, and the vessel will proceed to that location. The meeting noted that a protocol for determining whether to close on blue whales will need to be developed since they can be detected at distances that would greatly reduce the amount of time available for completing survey tracklines. It was agreed that communication between the Acoustician and Cruise Leader would be critical when reaching a decision in these situations.

4.7.2 Equipment

All necessary equipment will be provided by the Alaska Fisheries Science Center (AFSC), including sonobuoys, laptop computer, antennae, cables and analytical software. AFSC will also provide a dedicated and experienced acoustic observer to conduct all acoustic monitoring operations on the cruise (see Item 6.1). The general acoustic schedule will involve deployment of one sonobuoy every three hours and a further one at night, leading to six buoys per day under good conditions. When drifting for fog, the vessel can remain in range of the sonobuoy for the full eight-hour lifespan of the buoy, so the number of buoys deployed will be less. Thus, the maximum number of sonobuoys required will be around 234 (six x 39 days), but given the likely prevailing conditions, will be somewhat less (usually average four per day). The sonobuoys are shipped in crates of 48 (1.3m², 680kg). Allowing for possible failures, three or possibly four crates will be sufficient. The Planning Meeting noted that it would be helpful if some solution could be found to the problem of trash generated through the use of sonobuoys, given that it is expensive to dispose of this in Dutch Harbour.

4.7.3 Analysis and archiving

Sonobuoys will be monitored and analysed in real time, and all recordings will be saved to an external hard drive backed up daily. Raw acoustic data will be stored at AFSC in Seattle, WA. Digitised data-sheets of sonobuoy deployment, recording and species detection information will be given to the Chief Scientist at the end of the survey.

4.8 Other studies

4.8.1 Marine debris

The protocol adopted for recording such material (15 minutes at the beginning of every hour) will continue in 2023 to prevent compromising searching effort. The meeting noted that collecting data on marine debris is not a priority but should continue opportunistically in 2023 and then be reviewed to assess the values of these data before the 2024 survey.

4.8.2 Oceanographic studies

Only basic oceanographic information (e.g., SST) is to be collected during the cruise. However, the TAG had noted that collecting fine scale oceanographic data using gliders would be useful in the future if funding allows.

4.8.3 Satellite tagging studies

The meeting recognised the potential of carrying out satellite tagging studies to address specific questions, especially for the mid-term programme. The Cruise Leader will decide whether such work should take place during the cruise with the understanding that the line-transect survey is the highest priority. In 2021 and 2022 cruises, satellite tags were successfully deployed and collected dive data important to understanding availability analyses. The meeting noted that, while tagging could occur in the high sea, a US researcher would need to be onboard the vessel to tag whales inside the US EEZ, and that permits may only allow the use of specific tags.

4.9 Other

The meeting discussed the potential of using drifting acoustic buoys to collect beaked whale call data. It was noted that the buoys could be picked up during the second port call at Dutch Harbour, set up by the Acoustician before being deployed by the vessel crew at a pre-determined location along the transit back to Japan. The meeting agreed this was possible and that, if data were successfully collected, it would be shared with ICR. Brownell will investigate the feasibility of using this technology in the 2023 survey.

5. 2023 AND 2024 CRUISE-LOGISTICAL ISSUES

5.1 International researchers and allocation of research personnel

It was agreed that two US (Jessica Crance and one other) and two Japanese researchers (Hiroto Murase and Isamu Yoshimura) would participate in the 2023 cruise. It was noted that the final names of US personnel would be provided in the near future, but that they would likely be either from AFSC or SWFSC. The meeting agreed that Hiroto Murase would be the Cruise Leader in 2023.

5.2 Transportation of data, samples and equipment including permits

5.2.1 Home port organiser and entry/exit permits

The home port will be Shioyama. The home port organiser in Japan will be Murase. Crance will act as home port organiser in Dutch Harbour.

