

Technical facilitation of the Regional Indocet Consortium workshops on whale research and conservation

Final Report

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for

The Indian Ocean Commission Biodiversity Programme

Introduction

Cetaceans are a topic of research and target for important conservation measures throughout the Western Indian Ocean (WIO) by a broad diversity of scientists, academics and conservation groups. However the work of these diverse groups lacks a forum or platform for coordination of activities, sharing of information or development of synergistic and collaborative studies. In response to this deficit, a group of researchers conceived the development of a WIO cetacean research and conservation consortium during a workshop on Reunion Island in November 2014, which was originally convened to foster communication and collaboration among researchers that were specifically conducting satellite telemetry studies on humpback whales. During that initial workshop, the founding members of the consortium were defined as all participants present, and a Steering Committee of 8 members was elected from among the founding members. The consortium initiative was further developed into a formal structure during a second workshop held in conjunction with the 1st Humpback Whale World Congress (HWWC) held on Ile Ste. Marie, Madagascar, in July 2015. The consortium was named IndoCet and progressed to a point where the existing Steering Committee, with input and agreement from all founding members, drafted a Consortium Memorandum of Understanding that lays out the terms of the consortium's goals and objectives, structure, membership levels, conduct of members and executive committee.

Although significant progress had been made on the development of the IndoCet Consortium, it had yet to be fully implemented. During the 2nd Humpback Whale World Congress on La Reunion Island, July 2-7, 2017, a series of IndoCet workshops/meetings were organized to facilitate the complete implementation and public rolling-out of IndoCet. These consisted of three separate events:

1. An IndoCet Steering Committee meeting – held on July 5, 2017 at the Iloha Hotel

This meeting consisted of all present members of the IndoCet Steering Committee and Executive Committee in order to discuss business matters and topics related to the upcoming Inception Workshop.

2. The primary IndoCet Inception Workshop – held on July 6, 2017 at the Stella Matutina Museum

As indicated by the title, this workshop marked the inception and official announcement of the new IndoCet Consortium. The purpose was to introduce the aims, objectives and structure of the consortium to a set of prospective members that were attending the HWWC, and regional colleagues that were invited specifically to

attend the workshop by the Indian Ocean Commission (IOC).

3. A workshop on implementation of the Indocet Flukebook database and matching platform – held on July 7, 2017 at the Stella Matutina Museum

As a primary starting action of the IndoCet Consortium, an initiative has been engaged since the conception of the consortium involving the development of a regional database tool and photo-ID matching platform. This effort has progressed significantly and this meeting was intended to provide an opportunity for the software developer (present at the HWWC) to interact with those founding members of IndoCet present and involved in the development of the database platform.

This document will report on each of these meetings and workshops individually.

I. IndoCet Steering Committee Meeting

Agenda outline for IndoCet Steering Committee meeting, July 5, 2017, 18:00-21:00

1. Discussion of process for induction of new members
2. Decision on establishing legal status
3. Update and status of website
4. Update and status of Flukebook initiative
5. Discussion of contributions to IndoCet workshop

List of Participants:

Salvatore Cerchio
Violaine Dulau
Claire Garrigue
Fifou Mayer
Anjara Salama
Laurene Trudelle
Michel Vely

The meeting was convened as an open discussion among all participants with S. Cerchio acting as the convener for the meeting, leading discussion and taking minutes. Each topic was discussed in turn and several key decisions were agreed upon among those Founding Members present, as follows.

1. Induction of new members

It was noted that in previous discussions, it was agreed that membership was specifically open to individuals, not institutions, however this was not explicitly stated in the drafted and signed MoU. Furthermore, in development of the website, an option was included for applying for membership as either an individual or an institution. After discussion it was agreed that the original agreement was that membership should be for individuals, and there are good reasons for this, specifically that individuals could change institutions, and that member responsibilities and acceptance should not be transferred within an institution if an accepted member leaves the institution. With further discussion post-workshop, it was recognized that some members may not own their own data and thus will be uploading metadata in the name of their institution, and that in Indocet projects, such as the Flukebook platform, members are, de facto, acting as representatives of their institution. Therefore the institutions need to be represented in some way. It was agreed that although institutions cannot apply for membership and that members are nominated as individuals, members upon application can choose to represent their institution. If a member changes institution, another representative of the institution should apply for membership, particularly if there is a need for institution-owned data to have continued representation in the consortium. Therefore, it was agreed that this should be specified in the MoU and the website should be corrected to remove the institution option as a category, and to add an optional institutional affiliation.

