SC/66b/REP/02

Report of the Planning Meeting for the 2016 IWC POWER Cruise in the North Pacific, Tokyo, Japan, 9-10 October 2015

International Whaling Commission

INTERNATIONAL
WHALING COMMISSION

Report of the Planning Meeting for the 2016 IWC-POWER Cruise in the North Pacific

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Executive Summary

The Planning Meeting was held in a meeting room at the Japanese Fisheries Agency crew house, Tokyo, from 9-10 October 2015.

The Planning Meeting finalised details for the forthcoming IWC-POWER cruise to be held from 1 July – 30 August 2016 including transit from and to Japan, using a research vessel, which will be the same type as in the previous cruises (e.g. the *Yushin-Maru No. 3*), kindly provided by Japan. This will be the seventh cruise under the successful international IWC-POWER programme. The proposed plan is given in Fig.1 and will cover waters from 170°W to 160°W between 20°N and 30°N; some 32 days will be available in the research area.

The cruise will *inter alia* provide: (a) information for the proposed *Implementation Review* of Bryde's whales in terms of both abundance and stock structure; (b) baseline information on distribution, stock structure and abundance for a poorly known area for cetaceans, including those that were known to have been depleted in the past but whose status is unclear; (c) 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.

Data collection will focus upon abundance estimation using line-transect data (including additional emphasis on the use of 'Independent Observer' mode to investigate whether $g(0)$, the number of whales seen on the trackline, which prior data suggest is < 1 for Bryde's whales, can be estimated with sufficient accuracy and precision to allow unbiased estimates of abundance to be developed – assuming that $g(0)$ is 1 leads to negatively biased estimates), biopsy sampling and photo-identification studies. The possibility of collecting data on microplastics is being investigated. Data on marine debris are routinely collected.

A number of tasks to be completed prior to the cruise were identified including application for permits, final choice of researchers (Koji Matsuoka of Japan has been nominated as Cruise Leader), updating of Guidelines for Researchers and obtaining necessary equipment including biopsy darts and improved equipment for angle and distance experiments. Appropriate deadlines and responsible persons were identified.

The meeting was held in Tokyo on 9 and 10 October 2015. The list of participants is given as Annex A.

1. OPENING REMARKS AND WELCOMING ADDRESS

Kato (as convenor) and Okazoe (on behalf of the Fisheries Agency of Japan) welcomed participants to Tokyo and to the meeting.

Okazoe noted that the sixth annual IWC-Japan Joint Cetacean Sighting Survey Cruise (IWC POWER) had been completed successfully with the return of the vessel on 30 August 2015. He expressed the gratitude of the Japanese Government to the Government of the USA for providing access to the US EEZ around Hawaii, and for providing a US scientist as one of the international researchers on board. The cruise represented an excellent example of international cooperation. Despite the restricted budget it had been possible to complete the work as planned, and he looked forward to similar success on the 2016 cruise.

On behalf of the IWC, Donovan expressed his pleasure at once again being present at such a meeting. He particularly wished to thank the organisers for providing the excellent facilities, for the first time in the Japanese Fisheries Agency Crew House. He also wanted to express continued appreciation to the ship's crew on behalf of the researchers; their cooperation on the cruises is essential for the continued success of the research. The IWC-POWER cruises were extremely important to the IWC; a considerable amount of very valuable information was accruing as shown during the meeting of the Technical Advisory Group just completed, and the programme continues to provide an excellent example of international cooperation. He looked forward to a successful planning meeting for the 2016 cruise and ultimately valuable results to assist in the medium-term planning process.

The meeting was pleased to note that this year it had been possible for the ship's captain Sasaki and first officer Kasai to be present, together with Mr Isamu Yoshimura of Kyodo Senpaku Co. Ltd. Crew members were welcome at all such meetings; their presence would be specially important when there is a need in future to discuss the practical details of the medium-term programme.

2. APPOINTMENT OF CHAIR AND RAPPORTEURS

Kato was elected Chair. Bannister agreed to act as rapporteur, with assistance from Donovan and Matsuoka.

3. ADOPTION OF AGENDA

The agreed Agenda is given as Annex B.

4. ORGANISATION OF MEETING

Kato thanked the organisers for providing such excellent facilities. The meeting noted that at the conclusion of the meeting on 10 October a special function was to be held in honour of Dr Peter Best, who had died earlier in the year. Drs Seiji Ohsumi and Keiko Sekiguchi would also be present.

5. REVIEW OF AVAILABLE DOCUMENTS

Documents available are listed in Annex C.

6. REVIEW OF DISCUSSIONS AT IWC 65B AND TAG REPORTS

Donovan noted that the Technical Advisory Group, whose meeting (SC/66b/Rep01) had immediately preceded this one, had taken into account discussions and recommendations made at the Scientific Committee meeting. He undertook to raise relevant items as they arose during subsequent discussion of Agenda items.

