



CONVENTION ON MIGRATORY SPECIES

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THIRD MEETING OF THE SIGNATORIES TO THE
MEMORANDUM OF UNDERSTANDING FOR THE
CONSERVATION OF CETACEANS AND THEIR
HABITATS IN THE PACIFIC ISLANDS REGION
Noumea, New Caledonia, 8 September 2012
Agenda Item 2.2

OPENING STATEMENTS BY COLLABORATING ORGANIZATIONS

- a) **Whale and Dolphin Conservation Society**
- b) **Whales Alive**
- c) **Conservation International**
- d) **South Pacific Whale Research Consortium (revision)**

WDCS collaborating organization statement for the PI Cetaceans MoS3

1. WDCS, Whale and Dolphin Conservation Society, is an international non-governmental organization with cetacean protection activities spanning more than 25 countries around the world. WDCS expertise crosses the spectrum from conservation science and field research, to the development of habitat protection models and policy implementation.

2. WDCS believes that CMS is the only international implementing treaty that provides a flexible platform to develop measures that can be tailored to particular conservation needs, and has the mechanisms to implement on-ground conservation activities, attributes that offer a great potential for multiple threat mitigation and the protection of endangered species.

3. WDCS has a formal *Partnership Agreement* with CMS, and maintains a *Joint Programme of Work* designed to directly support the CMS Strategic Plan. The *Partnership Agreement* commits WDCS and CMS to working in Partnership towards cetacean conservation at the international level, including continuing to work with ACCOBAMS, ASCOBANS, the Pacific Cetaceans MoU, the Western African Aquatic Mammals MoU and future CMS cetacean related agreements and MoUs in their development, resourcing, on-ground implementation and promotion.

4. WDCS has served as the Coordinator of the Technical Advisory Group for the CMS Pacific Cetaceans MoU since the 2nd MoP in 2009. WDCS believes this group serves a useful role in assisting Signatories in implementing the CMS Pacific Cetaceans MoU and so was pleased to have been endorsed to deliver this role.

Below is a brief summary of work undertaken by WDCS since PI Cetaceans MoS2. Activities are organized by theme as they appear in the regional whale and dolphin action plan with associated tasks listed in parentheses.

Theme 1: National, regional and international collaboration and cooperation

- Continuing commitment to the CMS/WDCS partnership and associated work programme (1.1)
- Coordinating the Technical Advisory Group for the CMS Pacific Cetaceans MoU. (1.1)
- Support to the CMS Secretariat on reporting Pacific Cetaceans MoU progress to various international fora (1.1)
- Active engagement in CMS secretariat, associated meetings and CMS CoP10 including drafting of the global programme of work for cetaceans, participation in bycatch and aquatic mammals working groups, and provision of briefings for CMS parties on relevant marine resolutions and issues (1.1)
- Poster to the 2nd International Conference on Marine Mammals on spinner dolphin research and MPA development in Fiji (1.4)
- WDCS Pacific Island Programme leader is currently placed at the University of the South Pacific. WDCS and USP have an MoU regarding student engagement in cetacean projects, support of cetacean research, delivery of lectures to undergraduate students and advising post-graduate students (1.6)
- Collaboration with the only dolphin watch operator in Fiji to facilitate research projects and ensure best practice (1.5)
- Working with various Pacific Island governments to provide support for inclusion of the priorities and objectives of the CMS Pacific Cetaceans MoU (and associated action plan) within national cetacean action plans and marine environment initiatives. (1.8)