5.2.2 Sightings: equipment, data, permits and responsible persons

As in previous years, ICR (Katsumata) and Kyodo Senpaku (Yoshimura) will check the sightings equipment to ensure that all is working/available. Within two months of the end of the cruise, all validated sightings data will be forwarded to the IWC by the Cruise Leader and ICR (Matsuoka).

5.2.3 Biopsy: equipment, samples, permits and responsible persons

When biopsying is appropriate, the biopsy samples will be taken using the Larsen system. Matsuoka will ensure that the necessary equipment, including darts, plugs and vials are available (see Item 5.6.2). ICR (Taguchi and Matsuoka) will ensure that the IWC samples are sent to the SWFSC (the IWC repository) in accordance with CITES procedures. Issues related to CITES permits for both options are being worked on by relevant authorities in Japan and the US, depending on where the samples are offloaded.

Brownell previously noted that there is no CITES requirement for biopsy samples entering and leaving the US EEZ which were collected on the High Seas (IWC, 2016, item 8.3.1). The Committee had also previously expressed thanks to the US State Department, the US Embassy in Tokyo, Brownell and Sakamoto (Japanese Fisheries Agency) for the satisfactory outcome of resolving the long-standing problem regarding CITES permits (IWC, 2015, item 10.13.3). Despite this achievement, the meeting acknowledged that, in recent years, the process has once again become difficult and agreed to appoint a smaller group of participants under Brownell to determine what actions are needed to successfully import samples into the US or Japan.

5.2.4 Photo-ID: equipment, permits and responsible persons

As in previous years, ICR (Matsuoka) and Kyodo Senpaku (Yoshimura) will check the camera equipment to ensure all is working/available. Staniland and Matsuoka will ensure the additional equipment agreed under Item 5.7.2 is purchased/serviced as possible. No permits are required. Matsuoka will submit all identification photographs/videos and accompanying data to the IWC within three months of the cruise.

The meeting discussed the importance of researchers having experience with Lightroom software and the need for training prior to the cruise. It was **agreed** that an online training for Lightroom would be provided beforehand and that Donovan would co-ordinate with the Secretariat and Taylor to update and organise the training.

5.2.5 Acoustics: equipment, permits and responsible persons

Sonobuoys will be provided by the Alaska Fisheries Science Centre. The Fisheries Agency of Japan confirmed that, when deployed in US waters, and brought aboard in a US port, the use of sonobuoys on a Japanese vessel is allowed. As such, sonobuoy use will proceed as it has in the past. Importing sonobuoys into Japan or deploying them in Japanese waters falls under Japanese law and requires the equipment to be certified by the Ministry of Internal Affairs and Communications. Crance has provided a wealth of data on this, but the Ministry has requested raw data on the sonobuoys, including their frequency by each channel, occupied bandwidth and maximum antenna power output from actual measurements, not general specifications in the manual. Crance has begun communication with a suitable laboratory in the US to obtain these data to ensure sonobuoys can be used in future POWER cruises. Iida and Crance will remain in contact to try and resolve this matter.

Crance will install antennae on the vessel as in previous years. Existing cables on the vessel are prone to damage and degradation over time. Yoshimura will be responsible for checking these and ensuring any repairs or replacements are carried out. Crance confirmed the type of sonobuoys will be the same as previous years and will confirm the number later.

5.3 Communications

5.3.1. Safety aspects (daily report, etc.)

The vessel will be equipped with AIS. Daily vessel position reports will be submitted to ICR, the Fisheries Agency and Kyodo Senpaku Co Ltd. A US researcher (Crance) will coordinate regular communication with the US Coast Guard when in the US EEZ. While in Dutch Harbour, the IWC flag will be flown at all times.

5.3.2 Between Cruise Leader and IWC

As in previous years, weekly reports (every Monday) will be provided to the IWC Secretariat and members of the Steering Group.

5.3.3 Weather and sea temperature information

It was agreed that fog information will be required. This will be obtained as usual via a Japanese agency as official communication.

5.3.4 Other official communications

If the US conducts surveys in the Gulf of Alaska concurrent to the 2023 IWC-POWER cruise, communications between the two parties may be necessary to coordinate logistics or exchange important information.