7. PRELIMINARY RESULTS FROM THE 2015 CRUISE

Matsuoka spoke to the Cruise Report originally drafted on the return journey on board the research vessel. This, the 6th cruise, had taken place between 2 July and 30 August 2015, on the Japanese Research Vessel *Yushin-Maru No 3*, with four researchers on board, two from Japan, one from the USA, and one from the UK/USA. The research area was in the central North Pacific, north of 20°N, south of 30°N, between 170°E and 160°W, with the exception of the Papahanaumokuakea Marine National Monument area (PMNM) near Hawaii (see Fig. 1). There were five main objectives, to provide (a) information for the proposed future in-depth assessment of sei whales, (b) information relevant to whale *Implementation Reviews*, (c) baseline information on whales in an area not recently and systematically surveyed, (d) biopsy samples and photo-identification data to contribute to discussions of whale stock structure and (e) essential information for planning a medium-long term international programme in the North Pacific.

A total of 44 days was spent in the research area, with coverage of 95.6% of the expected tracklines; some 2,350 n. miles was surveyed in Passing with Abeam Closing Mode (NSP) and Independent Observer Passing Mode (IO). Over 1,000 n. miles were surveyed in transit to and from the research area.

Thirteen cetacean species were seen as well as some identified to genus (Mesoplodonts, Ziphiids). Bryde's whales (46 schools/52 individuals) and sperm whales (32/93) were the most frequently sighted large whale species, both widely distributed in the research area. There was a remarkable record of one group (in three sub-groups) of 110 Longman's beaked whales. A total of 37 biopsy samples was obtained, from 34 Bryde's whales, 3 sperm whales and 1 killer whale; photo-identification data were obtained for 29 Bryde's whales, 3 sperm whales and 4 killer whales. 199 marine debris objects were observed.

In discussion, it was noted that the cruise had come close to the southern limit of Bryde's whale distribution at around 20°N. This is further considered (and maps of sightings presented in the TAG report. It was also noted that more Bryde's whales would have been sighted if it had been possible to enter the PMNM area, as had been shown by earlier US cruises (Barlow, 2006a; Bradford *et al.*, 2013).

The meeting thanked Matsuoka, as Cruise Leader, the researchers and the crew, for their hard work that had made the cruise a success and congratulated Matsuoka and his colleagues on producing such a comprehensive report at relatively short notice.

It was **agreed** that a final definitive version of the Cruise Report would be prepared for circulation to steering group members for their comments, noting that final responsibility rests with the authors.

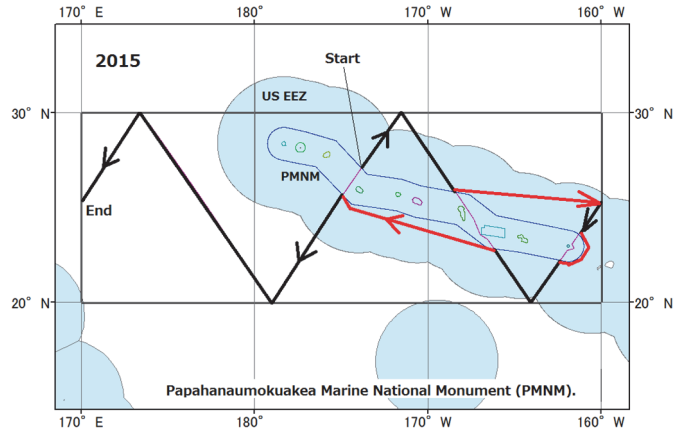

Fig. 1. The 2015 research area (Area with a southern boundary of 20°N and a northern boundary of 30°N between 170°E to 160°W longitude lines) and pre-determined trackline (black bold line) with start and end points . The research vessel could not enter the Papahanaumokuakea Marine National Monument (PMNM), and followed the red-colored lines to the next track line to re-start the survey. The starting points of transect lines were randomised as calculated using program 'Distance'

8. AVAILABILITY OF RESEARCH VESSELS

8.1. Research vessel offered by Japan

The meeting noted that the Fisheries Agency was anticipating the same level of funding in 2016 as in 2015, in which case the same vessel would be available, i.e. the *Yushin-Maru No.3*, for a total of 60 days.

8.2. Other possibilities

The TAG meeting had been informed that the US Government was planning two surveys, one of 60 days in the Hawaiian EEZ, which was likely to include the PMNM area, the other of 30 days in the California Current; details had yet to be decided.

Palka undertook to provide details as soon as possible.

9. PRIORITY FOR THE 2016 CRUISE

The meeting confirmed that the 2016 cruise objectives would be the same as in previous years, and as endorsed by the Scientific Committee. The cruise will focus on the collection of line transect data to estimate abundance and biopsy/photo-identification data, to make a valuable contribution to the work of the Scientific Committee on the management and conservation of populations of large whales in the North Pacific in a number of ways, including providing:

(a) information for the proposed *Implementation Review* of Bryde's whales in terms of both abundance and stock structure;

(b) baseline information on distribution, stock structure and abundance for a poorly known area for several large whale species/populations, including those that were known to have been depleted in the past but whose status is unclear;

(c) 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.