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Theme 2: Threat reduction

- Inclusion of appropriate IUU records in the WDCS PIR cetacean report. (2.4)
- Support for development of national databases for collection of important species diversity information. (2.7)
- Documentation of regional cetacean diversity through the WDCS PIR cetacean report. (2.7)
- Support of Fiji Fisheries to initiate a land-based sighting project for assessing trends in humpback whale migration from 2010-2012 (2.7)
- Attendance by the WDCS team at the CITES Animal Committee. (2.10)
- Initial discussion of climate change impacts on Pacific cetaceans is given within the WDCS PIR cetaceans report. (2.11)
- Threats including plastics and debris have been discussed at regional training workshops. (2.12)
- A regular marine debris collection has begun with the dolphin watch operator in Viti Levu, Fiji. (2.12)
- Research on a pod of spinner dolphins in Moon Reef, Viti Levu has been ongoing since 2008. This work is being done in collaboration with the only dolphin watch operator in Fiji. This project is working towards establishing baseline information on this species while frequenting they rest on a daily basis within a coastal reef complex. Project aims are to document relative residency of pod members, estimate population size, to quantify the activity budget of these animals, and analysis of acoustic communication patterns. This research will assist in assessing ecotourism impacts on these animals and be useful for local and national management plans. (2.16, 2.18)
- WDCS has been noting with concern seismic surveys and potential for acoustic harassment within the PIR. As appropriate submissions have been made in relation to regional seismic surveys and acoustic hazards. (2.23)

Theme 3: Ecosystem/Habitat protection

- Support of national efforts to declare EEZ whale sanctuaries and develop associated management plans in PNG and Fiji. (3.1, 3.4)
- Initial environmental modelling of important features for cetaceans in Fijian waters is underway. Results will be forwarded to the Ecosystem /habitat protection working group. (3.2)
- Distribution of Erich Hoyt's book "Marine Protected Areas for Whales, Dolphins and Porpoises" to relevant stakeholders (3.3)
- WDCS was a strong participant and facilitator at the 2nd International Conference on Marine Mammal Protected Areas held in 2011 (3.4)

Theme 4: Capacity Building

- Research surveys on cetacean diversity were conducted using line-transect survey methodology in Mbuke, PNG in late 2010. These surveys were done in partnership with the PNG Department of Environment and Conservation, University of PNG students, Mbuke Environment Committee members and Mbuke village. A workshop component prior to the surveys ensured that all team members were trained in field methods, equipment use, and survey design. In addition, background information on cetaceans and habitats was also provided. (4.2, 4.7)
- Ongoing surveys in Moon Reef, Fiji include both University of the South Pacific post-grad students as well as members of the local environment management group (Dawasamu Environment Movement) as part of the research team (4.2)
- The Fiji land-based humpback whale project (2010-2012) includes staff from Fiji Fisheries Department, Fiji-based NGOs (including WWF, WCS, FIVS) and students from the University of the South Pacific as well as a number of local high schools. To date more than 150 people have participated in these surveys. Training is provided to all participants with workshops conducted prior to each year's field work. (4.2)
- Numerous post-graduate research projects on cetaceans have been conducted. Topics include: Population viability analysis of spinner dolphins at Moon Reef (Fiji), review of tabua in Fiji, cetacean diversity in Savaii (Samoa), analysis of trends in humpback whale records in Fijian waters, and acoustic repertoire of spinner dolphins in Moon Reef (Fiji) (4.3)
- WDCS provides ongoing support to the Fiji government to maintain their national cetacean sightings and strandings database. (4.6)
- WDCS/USP presented and prepared training materials for the Tongan whale watch training workshop that was held in Vava'u in March 2012. This workshop was facilitated by the Tongan Business Enterprise Chambers, Tongan Visitors Bureau and Southern Cross University. More than 60 staff from the Tongan whale watch industry participated. (4.7)

Theme 5: Education and awareness

- WDCS responds to numerous requests for technical support and capacity building from PICTs with a focus on assisting Pacific Cetacean MoU Signatories. Several workshops have been convened with numerous others proposed for future delivery. The primary focus of these national workshops was to assist in capacity building for in-country researchers, students and government staff who are involved with national marine conservation initiatives. (5.1, 5.3)
- Resources in terms of species identification handbooks, educational materials and awareness information have been provided to workshop participants in Fiji and PNG. (5.3)
- Technical support has also been provided to Pacific cetacean researchers and government officers in terms of informal guidance on survey design, technical reporting and proposal writing. (5.3)
- An essay entitled “Whales of the Pacific” appeared in the recently published book – Whales and Dolphins: Cognition, culture, conservation and human perspectives was co-authored by WDCS. (5.7)