After discussion regarding timing of inducting members, it was decided that membership would be open for submission of applications until Sept 1st and decisions would be made by Oct 30th, 2017 to be discussed at the Society for Marine Mammalogy Biennial Conference in Halifax, Canada. Given current timeframe as of the writing of this report, it is recommended that membership be open until Oct 22nd, the first day of the SMM Biennial.

Procedure for registration :

- Apply on website
- The Secretary (or Indocet coordinator) receives the applications and forward them to the members of the Executive Committee. The applicants receive an automatic mail mentioning that its application has been received.
- Decision on application will be made by the Executive Committee (2/3 majority) via doodle
- The Secretary/ Indocet coordinator will send a reply to the applicants. If the membership is accepted, the mail will include an Internet link that will direct to a protected website for payment.

The initial level of yearly membership dues was considered, and it was agreed that we should maintain a low cost for membership in order not to discourage membership and since the only actual expense at the moment is the upkeep of the website. After discussion it was proposed that we will have three levels of dues, €10/year for members from Developing Countries, €30/year for members from all other countries, and students registered in accredited graduate academic programs will have the dues fee waived.

2. Legal status

It was recognized that in order to receive dues for membership, we will need to establish a legal status as an organization and open a bank account in the name of IndoCet. François-Xavier Mayer proposed that we should create a non-profit NGO based in Reunion; F-X Mayer explained that this was a relatively simple process and did not require legal assistance or financial investment, and described that Cetamada had just done this in order to have the HWWC in Reunion. It was agreed that F-X Mayer would provide a short description of the procedure for setting up the NGO, and that Violaine Dulau of Globice would do so since she is based on Reunion Island. It was agreed that the legal status as an NGO should be established by Nov 1st, 2017, or at least by the time we expect to start receiving dues (after membership applications have been reviewed and notifications sent).

3. Updates for Website

After the previous discussions, the website was reviewed and the following necessary changes were identified:

- Remove institution membership option from the membership application section.
- Add updated yearly membership dues information, including a link to a list of Developing Countries.
- Add description of roles of Executive Committee, as outlined in communications among Steering Committee members.
- Place the website on a secure SSL web address.
- Create a single membership password to allow members to access the members-only sections (e.g., uploading metadata).

4. Discussion of Indocet Inception Workshop and Flukebook Workshop

The two scheduled workshops for the following days were briefly discussed to clarify timing and coordination.

5. IndoCet Consortium Coordinator

The participants discussed the general functioning and upkeep of the Consortium and stressed the need to have a Consortium Coordinator, to conduct regular activities necessary for the upkeep of the consortium, such as update the website, sustain and coordinate the network. Therefore it is critical to seek funds to support a part-time coordinator position, and include specific funding lines in budgets for IndoCet activities (such as Phase II of the Flukebook project, and proposed IndoCet workshops).

The meeting was closed with the understanding that a report of the meeting and decisions made among those present would be drafted and distributed to all Founding Members for review and agreement.

II. IndoCet Inception Workshop



IndoCet Consortium : An Indian Ocean Network for Cetacean Research

Inception Workshop / Atelier de Lancement du IndoCet

July 6, 2017

Agenda

1. Introductions – S. Cerchio/V. Dalau – 14:00
 - a. Welcome
 - b. Introduction of the Steering Committee
 - c. Review IndoCet Aims and Objectives
2. Presentation of participants – 14:15
 - a. Steering Committee and founding members
 - b. COI-invited participants and prospective members
3. Presentation on South Pacific Whale Research Consortium - C. Garrigue – 15:00
4. Presentation of IndoCet MoU / Constitution – S. Cerchio – 15:15
 - a. Membership structure and responsibilities
 - b. Membership process
 - c. Executive committee structure and elections
 - d. Discussion / Questions and Answers