5.3.5 Private communications

Researchers may send and receive private communications, including e-mails, at their own expense. Prepaid cards such as the KDDI card (super world card) can be used for private voice communications. Private accounts must be paid by researchers before departing the home port at the end of the cruise. Payment must be in cash (Japanese yen). In discussion, Hirato suggested this process may have changed and he would check into this and report back.

5.4 Meetings (including responsible persons)

5.4.1 Pre-cruise Meeting

Researchers will join the vessel in Japan or in Dutch Harbour. To better facilitate logistics, a pre-cruise meeting will occur in Japan, organised by Murase, and in Dutch Harbour, organised by Crance. The Cruise Leader will ensure the reports of these pre-cruise meetings are circulated to the IWC-POWER Steering Group when completed.

5.4.2 Post-cruise Meeting

A post-cruise meeting will be held in Shioyama when the vessel returns to port, organised by Murase, and in Dutch Harbour, organised by Crance.

5.5 Reports

5.5.1 Planning meeting report

This planning meeting report will be completed intersessionally and be uploaded to the IWC website as a report for SC69A.

5.5.2 Cruise report

As usual, the cruise report will be drafted on the return journey of the cruise, following the previous guidelines. The report will be discussed at the next planning meeting and then a final version will be sent to the Secretariat for submission to SC69B.

5.6 Press releases

The Cruise Leader (and Matsuoka), in consultation with the IWC (Kate Wilson and Iain Staniland), and, if necessary, the US, will prepare a press release before and after the cruise. The IWC, ICR, and, if required, the US and Japan Fisheries Agency press releases should be released at the same time. The IWC website will also include a press release pointing to the relevant IWC-POWER cruise web page. A summary of achievements will be provided by the scientific team at the end of the cruise. Any additional press releases during the cruise precipitated by unusual observations (e.g., the finding of right whales) will be circulated for comment and approval to the Steering Group and Cruise Leader prior to release.

5.7 Security

The Fisheries Agency of Japan, ship agents and designated Russian representative will investigate the situation and ensure that adequate security measures are in place. When in port or otherwise needed, the IWC banner will be readily visible. This is already stored on the vessel. The same procedures adopted in previous visits to Dutch Harbour will be followed if the backup plan is used.

5.8 Additional logistics for COVID

Additional logistics may be necessary due to COVID-19 and should be considered in advance. For example, this might include arranging extended stays in port, especially for US researchers to meet the requirements of AFSC.

6. OTHER

6.1 Data validation and analysis

Work on data validation continues at the Secretariat. Where difficulties arise, these are dealt with in cooperation with the Cruise Leader.

6.2 IWC website

The Secretariat will ensure the IWC website is updated as appropriate.

7. WORK PLAN

The meeting **noted** that, while it is **agreed** that the 2024 cruise will take place in more northerly waters within the USA EEZ in the northern Bering and Chukchi Seas (see Fig. 2), it is premature to take a decision on the precise extent of the area or survey design before carefully reviewing the existing information from the US and other studies in those waters, including:

- (1) the extensive aerial survey work reported by Ferguson *et al.* to the IWC, as well as earlier such work in the region (e.g., by Moore);
- (2) any other relevant data from other cruises in the area;
- (3) likely sea ice conditions at the time of the planned cruise;
- (4) any permitting requirements; and
- (5) advice on liaising with the AEWC in order to ensure the cruise does not interfere with the fall hunt in any way.

The meeting **requested** Goetz and Brownell coordinate preparation of an initial summary of the US work (see points 1-5 above), including maps of survey areas and sightings, and the results of analyses (including densities). They **agreed** to circulate this to the Steering Group. The Steering Group will then hold a virtual meeting to discuss this and the results of earlier IWC-POWER cruises in the Bering Sea, in the context of the survey area and initial strategy for the 2024 cruise. This will allow a detailed proposal to be developed and discussed at the 2023 Planning Meeting expected to be held in October 2023.