Theme 6: Cultural significance and value

- USP post-graduate projects (with WDCS serving as an advisor) include: an assessment of the cultural significance, use and history of sperm whale teeth in Fiji. (6.1, 6.6, 6.9)
- See above (5.7)

Theme 8: Research and monitoring

- As part of the Partnership Agreement with CMS, WDCS has developed and donated www.pacificcetaceans.org which will work towards providing a portal of official information related to the Pacific Cetaceans MoU and in time a facility to directly upload sighting and stranding information. (8.1, 8.7)
- Community records and local knowledge have been obtained for inclusion within the WDCS PIR Cetaceans report, as well as during regional training workshops in Fiji, PNG, and FSM – including information submitted from Vanuatu, Solomon Island, Tuvalu and Tongan participants also in attendance. (8.2)
- One of the key objectives of the WDCS PIR Cetaceans report is to provide species inventory lists for each PICT. This document is the first to provide regional country/territory information and forms a baseline document for Pacific cetacean diversity. (8.8)
- WDCS provided support to the Samoan government to undertake cetacean surveys in 2011. (8.8, 8.9)
- Passive acoustic monitoring of spinner dolphins in Fiji was initiated in Feb 2011. Acoustic recordings of humpback whales have been underway since 2010. Proposed research on additional species is planned for later this year in Fiji. Line-transect surveys in PNG also included systematic acoustic listening stations and recordings. (8.8, 8.9, 8.12)

Theme 9: Whale and dolphin-based tourism

- WDCS/USP presented and prepared training materials for the Tongan whale watch training workshop that was held in Vava'u in March 2012. (9.6 – and see 4.7)
- Recent research conducted in Viti Levu, Fiji has been undertaken in collaboration with the only dolphin watch operator in Fiji. This project is working towards establishing a scientific baseline on a pod of spinner dolphins that regularly rest within a coastal reef complex. (9.9)
- The partnership with the Fiji dolphin watch operator and WDCS has also allowed the exchange of information regarding WW best practice and progress of an ecosystem-based management plan (of which Moon Reef will sit as a MPA within), use of the vessel as a research platform, development (by WDCS) of onboard educational materials, and inclusion of the operator in ecotourism lectures held at USP. (9.3, 9.4, 9.7, 9.9, 9.10)

Whales Alive - Collaborating Organisation
Report to the CMS Pacific Cetaceans MOU MOP III
Noumea, Sep, 2012

Distinguished Country representatives, colleagues and CMS MOU partners,

Whales Alive sends apologies that we are not able to attend the meeting and wishes delegates the very best for a productive and inspiring meeting.

Implementing the CMS MOU is our collective responsibility and one which is no small task. Whales Alive applauds the CMS Secretariat and SPREP for appointing the regional CMS position (Penina). We commend our Pacific Island Partners for what they have achieved for cetacean conservation since the last MOP in 2009 and we urge our government partners from Australia and New Zealand to take leadership in assisting the implementation of the MoU across the region.

In the last 3 years, Whales Alive has been working in a number of ways to implement the MoU: In Niue are assisting the implementation of Niue's Whale Sanctuary Management Plan. We have:

- Conducted 3 seasons of cetacean research in partnership with Oma Tafua (funded by SPWRC)
- Convened a national meeting on the management of whale watching and contributed to the review of whale watching guidelines
- And conducted public education in schools and public venues

In Palau we are working in partnership with the Bureau of Marine Resources and Sustainable Decisions to assist the development and management of Palau's 2010 national marine mammal sanctuary. We:

- Conducted a study on the feasibility of marine mammal tourism
- Conducted the first dedicated marine mammal surveys in Palau waters (funded by Australia's IPF)
- Ran a cetacean research training workshop for government and industry
- Convened a government round table on sanctuary management
- And conducted public education

Whales Alive continues to provide technical advice on marine mammal conservation and management to SPREP members and CMS MoU partners. We have contributed to the review and development of the new SPREP WDAP and urge the meeting to fully endorse it, with no amendments, as the vehicle to implement the CMS MoU so that we have one action plan in the region and not two (because of a few wording differences) as it was in the last 4 years.