Coffee Break 16:00

5. Discussion of Current and Future initiatives of the IndoCet consortium – 16:15
 - Drafting an ACTION PLAN
 - a. IndoCet Website
 - b. Flukebook Initiative
 - c. Panel on what members would like to see the Consortium achieve
 - d. How to promote collaboration among members
6. Closing statements – 18:00

List of Participants:

IndoCet Founding Members

Salvatore Cerchio, New England Aquarium and Woods Hole Oceanographic Institution, USA
Violaine Dulau, Globice, Ile Reunion, France
Claire Garrigue, IRD, Institut de Recherché pour le Développement, France
Fifou Mayer, Cetamada, Madagascar
Anjara Salama, Cetamada, Madagascar
Laurene Trudelle, Université Paris-Saclay – LOCEAN, France
Michel Vely, Megaptera, Martinique

COI / IOC Invited Participants

Said Mohamed Ibrahim, Megaptera, Moroni, Comoros
Norbert Andrianarivelo, Institut Halieutique et des Sciences Marines, Madagascar
Michael Gilbert Mwangombe, Watamu Association, Kenya
Gill Braulik, East African Cetacean Working Group, Zanzibar, Tanzania
Nina Dubois, Mauritius Marine Conservation Society, Mauritius
Anfani Msoili, Parc National de Mohéli, Comores
Miharintsoa Randrianarivelo, COI / IOC Biodiversity Program, Mauritius
Said Ahamada, COI / IOC Biodiversity Program, Mauritius
Remie Asma, Seychelles National Parks Authority, Seychelles
Sabrena Lawrence, Seychelles Fishing Authority, Seychelles
Jerome Fulbert, Shoals Rodrigues, Rodrigues

Additional Participants

Tim Collins, Wildlife Conservation Society, USA
Gianna Minton, Independent Consultant, Netherlands
Jean-Luc Jung, Université de Bretagne Occidentale, Brest, France
Jacopo De Clemente, Accademia del Leviatano, Italy
Laura Ceyrac, Globice, Ile Reunion, France
Venessa Estrade, Globice, Ile Reunion, France
Aurore Lambort, France
Gilles Nolibe, CeSigma, France
Yann Doh, France
Oswaldo Vasquez, Dominican Republic
Inteca Gelica, Quirimbas National Park, Mozambique
Tory Johnson, Happywhale, USA
Nina Dubois, Mauritius Marine Conservation Society, Mauritius
Stephanie Le Bonniec
Roseline Baronce, France
Jeanne Wagner, Agence Française pour la Biodiversité, France
Francine Kershaw, National Resource Defense Counsel, USA
Valerie Nonzles
Pierre Gallego, Belgium
Adam Pack, University of Hawaii, USA
Joy Reidenberg, Mount Sinai School of Medicine, USA
Simon Jarman, Curtin University, Australia
Per Palsboll, University of Groningen, Netherlands
Drew Blount, WildMe, USA

IndoCet Inception Workshop

The IndoCet Inception Workshop was successfully held on July 6, 2017 from 14:15 to 18:00 in the main auditorium of the Stella Museum. As indicated by the title, this workshop marked the inception and official announcement of the new IndoCet Consortium. The purpose was to introduce the aims, objectives and structure of the consortium to a set of prospective members that were attending the HWWC, and regional colleagues that were invited specifically to attend the workshop by IOC / COI. The workshop was chaired by Salvatore Cerchio, with Gill Braulik serving as rapporteur.