10. REVIEW OF THE BUDGET

The meeting **agreed** that it would assume the same level of Japanese Government funding for the 2016 cruise as for 2015.

The detailed budget for expenditure of Commission funds is provided in IWC/66a/Rep 1, Table 1, pp 24 and 25, which had been approved by the Commission. The meeting noted that in 2015, £36,000 had been approved for each of the years 2015 and 2016.

Donovan again noted the importance of the POWER programme to the Scientific Committee and the Commission.

11. CRUISE PLAN

11.1. Priorities and allocation of research effort

The broad priorities for 2016 are given under Item 9. The vessel should be able to cover 70 n.miles per day in the research area. Given its considerable distance from Japan, it had been calculated that (assuming a starting point at the eastern end of the research area) that 15.7 days would be required for the outward transit, and 11.3 days for the return transit, leaving 32 days available for research.

11.2 Itinerary

As since 2012, to minimise transit time and thus maximise research time, the home port will be Shiogama. The itinerary is shown in Table 1.

Table 1
Itinerary for the 2016 IWC-POWER cruise

Date	Event
1-Jul-16	Pre-cruise meeting, Shiogama, northern Japan
2-Jul-16	Vessel departs Shiogama
18-Jul-16	Vessel arrives in the research area to the starting point at 135º00'W
18-Aug-16	Vessel completes the research at 160º00'W (32 days in the research area)
30-Aug-16	Vessel arrives Shiogama

11.3. Research area

As agreed by the Committee (IWC, 2014), the research area is as shown in Fig.2. This is also in accord with the recommended future short-term cruise plan previously recommended by the TAG. The area is to be treated as a single stratum.

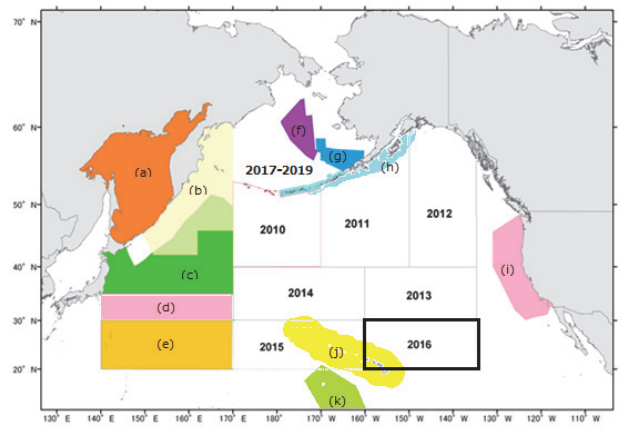

Fig. 2. Schematic showing the proposed areas for coverage in the 2016-2019 period prior to the medium term period. Coloured areas represent surveys conducted in the North Pacific in recent years:

(a): (Miyashita and Berzin, 1991)
(b): (Miyashita, 2006)
(c): (Pastene *et al.*, 2009)
(d): (Matsuoka *et al.*, 2013)
(e): (Matsuoka *et al.*, 2014)
(f): (Moore *et al.*, 1999)
(g): (Moore *et al.*, 2002)
(h): (Zerbini *et al.*, 2007)
(i): Barlow and Forney (2007)
(j): (Barlow, 2006a; Bradford *et al.*, 2013)
(k): (Barlow, 2006b)

11.4. Research vessel

Yushin-Maru No. 3 will be available. Its specifications are given in Table 2. The vessel has proved to be a good sightings platform as well as of suitable manoeuvrability for efficient biopsy sampling/photoID work.

Table 2

Specifications for *Yushin-Maru No. 3.*

Call sign	7JCH	Barrel height (m)	19.5m
Length overall	69.61m	Upper bridge height	11.5m
Moulded breadth	10.80m	Bow height (m)	6.5m
Gross tonnage	742	Engine power	5280/3900(PS/kW)

11.5. Other matters

There were no matters to discuss under this item.

12. DETAILS OF THE CRUISE

12.1. Cruise track design

The survey area will be considered as a single stratum. Cruise track design (see Fig. 2) had been undertaken using 'Distance' software, following the IWC guidelines and the TAG recommendations. The randomly selected start point would be at 135°00'W proceeding westwards to 160° 00'W, based on 70 n. miles/day, as discussed under item 11.2.