We look forward to working with you all to implement the next action plan.

Best regards,

Olive Andrews

Program Director, Whales Alive

**Meeting of Signatories to the CMS MoU on Pacific Islands Cetaceans
Noumea : 9 September 2012**

Statement on behalf of Conservation International

Conservation International (CI) congratulates the signatories to the CMS MoU on Cetaceans in the Pacific Islands Region on the progress that has been achieved in the protection of cetaceans in the region since the MoU took effect. We regret that we shall not be able to attend this meeting as an observer. While CI is not a signatory to the MoU, some members of the Pacific Islands and Oceans Programme have helped to deliver significant achievements in cetacean conservation in the region in recent years through their activities as members of the South Pacific Whale Research Consortium; and also in association with regional bodies, notably SPREP, and other international NGOs, such as the Pew Foundation.

CI notes that the Pacific Oceanscape Framework, which has been endorsed by all Pacific Islands governments, and is probably the most ambitious and successful collaborative ocean conservation and management initiative ever undertaken, has an Ocean Voyagers component, which is specifically intended to address conservation issues related to cetaceans in the Pacific Islands region (as well as turtles, sharks and highly migratory fish species, such as tuna).

Conservation International would be pleased to discuss with signatories to the CMS MoU on Pacific Islands cetaceans the opportunities that may be presented for collaborative efforts to protect cetaceans in the region.

We wish you every success with your meeting.

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**Meeting of Signatories to the CMS MoU on Pacific Islands Cetaceans
9 September 2012**

Statement on behalf of the South Pacific Whale Research Consortium

The South Pacific Whale Research Consortium (the Consortium) welcomes the opportunity to participate in the Meeting of Signatories to the CMS MoU on Pacific Islands Cetaceans, held in Noumea on September 2012. The Consortium will be represented by Dr Claire Garrigue.

The Consortium is both a signatory to the MoU and a practical contributor of research data and policy advice. On the research side, Dr Marc Oremus has recently conducted a study of the abundance and distribution of the Indo-Pacific bottlenose dolphin, *Tursiops aduncus*, in the coastal waters of Guadalcanal in the Solomon Islands. His report is currently being peer-reviewed, but the Consortium is pleased to submit to the meeting a poster that has been produced for consideration at the IUCN General Assembly currently being held in Jeju, South Korea. In brief, his extensive surveys strongly suggest that the past levels of dolphin exports for display in overseas facilities are not sustainable; that the depletion of the original population has been substantial; and that the local dolphins now show anomalous behaviour for this species, inasmuch as they avoid small boats, rather than approaching them. Dr Oremus estimates that the sustainable level of take for *T.aduncus* around Guadalcanal is now extremely low.

Other research programmes that may be of relevance to the meeting are:

1. the aPOD (a pattern of dolphins) study currently being conducted by Dr Scott Baker through the award of a Pew Fellowship and of the Fonds Pacifique. The study's objective is to establish the connections between dolphins of 3 species (spinner, bottlenose, rough-toothed) in the Pacific Islands, mainly by examining genetic relationships. Sampling surveys have so far been carried out in the Society Islands, the Marquesas Islands, Samoa and Vanuatu. Surveys are also planned for Fiji in 2013. Results will be published in 2013.
2. The Expedition Marquesas photo-ID and biopsy sampling project last April, in which the aPOD project was a collaborator which was mainly funded by French Polynesia's Ministry of the Environment, and was directed at several species of dolphins around six islands.