1. Introduction

The workshop began with a short welcome and introduction that explained to the participants the origin and conception of the IndoCet consortium. This was born out of a workshop in Reunion in November 2014 that focused on satellite tagging of humpback whales in the western Indian Ocean, funded by a European Union grant to the NGO Globice. Therefore the founding members are those original participants of the workshop who were invited because they were engaged in satellite tagging of humpback whales or associated with IOC / COI, and include (in alphabetical order) Salvatore Cerchio, Adèle De Toma-Cadinouche, Violaine Dulau, Ken Findlay, Sabrina Fossette, Claire Garrigue, Francois Xavier Mayer, Laurent Mouysset, Anjara Saloma, Olivier Tyack, Laurène Trudelle, Michel Vely, Andy Willson and Alexandre Zerbini. After formulating the need and concept of a WIO cetacean consortium, the founding members created an eight-person steering committee, and voted on membership: chair Violaine Dulau, co-chair Salvatore Cerchio, members Ken Findlay, Sabrina Fossette, Claire Garrigue, Anjara Saloma, Olivier Tyack, and Alexandre Zerbini. Over a period of two years, the steering committee met through emails, conference calls and a workshop in July 2015 after the 1st HWWC on Ile Sainte Marie. A Memorandum of Understanding, serving as a “constitution” for the consortium, was developed during this period, including the structure and rules for membership. Some key general points described in the MoU were presented. Taxonomically, the consortium is inclusive of all cetacean species, and the geographic boundaries were chosen to be wide enough to include the entire range of humpback whales from the Southwest Indian Ocean population. It was pointed out in discussion that these boundaries extend to include Tanzania, Kenya and Somalia, and therefore should more properly be referred to as the Western Indian Ocean; however, it does not extend into the Arabian Sea and is therefore complementary with the recently formed Arabian Sea Whale Network. The IndoCet consortium will not be an NGO or an institution, but an entity whose primary purpose is to facilitate communication and collaboration among its members. The current workshop in Reunion in July 2017 serves as the official launching of the consortium and opening for membership.

2. Presentation of Participants

This was then followed by the introduction of participants, in which each participating person at the workshop had the opportunity to introduce themselves, their affiliation and briefly describe any work on cetaceans in which they are involved. Those who had previously sent a solicited PowerPoint slide with their information had the slide projected during their short speech, then followed by the remainder of participants that simply spoke. There were a total of 42 participants, including the organizers, from at least 16 different countries, and ranged

from academic scientists to NGO-based conservationists to governmental managers to private-sector tourism operators.

3. Presentation on South Pacific Whale Research Consortium

After the participants' introductions, Claire Garrigue gave a presentation on the South Pacific Whale Research Consortium (SPWRC), which had partially served as a model for the IndoCet founding members during the creation of the consortium. Created in 1999, the SPWRC's principle taxonomic focus was humpback whales but also covered other large whale and dolphin species. There are nine founding members, three executive officers, and it has had annual meetings since conception. In 2007 the consortium formally became a Trust, and the Trustees are well known people, not scientists. The SPWRC is based in the Cook Islands, and there are 43 members. To become a member one must be active in research or science and must attend a consortium meeting, after which an application for membership would be considered by the executive committee. If an active participant stops coming to the meetings then they may stop being a member. The primary objective of the SPWRC is to coordinate and facilitate non-lethal research in the South Pacific region. Former focus was to establish conservation status and recovery of the humpback whale population(s), using genetics, photo-identification, acoustics, etc. Sharing and matching of all photo-ID catalogues enabled an estimation of abundance for the whole region, along with identification of stocks and sub-stocks within the region in the South Pacific. Genetic mark-recapture was also used to estimate abundance. Satellite tracking of humpback whales was also conducted to describe movements and habitat use, and establish exchange between sub-regions. Besides humpback whale research, "aPOD" is an example of a large-scale collaborative study of dolphin populations in Oceania promoted through the SPWRC, with the objective to understand isolation and connectivity between populations. Another example is "Strandings of Oceania", a website for documenting strandings in the region. Funding for SPWRC projects have come from: WWF, IFAW, Fonds Pacifique, Greenpeace, Pew Foundation, and the Fondation Total. Importantly, Dr. Garrigue emphasized in closing that the SPWR Consortium is based on mutual trust and respect among its members, stating "It is a big family".