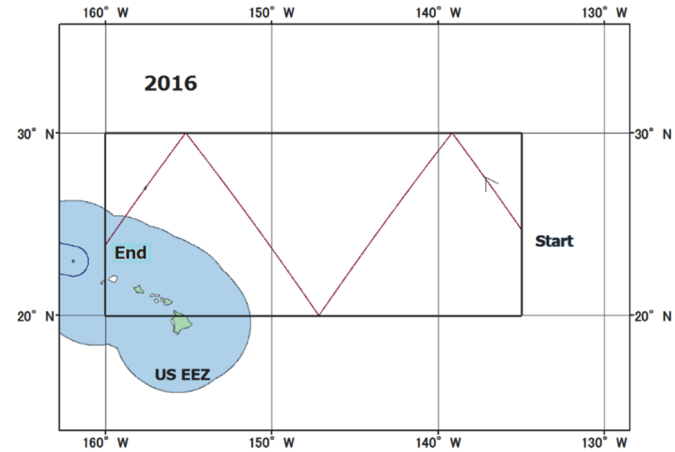

Fig 2. Cruise track for the 2016 cruise. 2,324 n.miles (research area, 72 n.miles per day).

The meeting noted that while the proposed trackline would pass through the US EEZ it does not pass through the Monument region.

12.2. Survey mode and research hours

As for previous surveys, activities on board the ship are classified into two principal groups: on-effort and off-effort. On-effort activities are times when full search effort is being executed and conditions (such as weather and sea conditions) are within acceptable parameters to conduct research. Off-effort activities are all activities that are not on-effort. All sightings recorded while the ship is on-effort are classified as primary sightings. All other sightings are secondary sightings.

The TAG had reviewed the results of the IO experiment undertaken on the 2015 cruise; although the sample size was too small for a full analysis, it was clear that $g(0)$ for Bryde's whales is <1. In order, to obtain an accurate and precise estimate of $g(0)$ that would allow correction of abundance estimates, the TAG had recommended that at least 75% of the survey should be undertaken in IO mode (including some effort in transit in Bryde's whale areas if possible) and consideration should be given to using an additional observer (e.g. a researcher) on the IO platform (at present there is one topman). The sightings from the IO platform form the 'trials' and it is important to maximise sightings from there whilst maintaining the normal two topman effort in the barrel. There was much discussion over how this might be achieved, including the effect on the crew of increasing IO mode survey during normal searching hours, and the possibility of undertaking IO mode survey in transit. It was recognised that without sufficient IO data, abundance estimates would show considerable negative bias.

It was **agreed** that the Cruise Leader and the Captain should be responsible for deciding how to obtain the necessary increase in IO mode survey (i.e. at least 75%).

As before, a maximum of 12 hours per day would be available for survey, during the period from one hour after sunrise to one hour before sunset. In transit, as before, the 12 hour period would be between 30 minutes after sunrise and 30 minutes before sunset. Sighting effort is conducted by the two primary observers; researchers and the chief engineer or deputies are also present. Primary search effort is only conducted in acceptable weather conditions. These conditions are used as guidelines; in some circumstances, less severe conditions may still be inappropriate for search effort (see below).

Details of photo-identification and biopsy work are given under Items 12.8 and 12.9.

In 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.

The meeting **re-iterated** that if sightings are made outside official research hours (e.g. before sightings effort begins in the morning), then these should be recorded as 'off-effort' sightings as they can contribute useful information on distribution even though they are not suitable for abundance estimation.

As **agreed** above, in transit, and at the Cruise Leader's discretion, as much IO mode effort should be undertaken as possible.

12.3. Number of crew on effort

Two topmen will observe from the barrel at all times during full searching effort and will use reticle binoculars and angle boards. 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.

In IO mode, there will be at least one experienced observer in the IO platform with the possibility of an additional observer (see also discussion in Item 12.2).

12.4. Navigation and research speeds

As in 2015, 11.5 knots (through the water) will be maintained during research. It was noted that in conditions of heavy swell, searching speed might have to be reduced.

12.5. Acceptable weather conditions

In accord with the recommendation of the 2013 TAG report, the usual guidelines will apply, i.e. visibility (in principle for seeing common minke whales) >2.0 n. miles; wind speed <21 knots; sea state < Beaufort 6. These conditions are not suitable to reliably see common minke whales but are sufficient for the other large whale species.

The meeting noted that while fog is unlikely, glare may pose more of a problem since the trackline, as in 2013, 2014 and 2015 is further south than before (i.e. there will be more intense sunlight).

It was **re-iterated** that it is important to continue to collect good glare data, recognising that appropriate analytical techniques to incorporate this information into abundance estimates are still being developed. The meeting noted that if glare was a concern immediately ahead, a zigzag course would be adopted.

12.6. Estimated angle and distance experiment

The TAG had welcomed the efforts by the crew and researchers to follow last year's recommendations for an improved angle and distance experiment (including the use of two buoys and GPS) and had developed ideas for improved analyses of these data. The meeting also welcomed these efforts and it was agreed that the new method should be used again this year, noting that observers need only be tested from those platforms that they would normally watch (e.g. there is no need for topmen to be tested from the upper bridge).

It was **agreed** that the intersessional 'practical logistics' group should be retained, consisting of Donovan, Matsuoka, Miyashita and Palka, to report to the Scientific Committee at its 2016 meeting on a protocol for experiments to be undertaken on the 2016 cruise.