8. CONCLUDING REMARKS AND ADOPTION OF REPORT

Matsuoka (Convenor) thanked the participants from Japan and the US for their time and input into the IWC-POWER cruise planning process.

On behalf of the IWC and Committee, Matsuoka was thanked for organising the meeting and also everyone who gave their time to support the IWC-POWER cruise. How important the programme has been to the IWC and Committee was highlighted. The international effort involved was noted and Japan was thanked in particular for their support in providing a vessel and crew without which this important programme could not run.

Moronuki confirmed that Japan's position had not changed since the withdrawal from the IWC and it continued to work with international organisations to support science and international management of cetaceans. The IWC-POWER programme was an important part of this and would continue to be supported as before. Staniland thanked Moronuki for his encouraging words, noting the IWC and Committee looked forward to working with Japan and the international researchers on this important programme.

Matsuoka thanked the participants for their hard work over the two days. The participants in turn thanked Matsuoka for his excellent leadership of the meeting. The meeting adopted the report, subject to final editorial work, and concluded its business at 2200hrs (UTC) on 20 December 2021.

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Annex A

List of Participants

Mitsuki Azeyanagi	Fisheries Agency of Japan
Robert Brownell	Southwest Fisheries Science Center, USA
Greg Donovan	Invited Participant
Shingo Fukui	Fisheries Agency of Japan
Kim Goetz	Alaskan Fisheries Science Center, USA
Takeru Iida	Fisheries Agency of Japan
Masaki Kadota	Fisheries Agency of Japan
Toshihide Kitakado	Tokyo University of Marine Science and Technology, Japan
Koji Matsuoka	Institute of Cetacean Research, Japan
Hiroto Murase	Tokyo University of Marine Science and Technology, Japan
Luis Pastene	Institute of Cetacean Research, Japan
Iain Staniland	Head of Science, IWC
Mioko Taguchi	Institute of Cetacean Research, Japan
Tatsuya Isoda	Secretariat, ICR
Midori Ota	Interpreter 1
Saemi Baba	Interpreter 2

Annex B

Agenda

1. Introductory items
 - 1.1 Adoption of the Agenda
 - 1.2 Appointment of rapporteurs
 - 1.3 Review of documents
2. Review of cruise discussions at IWC68D
 - 2.1 Review of Scientific Committee recommendations
 - 2.2 Objectives and priorities
 - 2.3 Other
3. Results of the 2022 cruise
 - 3.1 Sightings
 - 3.2 Biopsy sampling
 - 3.3 Photo-identifications
 - 3.4 Other
 - 3.5 Recommendations from cruise team
4. 2023 cruises: general issues
 - 4.1 Availability of research vessel(s) from Japan and elsewhere
 - 4.2 Budget (including accommodation and food costs)
 - 4.3 Research permit
5. 2023 survey – priorities and cruise plan
 - 5.1 Research priorities
 - 5.2 Research area(s)
 - 5.3 Research vessel and days available (general itinerary)
 - 5.4 Cruise track design
 - 5.5 Sighting survey (including transit)
 - 5.5.1 Survey modes and allocation of effort (including number of crew, research speed)
 - 5.5.2 Acceptable conditions
 - 5.5.3 Angle and distance experiment
 - 5.5.4 Data recording and format
 - 5.6 Biopsy sampling
 - 5.6.1 Priority species
 - 5.6.2 Equipment
 - 5.6.3 Sample storage
 - 5.7 Photo-identification studies
 - 5.7.1 Priority species
 - 5.7.2 Equipment
 - 5.7.3 Sample storage
 - 5.8 Acoustic studies
 - 5.8.1 Priority species
 - 5.8.2 Equipment
 - 5.8.3 Sample storage
 - 5.9 Other studies
 - 5.9.1 Marine debris
 - 5.9.2 Oceanographic studies
 - 5.9.3 Satellite-tagging studies
6. 2023 cruise - logistical issues
 - 6.1 International researchers and allocation of research personnel
 - 6.2 Transportation of data, samples and equipment including permits
 - 6.2.1 Home port organiser and entry/exit permits
 - 6.2.2 Sightings: equipment, data, permits and responsible persons
 - 6.2.3 Biopsy: equipment, samples, permits and responsible persons