4. Presentation of IndoCet MoU / Constitution

With the SPWRC overview as background, Cerchio and Dalau then briefly presented the IndoCet MoU / Constitution, and opened the floor for questions and discussion. The complete MoU is included as a separate document attached as an Addendum for reference. At the lead of IndoCet is the Executive Committee (EC), consisting of eight members which will be elected by the entire membership and stands for a two-year period. The first EC will be the Steering Committee members who will hold the positions for the next two years until the first election is held. The different EC roles and process for election is detailed in the MoU. It was noted that this is different from the SPWRC, for which their executive committee has not changed since conception. However, the IndoCet EC will always have one founding member in it in order to maintain continuity. One of the primary roles of the EC will be to evaluate membership applications and vote on new members for IndoCet.

Regarding the geographic scope of the IndoCet Consortium, it was noted that the defined scope is technically broader than the SWIO, which in most contexts excludes Tanzania, Kenya, and Somalia. Therefore it was agreed that in the MoU and other documentation (e.g., website) the terms will be redefined to the WIO (Western Indian Ocean).

Gianna Minton, based in part on her experience as the coordinator for the Arabian Sea Whale Network, asked about the secretariat and coordination and whether funds will be managed centrally or not, and how funds will be raised and received. Violaine Dalau responded that the need for a project coordinator is recognized, and funding is needed for a project coordinator. There was a period where a coordinator (Zoe Glenard) was funded by IOC for start-up coordination, and to set up the basic structure of the MoU and website so that it can ideally run as is without additional funding. Therefore no fundraising is actually included in the MOU at this point, but will be addressed later if and when the need arises to raise funds for collaborative consortium projects. It is acknowledged that even the website requires some funding, and therefore there will be fees for membership, and that the consortium has to become a legal entity with a bank account. Cerchio added that given that funding is uncertain and practically unreliable, the philosophy has been that we should proceed with launching now but acknowledge that the consortium will grow and evolve over time especially with regards to fund raising and management. Despite this, the decision has been made to ask for annual dues, or fees, from members, primarily to raise the funds for website upkeep and maintenance. It was proposed at a recent Steering Committee meeting that there will be three levels of dues: €10/year for members from Developing Countries, €30/year for members from all other countries, and students registered in accredited graduate academic programs will have the dues fee waived.

It was noted if there is the need to be structured as an NGO, that it may have some limitations because this comes with bureaucracy. It was stated that in Brazil there was a legal agreement between members, without being an NGO, and it is possible instead to sign a legal document. On the topic of membership, it was noted that judging members based on scientific productivity especially first author publications might exclude many people. Violaine Dulau responded to clarify that membership is open to conservationists and researchers alike, and there is a category specifically for individuals that contribute to science and conservation without being a student or primary level scientist.

5. Discussion of Current and Future initiatives of the IndoCet consortium

5.1 Ongoing Initiatives

In the final session of the workshop, the discussion moved to developing ideas and directions for actions that could be taken by IndoCet, and the ultimate development of a regional Action Plan. Said Ahamada from IOC Biodiversity Program noted that we should work towards an action plan for IndoCet for the next years. He indicated that the IOC Biodiversity Program already initiated support through a call-for-proposals for two projects in Madagascar with CETAMADA and COUT (College des Oceanographes de Tulear). Three other potential projects (not yet confirmed) from Seychelles (SFA), Tanzania (PECCA) and Madagascar (IHSM) may be supported through direct grants. Previously, two first initiatives both funded by IOC Biodiversity Program as an early effort to facilitate the formation and success of the consortium, have already been undertaken as part of the initial IndoCet implementation: the IndoCet website, and a regional database/matching platform within the Flukebook framework.

A short description followed on the IndoCet Website www.indocet.org which was displayed interactively for the workshop participants to see. Sections that were noted included: <Members, in which all members will be listed in each category (Founding Members,

Executive Committee, Active Members and Associate Members); <Research <Publications, in which it is possible for members to upload their publications into a table; <Research <Metadata in which members can list their available data (subdivided into Tracking, Photo-ID, Biological Sample, and Acoustic metadata) in order to facilitate collaboration; <Join Us, in which new members can apply for membership by uploading their CV and a cover letter. It was noted that the website is still in “beta” format and there may be forthcoming updates or corrections. Concern was raised in discussion as to whether the website would come down if no funding could be found; in response, it was noted that this is currently the primary reason for IndoCet membership dues, so it is hoped that the website will be sustained. A suggestion was made that an arrangement could be made to have the website hosted by a university temporarily and get a student to manage it. Local servers can be very cheap and so transfer it once the IOC funding expires. This could be a good solution in the event that membership dues are found to be insufficient going forward.