12.7. Data format

The survey will be conducted using data forms modified in accordance with the recommendations from last year and during the 2015 cruise.

It was **agreed** that Donovan and Matsuoka should update the Guidelines for Researchers accordingly.

12.8. Biopsy sampling

12.8.1. Priority of species
As appropriate for the research area, and decided by the Cruise Leader, research time will be given for biopsy sampling of Bryde's, sei, common minke, blue, humpback, gray and fin and whales (bowhead and North Pacific right whales are unlikely to be seen south of 40°N) with higher priority for Bryde's and sei whales.

The question of biopsying other, less well-known species, such as Longman's beaked whale, was discussed.

It was **agreed** this should be undertaken at the Cruise Leader's discretion but without interfering with such operations on the priority species. Palka **agreed** to provide a list of species likely to be encountered so that these can be included in the biopsy permit application.

12.8.2. Equipment
Biological sample collection will be by using biopsy sampling (skin/blubber collected by projectile dart). Projectile biopsies will be collected using either a compound crossbow or the Larsen gun system. 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 conservatively five sample attempts will be allowed as necessary. If signs of harassment such as rapid changes in direction, prolonged diving and other behaviours are observed from an individual or a group, biopsy 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 research vessel during normal survey operations. The projectile biopsy sample will be collected from animals within approximately 5 to 30 m of the bow of the vessel.

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 4 cm in length with an external diameter of 9 mm and fitted with a 2.5 cm stop to ensure recoil and prevent deeper penetration (so that only 1.5 cm of the tip is available to penetrate the animal). Between sample periods, the biopsy tips are thoroughly cleaned and sterilized with bleach following the established protocol. 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 subjective judgment of the biologists who have up to 20+ years' experience in the field. They would, and would be instructed to, err on the side of caution and not biopsy an animal that appeared too young.

12.8.3 Keeping of samples
As for the 2015 cruise, all samples would be frozen and stored in cryo-vials. Each sample will be split into skin and blubber, the latter not being required for genetic analysis. The skin sample would be divided on return to Japan, i.e. at ICR but not at sea, one portion to be retained at ICR, the other to go to IWC. The blubber sample would be retained whole (i.e. not be split) and held at ICR; analyses of blubber (e.g. for contaminants, hormones, fatty acids) generally require larger amounts of tissue and splitting already small quantities may render such analyses impossible. The meeting **re-iterated** that the question of future analysis of blubber samples, and access to them by researchers, should follow the agreed procedure for accessing IWC samples.

12.9. Photo-identification studies

12.9.1 Priority of species
As appropriate and decided by the Cruise Leader, research time will be made available for photo-identification and /or video taping of right, blue and humpbacks as priority. Killer whales are a 'non-target' cetacean with lower priority and should be photographed opportunistically. The estimated daily number of miles to be steamed in searching mode has a built-in allowance for such work. Generally, large whales will be approached within approximately 15-20 metres. Photo-identification of adult and juveniles will occur. If the opportunity arises, females accompanied by calves may be approached for photo-identification, 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.

12.9.2 Keeping of data
As noted last year, a master set of all photographs taken on the IWC-POWER cruises is kept at the IWC Secretariat within an Adobe Lightroom database; these are copyright of the IWC. Even if a researcher uses their own camera, the photographs remain the property of the IWC.

Photographs that have been examined and catalogued as individuals for identification purposes will also be archived within a set of IWC-POWER Catalogues. As discussed during the TAG meeting, it is important to share such information with other researchers working in the North Pacific *through* the IWC protocol to apply for use of the photographs (available from the IWC Secretariat and is available through the IWC-POWER pages on the IWC website as well as via the Scientific Committee Handbook). The final decision on access is made by the IWC-POWER steering group. All researchers wishing to use the photographs must obtain formal permission from the Secretariat.

It was **agreed** that only in exceptional circumstances should researchers on the vessel send copies of photographs direct to other researchers during the cruise (e.g. where this is a condition of a permit to conduct research in national waters) – again formal permission must be obtained from the IWC. The necessary protocol will be included in the Guide for Researchers, updated by Donovan and Matsuoka.

12.10 Acoustic studies
The meeting **agreed** that there would be no acoustic studies during the 2016 cruise.

12.11. Oceanographic studies
As in 2015, no specific oceanographic studies are planned for 2016. Last year there was discussion of the possibility of employing a Seaglider, but even though it was to be provided on loan, ultimately the transportation and in-use costs were beyond the available budget. The TAG had agreed that the use of such equipment should be considered when designing the medium-term programme.

12.12. Satellite tagging
No activities are planned for the 2016 cruise. The TAG had agreed that the use of such equipment should be considered when designing the medium-term programme.

12.13. Other matters

12.13.1. Marine debris
The meeting reiterated the importance of observations of marine debris in non-IWC contexts such as modelling the predicted movement of debris from the 2011 Tsunami across the Pacific. The protocol adopted for recording such material (15 minutes in every hour) would continue in 2016 to prevent compromising cetacean sightings searching effort.