- 6.2.4 Photo-identification: equipment, permits and responsible persons
- 6.2.5 Acoustics: equipment, permits and responsible persons
- 6.2.6 Other
- 6.3 Communications
 - 6.3.1 Safety aspects (daily report etc.)
 - 6.3.2 Between Cruise Leader and IWC
 - 6.3.3 Weather and sea temperature information
 - 6.3.4 Other official communications
 - 6.3.5 Private communications
- 6.4 Meetings (including responsible persons)
 - 6.4.1 Pre-cruise Meeting
 - 6.4.2 Post-cruise Meeting
- 6.5 Reports
 - 6.5.1 Planning meeting report
 - 6.5.2 Cruise report
- 6.6 Press releases
- 6.7 Security
- 6.8 Additional logistics for COVID
- 7. General preparation for 2024 cruise
- 8. Other
 - 8.1 Data validation and analysis
 - 8.2 IWC website
- 9. Workplan
 - 9.1 Plan for the 2023 cruise before SC69A
 - 9.2 Other
- 10. Concluding remarks and adoption of Report

Annex C

List of Documents

TAG POWER WP

01. Report of the Steering Group of the IWC-POWER Programme to SC68C (SC/68C/ASI/17; Matsuoka *et al.*, 2021)
02. Report of the meeting of the IWC-POWER Technical Advisory Group (TAG): January 2020 (SC/68B/Rep1; IWC, 2021)
03. Report of the Meeting of the IWC-POWER Technical Advisory Group (TAG) and 2021 Planning Meeting: November 2020 (SC/68C/Rep1; IWC, 2022b)
04. Report of the IWC-POWER Planning Meeting: Virtual, 9-10 December 2021 (SC/68D/Rep03; IWC, 2023)
05. Report of SC/68D (extract)
06. Summary of IWC-POWER results from 2010 to 2021 (Matsuoka and Yoshimura)
07. An overview of the progress made on the tasks listed in TAG 2020 (Matsuoka and Kitakado)
08. An overview of the genetic studies on stock structure based on biopsy samples obtained by the IWC-POWER programme (Taguchi, Matsuoka and Pastene)
09. NO PAPER.
10. Abundance estimates on design-based analyses in the North Pacific using 2010-2018 IWC-POWER sighting data (Matsuoka *et al.*)
11. Abundance estimation of floating marine debris in the North Pacific using 2010–2016 IWC-POWER data (Yasuhara, Matsuoka and Kitakado)
12. Results of the passive acoustic component of the IWC-POWER cruises, 2017-2021 (Crance and Matsuoka)
13. NO PAPER.
14. Cruise report of the 2021 IWC-Pacific Ocean Whale and Ecosystem Research (IWC-POWER) (SC/68D/ASI 03; Murase *et al.*, 2022)
15. Results of the feasibility experiment of dive behavior tagging for fin and sei whales during 2021 POWER survey in the eastern North Pacific (Katsumata, Murase and Matsuoka)
16. NP sighting survey data (to be updated)
17. NO PAPER.
18. Statement by Dr Iain Staniland, Head of Science Conservation and Management
19. Statistical power analysis for the IWC-POWER (Kitakado)
20. Abundance estimates for main species in the overlapped area (2010-2020) (Matsuoka and Isoda)
21. Comments from Debi Palka on sei whales
22. Summary of IO Platform sightings during 2015 to 2021 POWER surveys (Matsuoka and Isoda)
23. Future IWC-POWER 2023-2032
24. Workplan for IWC-POWER related work
25. Proposal for the plans of 2023 and 2024 IWC-POWER surveys (Matsuoka and Isoda)
26. Suggestions for updated medium-term priorities based upon results from Phase 1 for IWC-POWER (Objectives Table 1).