The FlukeBook database and humpback whale fluke matching platform is a major initiative that is currently being worked on. This is the first major activity to be undertaken by the Consortium in a collaborative manner and considered a “first win”. Drew Blount of WildMe had presented a keynote presentation during the HWWC on Flukebook, and as such the time was not taken to present it during the workshop in any detail. It was understood that Flukebook in its initial manifestation represents an online platform for contributors to upload their humpback whale fluke photo-identification data and compare it across the region with all data uploaded by other contributors. It will also endeavor to encompass other types of data, such as tracking, survey and effort, tissue and genetic samples, and stranding data. In discussion the question of protection of data ownership was raised. It was explained that in the conceived format of Flukebook there will be a “Silo Security” system (currently under development and implementation), through which contributors cannot access each other’s data unless each has approved the other as shared data users. Flukebook has various confidentiality agreements that will be explicitly laid out during development and implementation. These concerns were further emphasized by a participant’s comment in regards to the SPLASH collaborative project that focused on humpback whales in the entire North Pacific during 2004-2006. In SPLASH, the commenter noted that it was quite unusual because the steering committee already had a set of priorities and ultimate control over the project, and in the end many contributors were not included as co-authors creating resentment. IndoCet was encouraged to think about how the various groups who are contributing are taken into account when a product is produced at the end, so that a similar outcome not occur here; it is important that the right people are coauthors. In response it was noted that Flukebook addresses this exactly, because of the confidentiality and data-sharing agreement this was specifically addressed. Two-way (or multi-party) data-sharing agreements will be developed and signed between each individual or institution, allowing them to work out their own agreements and assure fairness. Some concern was raised about this approach, as it seems easier and less ambiguous to have a single agreement with everyone and not just have numerous different agreements that may lead to confusion and distrust. In other areas that are examples of data sharing agreement in principal being added to an overarching MoU (such as the IndoCet MoU). In response it was emphasized that the primary intended purpose of IndoCet as originally conceived is to foster communication and collaboration among members, not act as an organization that oversees and implement projects, and this is in part the reason for the relatively short and concise MoU.

In context of the Flukebook/photo-id discussion, Tory Johnson as a representative of the program Happywhale, brought up the existence of this similar and somewhat complementary

software. Happywhale is more geared towards citizen science and is designed so that the wider range of the general public can directly contribute photographs. Fifou Mayer noted that Cetamada prefers that photos from whale watch operators are filtered, processed and uploaded by a research group in order to control data quality; this had been explicitly discussed among the IndoCet Founding members and Steering committee during the initial development of the matching platform initiative. Happywhale is more appropriate for citizen science, and Torey Johnson does the managing; this type of data “cleaning” has to happen somewhere along the line, requiring the resources for dedicated staff. It seemed that the best option for the consortium is to use Flukebook, and that HappyWhale is better working with whale watching groups. Claire Garrigue noted that using citizen science in catalogues is very complex and not ideal because the associated data is often lacking or unreliable; therefore, the two are generally kept separate in the SPWRC.