Donovan reported that he was investigating the question of sampling for microplastics in the Mediterranean, and undertook to discuss the matter further with the Cruise Leader to see how feasible such sampling would be, on an opportunistic basis, on the forthcoming cruise.

13. INTERNATIONAL RESEARCHERS AND ALLOCATION RESEARCH PERSONNEL

13.1. Number of researchers
As in previous years, up to four researchers can be accommodated on the vessel.

13.2. Nomination and allocation of researchers
For 2016 the following framework for researcher involvement was **agreed**:

(1) Japan (IWC-POWER range state, vessel provider, Matsuoka)

(2) USA (IWC-POWER range state, EEZ to be traversed, person to be decided.

(3) Korea (IWC-POWER range state, Sungso Yoo)

(4) To be decided (?Taylor, UK/USA; ?Yoshimura, Japan)

Matsuoka was appointed Cruise Leader. There was some discussion over the possibility of increasing the number to 5 by arrangement with the Captain, given that Yoshimura had proved very capable on the 2015 cruise, his salary was paid by the Company, and he was likely to be available. Taylor, who has been an excellent researcher on the last two cruises is investigating her availability

It was **agreed** that the matter, to include Yoshimura's duties as well as his accommodation, would be explored between the Captain and the Cruise Leader.

A small group was appointed (Kato, Donovan, Bannister, Matsuoka) to complete the appointments as soon as possible, and certainly by early in the New Year.

14. GENERAL PREPARATIONS FOR THE 2015 CRUISE

14.1. Identification of the home port organiser
Hakamada undertook to act in this capacity.

14.2. Entry and other permits
The meeting noted that the 2016 cruise will include the US EEZ (around Hawaii). Okazoe undertook to file the necessary documents, including the need for biopsy, within the necessary time limit (at least six months prior to the cruise).

14.3. Review of recommendations from the 2015 cruise.
It was **agreed** that Donovan and Matsuoka would review the listed items for purchase and decide what could be met from available funds.

15. IN TRANSIT SURVEY

15.1. Home port to research area and back
As for 2015, while recognising the need to move rapidly to and from the research area, the meeting **re-iterated** that should the opportunity arise, biopsy and photo-identification could be undertaken on right, gray and blue whales, in that order of priority. Standard passing mode would be adopted during transit, but on both the outward passage and the return, IO mode should be attempted as much as possible, particularly if the sample size was small during the main survey (see Items 12.2 and 12.3).

16. TRANSPORTATION OF DATA, SAMPLES AND EQUIPMENT

16.1. Equipment
It was **agreed** that the tabled equipment list be adopted as amended, and with responsibilities as indicated (see Annex D).

Donovan will arrange for Larsen darts to be obtained. Information for researchers is to be updated by Matsuoka and Donovan. Donovan also undertook to explore the possibility of purchasing or borrowing an 'action camera' that would allowing filming to be undertaken from the biopsy operator's helmet.

16.2. Data and samples and necessary permits
Within two months of the end of the cruise, all validated sightings data will be forwarded to IWC by the Cruise Leader (Matsuoka). Matsuoka will also submit all identification photographs and accompanying data to IWC. The Cruise Leader will ensure that any borrowed equipment (except IWC cameras and lenses) will be returned to its owners. The Cruise Leader will ensure that all biopsy samples are provided to NRIFS and Yoshida will ensure that the IWC portion is sent to SWFSC in La Jolla, California, in accordance with CITES provisions.

17. COMMUNICATIONS

17.1. Safety aspects (daily reports)
Daily vessel position reports should be submitted to ICR, NRIFS, the Fisheries Agency and Kyodo Senpaku Co Ltd.

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

Donovan **agreed** to establish a mailing list so that one address can be used for all.

17.3. Fog and sea temperature information.
It was **agreed** that fog information would not be required, otherwise the same arrangements as in 2015 would apply. It was noted that bad weather (strong winds) could be expected in the eastern part of the survey area.

17.4. Other official communication
Given that there will be operations within the US EEZ, the same arrangements will apply as in 2015 for official communications. The US researcher will be responsible for communicating with the US authorities before entering the US EEZ.

17.5. Private communication
Researchers may send and receive private communications, including e-mails, at their own expense. Accounts must be paid by researchers before arriving at Shiogama. Payment for e-mails is required in Japanese yen by cash. Prepaid cards such as the KDDI card (super world card) will be used for private voice communications. Researchers can buy this card at Shiogama city (convenience store etc.) before departure.

17.6. Terms of payment of communication costs
See items 17.4 and 17.5. Payment will be in Japanese yen.

18. MEETINGS

18.1 Pre-cruise meeting
A pre-cruise meeting will be held in Shiogama on 1 July 2016. In addition to the researchers and crew, at least all Japanese members of the Steering Group are encouraged to attend.

The Cruise Leader will ensure that the report is circulated to the IWC-POWER Steering Group when completed.