5.2 IndoCet Road Map

Following the discussion of these starting initiatives already in progress, the floor was opened to a round table among all participants to suggest and discuss future objectives, initiatives and actions that they would like to see the IndoCet Consortium move towards. The resulting suggestions are outlined here as a Road Map for promoting research and conservation in the WIO with six Priority Areas:

1. Knowledge improvement (Research)

- Flukebook online regional database and matching platform
 - o Build on existing initiative
 - o Promote involvement of colleagues from East African nations that are currently not involved
- REMMOA, REcensement des Mammifères marins et autre Mégafaune pélagique par Observation Aérienne
 - o This is the 2nd edition, now through 2019, of extensive aerial surveys for marine megafauna lead by the La Rochelle University, first conducted in the WIO region in 2008
 - o IndoCet can facilitate formation of partnerships throughout the WIO to contribute to and collaborate in the effort

2. Education, awareness and communication

- Development of educational materials
 - o Sharing among organizations
 - o Making available through website
- Establish connections between regional experts and colleagues that are looking for guidance and collaboration

3. Capacity Building (training)

- Mentoring students, and building skills as well as filling data gaps in key areas, e.g. Mozambique.

- Capacity building for genetics
 - o Regional students obtaining training in established experts labs
 - o Developing in regions laboratories for genetic work

4. Institutional strengthening

- Actively recruit members who are not yet involved, especially from East African countries (Mozambique, Tanzania, Kenya)
- IndoCet can facilitate formation of partnerships throughout the WIO to contribute to and collaborate in the effort
- Promote IUCN Important Marine Mammal Area (IMMA) initiative
 - o Workshops with invited experts to propose IMMAs for evaluation
 - o IndoCet can serve to facilitate these workshops during 2018/2019

5. Support of pilot projects

- COUTS – University of Toliara/ IHSM – Community engagement and field surveys of marine mammals in southwest Madagascar (Anakao)
- Cetamada – training for whale watching, working with regional tourism offices around Madagascar – NW, SW, SE, NE coasts

6. Formulation of detailed Regional Action Plan

- IndoCet can facilitate and host (provided funding is available and acquired) a specific multi-day workshop with the expressed purpose of developing a detailed Regional Action Plan. If funding can be secured for this effort, a workshop could be targeted for late 2018.
- Individual researchers can bring together their own priorities, compiling priorities from specific papers
- Align action plan to IWC priorities. For example noise, by-catch, or information gap filling.
- Topics suggested for future development towards a detailed Action Plan included:
 - o Field surveys across region on coastal dolphins, Indian Ocean humpback dolphins / Indo-Pacific bottlenose dolphins
 - o Population genetics of coastal dolphins to define structure and conservation units for *Tursiops* and *Sousa*
 - o Region-wide genomics project on humpback whales
 - Existing efforts involve samples from some locations, but do not include all available sampling sites
 - Gaps for additional sampling sites should be identified
 - o Region-wide satellite telemetry project on humpback whales
 - Existing data has been published for Comoros, Madagascar and Reunion

- Additional coordinated effort throughout region would be valuable
- Passive Acoustic Monitoring on regional level for humpback whales and other cetaceans
 - Coordinate the collaboration of colleagues with existing data, including samples from Northwest Madagascar, Tanzania, and Reunion during 2016-2017, and Northeast Madagascar during 2012-2014
 - Additional coordinated effort throughout region, particularly filling gaps in monitoring in key regions such as Kenya, Mozambique, South Africa
- Development of Stranding database and tissue bank
- Health Assessment of key species, such as coastal dolphins and humpback whales
- Region-wide assessment of incidental by-catch in artisanal fisheries and directed hunting

The workshop was ended at 18:00 after brief closing statements by Salvatore Cerchio thanking all participants for their attendance and contributions.

III. IndoCet Flukebook Workshop

Agenda for IndoCet Flukebook meeting, July 7, 2017, 13:30-17:30

1. Presentation by Drew Blount of WildMe on Flukebook platform progress
2. Presentation by Gianna Minton on ASWN priorities and input
3. Question and answer session for IndoCet members
4. Planning next steps

List of Participants:

Drew Blount
Salvatore Cerchio
Violaine Dulau
Claire Garrigue
Zoe Glenard
Fifou Mayer
Giana Minton
Anjara Salama
Laurene Trudelle
Michel Vely

The purpose of this half-day workshop was to take advantage of the presence of Drew Blount, programmer for WildMe, so that those IndoCet Founding Members at the HWWC could meet with him and discuss the status of the IndoCet Flukebook initiative. After several rounds of interactions with the WildMe leads over the previous months, a Terms of Reference for the development of the Flukebook platform had been drafted and reviewed. The resulting ToR (provided separately as an Addendum) represented the reconciling of the desired functionalities drafted by the IndoCet Steering Committee with the assessed costs of WildMe and the level of funding provided by IOC / COI. This process was done in coordination with the Arabian Sea Whale Network (ASWN), which has also recently signed a contract with WildMe for Flukebook development. Coordination of the efforts allowed that the two separate ToRs with separate funding bases were complimentary and worked together synergistically to provide the fullest suite of functionality possible from a common Flukebook platform.