18.2 Post-cruise meeting
As in previous years, the post-cruise meeting will be held on board the vessel during the return transit leg.

18.3 Home port arrangements and responsible persons
Hakamada will co-ordinate the home port arrangements in co-operation with the Cruise Leader. The shipping agent in Shiogama will be Tohhoku Dock Tekko Co. Ltd.

19. REPORTS

19.1 Planning meeting report
The agreed report will be tabled at the IWC/SC meeting in 2016.

19.2 2015 Cruise report
The 2015 cruise report was drafted on the return journey of the cruise following the guidelines provided by Donovan last year. As discussed in Item 7, that report will be circulated to the Steering Group before final preparation by the authors; the final version will be sent to the Secretariat for submission to the IWC Scientific Committee as in the past. The 2016 Cruise Report should be handled in the same way.

20. OTHER LOGISTICS

20.1 Press releases
As in 2015 the Cruise Leader will prepare a draft with the final version being released by ICR in the format prepared by the IWC. For domestic reasons the press releases should be available both before and after the cruise, as in 2015. Donovan reported that as last year the IWC website will include a press release pointing to the relevant IWC-POWER cruise web page; there will also be a weekly review of activities on the website as the cruise progresses, and a summary at the end of the cruise. See also discussion under item 21.2.

20.2 Security
Based on previous experience, no security problems are anticipated. The IWC banner will be readily visible.

It was noted that for safety, life vests are to be worn for all activities below the bridge, e.g. during any operations on the foredeck, e.g. during biopsy.

20.3 Accommodation and food costs
The IWC will cover the accommodation and food costs for the scientists involved; the cost (¥2,500 per day) remains unchanged from previous years.

20.4 Other matters
None were raised.

21. OTHER

21.1 Data validation and analysis

21.1.1 Validation
Work on data validation continues at the Secretariat. Where difficulties have arisen, these are being dealt with in cooperation with the Cruise Leader.

21.2 IWC website
Donovan reported that the TAG had recommended there should be more publicity via the website for plans for future cruises, e.g. over the next 2-3 years. The meeting concurred with this view.

22. CONCLUDING REMARKS
As last year, Kato noted that the 2016 cruise will complete the first stage of the POWER programme south of the Bering Sea. Future planning will need to take into account operations within the EEZs of both the USA and Russia, although for the latter only in years two and three.

Recognising that obtaining such permits could take much time, it was **agreed** that Donovan would work with Okazoe over the required format, in particular emphasising the advantages to both countries of the operations being undertaken.

A list of action points arising from the meeting is given as Table 3.

Table 3

Summary of actions including responsible persons and due dates.

Item	Action point	Responsibility	Due date
7	Prepare definitive version of the Cruise Report for circulation to the steering group members	Matsuoka and authors	ASAP but certainly by SC66b
8.2	Provide details of the US government survey plans in the Hawaiian EEZ and the California Current area	Palka	ASAP
12.2; 12.3	Decide how to obtain the necessary increase in IO mode survey to 75% and ensure there is at least one experienced observer in the IO platform, and possibly an additional observer	Matsuoka/Captain	Prior to and during cruise
12.6	Retain the intersessional 'practical logistics' group who will *inter alia* agree protocol for experiments for the 2016 cruise	Donovan, Matsuoka, Miyashita and Palka	SC66b
12.8.1	Provide a list of species likely to be encountered to include in biopsy permit application	Palka	ASAP, by early New Year
12.13.1	Investigate the feasibility of sampling microplastics	Donovan/Matsuoka	By SC66b
13.2	Complete appointments for researchers for 2016 cruise	Kato, Donovan, Bannister, Matsuoka	ASAP, by early new year
14.3	Review list of recommended purchases from 2015 cruise and decide what could be bought with available funds	Donovan and Matsuoka	By SC66b
16.1	Obtain Larsen darts	Donovan/Larsen	ASAP
16.1	Update information for researchers taking into account discussions in this report and the TAG report (SC/66a/Rep01)	Donovan and Matsuoka	Finalise at SC66b
16.1	Explore possibility of purchasing or borrowing an 'action camera' for recording from the biopsy operator's helmet.	Donovan/An	By SC66b
17.2	Establish a mailing list for the weekly reports including the steering group and Secretariat	Donovan/Miller	By early New Year
22	Begin work on obtaining permits for POWER cruises south of the Bering Sea in the EEZs of Russia and the USA	Okazoe, Donovan, Palka, DeMaster	Begin now and report progress at SC66b

Kato thanked the meeting members for their participation and looked forward to a successful cruise in 2016.

On behalf of the IWC, Donovan thanked all those who had participated in the meeting. The IWC-POWER cruises are a particularly important component of the IWC's work. As the meeting has recognised, they are an excellent example of international collaboration. He stressed the importance of an enthusiastic and efficient crew, without whom the cruises could not succeed. He asked that the meeting's appreciation to the crew be conveyed to them. He thanked the Government of Japan for providing such excellent facilities, and in particular the Chair and the interpreters who had performed their difficult tasks with their customary efficiency and good humour. The meeting had been facilitated both by the deliberations of the TAG and by the very good cruise report.