The meeting began with an informal and brief introduction from Drew Blount describing the main features of the IndoCet ToR; these focused primarily on the development of Silo Security for data-sharing agreements, and the development of the work flow process for comparing humpback fluke catalogs, along with uploading capabilities. This was followed by a short description, by Giana Minton, of the ASWN Flukebook initiative and the areas of focus on their ToR; these focused primarily on development of a comprehensive database for all important data types, which is complementary to the fluke comparison process, and the capability for uploading all data types from the AS regional partners.

An open question/answer and discussion session followed, in which the following key points and decisions were made:

- Explanation of Silo Security and clarification of the “virtual” aspect of an IndoCet “database”
 - o The Flukebook database is a single framework with a central server that holds all data for all partners/contributors globally.
 - o It is the Silo Security system, and a network of data-sharing agreements that create the “virtual” appearance of a regional database; i.e., a subset of contributors, all from the same region (in our case the WIO) that have an agreement to share and see each other’s data.
- Discussion of data sharing and priority of levels of comparisons
 - o There was the realization of the need for an option to compare within your dataset first before comparing to other datasets. This is required to reconcile new data with your existing individual catalogue and report out for your individual work. Therefore several levels of comparison were conceived and decided upon that would allow separate processes of internal comparison, as well as comparison with individual partners or the entire IndoCet consortium.
 - o DECISION: Create function to conduct internal comparisons within own dataset first
 - o DECISION: Create ability to compare with single individual contributors (i.e., through a “Compare > User:[accountname]” function)
 - o DECISION: Create ability to compare against the IndoCet contributors (i.e., through a “Compare > Usergroup: IndoCet” function)
- Timing – ToR indicates 4 months, but only allows 2 weeks for testing – may need more time
- Upload and populating database
 - o Uploading photos – moving towards *bulk upload* – this will be a functionality necessary so that contributors can upload an entire set (i.e., a season’s worth) of previously reconciled data (i.e., processed to the point of one ID per individual per day)
 - o Photo upload is distinct from *data import* which refers to the data associated with each photo – we need a specific importer for a set of specific database structures
 - o For testing purposes users that will be providing data to FlukeBook for import should withhold a year or two of data in order to test data import and comparison functions
- Need to establish workflow process from field to data-import to comparison
 - o There will be a process to conduct “within year” comparisons before comparing newly imported data to the existing catalogue
 - o Need to decide how we deal with naming individuals at the various stages through the progression of comparisons.
- Outstanding list of concerns and issues for discussion
 - o Q: Can we flag manual matches – A: yes.
 - o Q: If users upload to existing Flukebook, will it be easily updateable to the new IndoCet structure – A: need the dbase mapping stage first so that initial data import can be done.

- Need a project coordinator for phase 2
- Q: Making alterations to database – can this be done by users – A: yes.

By the end of the allotted time, it was generally agreed that we did not have enough time to cover all topics or go into great detail. Therefore, it was clear the follow-up communication between IndoCet and WildMe will be required over email. The meeting closed with the understanding that Drew Blount/WildMe would provide a several deliverables at the start of implementation as already stated in the contract, that would reflect the discussions and decisions made during this workshop. These include a SECURITY DESIGN DOCUMENT, a STYLE DESIGN DOCUMENT, a DATA MAPPING DOCUMENT, which will then be followed by a DATA CURATION DESIGN DOCUMENT to be drafted by the IndoCet Coordinator for the Flukebook initiative. It was noted that we are already behind schedule as indicated in the ToR, so this will need to be revised.