The meeting adopted the report, and concluded its business, at 1450 hrs, 10 October 2015.

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Annex A

List of Participants

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John Bannister	Invited Participant
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Koji Matsuoka	Institute of Cetacean Research, Japan
Tomio Miyashita	National Research Institute of Far Seas Fisheries, Japan
Naohito Okazoe	Fisheries Agency of Japan, MAFF, Japan
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Isamu Yoshimura	Kyodo Senpaku Co., Ltd., Japan
Midori Ohta	Interpreter, Japan
Hiroko Yasokawa	Interpreter, Japan

Annex B

Agenda

1. OPENING REMARKS AND WELCOMING ADDRESS
2. APPOINTMENT OF CHAIR AND RAPPORTEURES
3. ADOPTION OF AGENDA
4. ORGANIZATION OF MEETING
5. REVIEW OF AVAILABLE DOCUMENTS
6. REVIEW OF DISCUSSIONS AT IWC 66a AND TAG REPORTS
7. PRELIMINARY RESULTS FROM THE 2015 CRUISE
8. AVAILABILITY OF RESEARCH VESSELS
   - 8.1 Research vessel offered by Japan
   - 8.2 Other possibilities
9. PRIORITY FOR THE 2016 CRUISE
10. REVIEW OF THE BUDGET
11. CRUISE PLAN
    - 11.1 Priorities and allocation of research effort
    - 11.2 Itinerary
    - 11.3 Research area
    - 11.4 Research vessel
    - 11.5 Other matters
12. DETAILS OF THE CRUISE
    - 12.1 Cruise track design
    - 12.2 Survey mode and research hours
    - 12.3 Number of crew on effort
    - 12.4 Navigation and research speeds
    - 12.5 Acceptable condition
    - 12.6 Estimated Angle and Distance Experiment
    - 12.7 Data format
    - 12.8 Biopsy sampling
      - 12.8.1 Priority of species
      - 12.8.2 Equipment
      - 12.8.3 Keeping of samples
    - 12.9 Photo-id studies
      - 12.9.1 Priority of species
      - 12.9.2 Equipment
      - 12.9.3 Keeping of data
    - 12.10 Acoustic studies
    - 12.11 Oceanographic studies
    - 12.12 Satellite tagging studies
    - 12.13 Other matters
13. INTERNATIONAL RESEARCHERS AND ALLOCATION OF RESEARCH PERSONNEL
    - 13.1 Number of researchers
    - 13.2. Nomination and allocation of researchers
14. GENERAL PREPARATIONS FOR THE 2016 CRUISE
    - 14.1 Identification of home port organiser
    - 14.2 Entry and other permits
    - 14.3 Review of recommendations from the 2015 cruise
15. IN TRANSIT SURVEY
    - 15.1 Home port to research area and back
16. TRANSPORTATION OF DATA, SAMPLES AND EQUIPMENT
    - 16.1 Equipment
    - 16.2 Data and samples and necessary Permits
    - 16.3 Responsible persons
17. COMMUNICATIONS
    - 17.1. Safety aspects (daily report)
    - 17.2 Between Cruise leader and IWC
    - 17.3 Weather and sea temperature information
    - 17.4 Other official communication
    - 17.5 Private communications
    - 17.6 Terms of payment of communication cost
18. MEETINGS
    - 18.1 Pre-cruise Meeting
    - 18.2 Post-cruise Meeting
    - 18.3 Home Port arrangements
    - 18.4 Responsible persons
19. REPORTS
    - 19.1 Planning meeting report
    - 19.2 Cruise report
20. OTHER LOGISTICS
    - 20.1 Press release
    - 20.2 Security
    - 20.3 Accommodation and food costs
    - 20.4 Other matters
21. OTHER
    - 21.1 Data validation and analysis
    - 21.2 IWC website
22. CONCLUSION REMARKS

Annex C

List of Working Papers

WP

1. Report of the meeting of the IWC-POWER Technical advisory Group (TAG) (SC/66a/Rep01)
2. Report of the planning meeting for the 2016 IWC-POWER Cruise (SC/66a/Rep02).
3. SC/ 66a reports (SC report extracts)
4. SC/66a/AnnexG (Appendix)
5. Cruise report of the 2015 IWC-Pacific Ocean Whale and Ecosystem Research (IWC-POWER).
6. Result of the 2015 distance and angle estimation experiment
7. Summary of IWC-POWER surveys (2010-2015)
8. Review of recommendations from cruise reports
9. Plans on abundance estimation for North Pacific Bryde's whales based on IWC-POWER data
10. Proposed track design for 2017-2018 (or 2019) IWC-POWER in Bering Sea
11. List of equipment
12. North Pacific sighting survey data (ver 20151008)