On the policy side, Consortium members have been involved in the drafting of the Oceania Humpback Whale Recovery Plan, which we urge participants to endorse. We consider this Plan to provide an excellent chart to guide a coordinated effort to facilitate the recovery of humpback whales in the Pacific Islands region.

Members have also been involved in the ongoing Comprehensive Assessment of humpback whales in Oceania by the International Whaling Commission. A recent publication¹ provides the first estimate of abundance for these populations and suggests that the rate of recovery has been slow compared to some other populations in the Southern Hemisphere. The Consortium has started planning for the development of a research project to address two key deliverables from this Plan: (i) a second abundance estimate for the endangered Oceania humpback whale population and (ii) a large scale satellite tagging study of Oceania humpback whales in association with the IWC's Southern Ocean Research Partnership.

We look forward to an ongoing close relationship with CMS.

¹ Constantine R, Jackson J, Steel D, Baker CS, Brooks L, Burns D, Clapham P, Hauser N, Madon B, Mattila D, Oremus M, Poole M, Robbins J, Thompson K, Garrigue C (2012) Abundance of humpback whales in Oceania using photo-identification and microsatellite genotyping. Marine Ecology Progress Series 453: 249-261

Population status of Indo-Pacific bottlenose dolphins, *Tursiops aduncus*, in the Solomon Islands and assessment of live-capture sustainability



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BACKGROUND

The Solomon Islands (SI) have a long history of traditional drive-hunting of dolphins to collect teeth used as dowry, currency and adornments¹. In 2003, a new trade was initiated for live-capture of Indo-Pacific bottlenose dolphins (*Tursiops aduncus*, Fig. 1) for export and public display. This species is usually not targeted by SI drive-hunters and tends to form small resident populations, raising concerns by the IUCN, CITES, CMS and SPREP about the potential conservation risks of such removals. To date, the only existing local regulation is a quota of 50 dolphins exported per year. A review under the auspices of the IUCN Cetacean Specialist Group with international experts suggested that this quota is unlikely to be sustainable². According to CITES, 108 *T. aduncus* were exported from SI since 2003 (all captured around Guadalcanal or Malaita). The real number of dolphins removed could be much larger, as the mortality during capture and captivity is not reported. To assess this activity, the South Pacific Whale Research Consortium developed a research project, in collaboration with the SI Government, to provide basic scientific knowledge to inform management decisions involving the removal of dolphins.

OBJECTIVES of the STUDY

- Describe community structure of *T. aduncus* around the islands of Guadalcanal, Florida Islands, Santa Isabel and Malaita.
- Estimate abundance of *T. aduncus* at these study sites.
- Calculate Potential Biological Removal (PBR) for management of any future anthropogenic removals.
- Provide recommendations for future management of dolphin populations in the Solomon Islands.



Figure 2: Photograph of a *T. aduncus* showing distinctive features on its dorsal fin useful for individual photo-identification.

METHODS

Study site and effort

Systematic small-boat surveys were conducted at four islands around, or near, which dolphins have been captured, during three survey periods (Fig. 2): 19 in Nov 2009, 20 in Nov 2010 and 23 in Jul 2011. 3848 nautical miles (NM) were covered, primarily along coastline (73% at < 1NM from shore).

Data collection

GPS positions and estimated size of groups were recorded. Dorsal fins photos were taken (Fig. 1) of as many dolphins as possible for the individual photo-identification. Photos were graded for quality and distinctiveness².

Analyses

Site fidelity was assessed using sighting-resighting history and maximum likelihood (ML) analyses implemented in SocProg³.

Population abundance estimates were performed using four closed-population models from Capture⁴, adjusting for the proportion of unmarked individuals. Sustainability of removals was assessed using the PBR method, with $R_{max} = 0.04$ and two values of recovery factor (Fr), including Fr=0.1, as recommended for very small populations⁵.

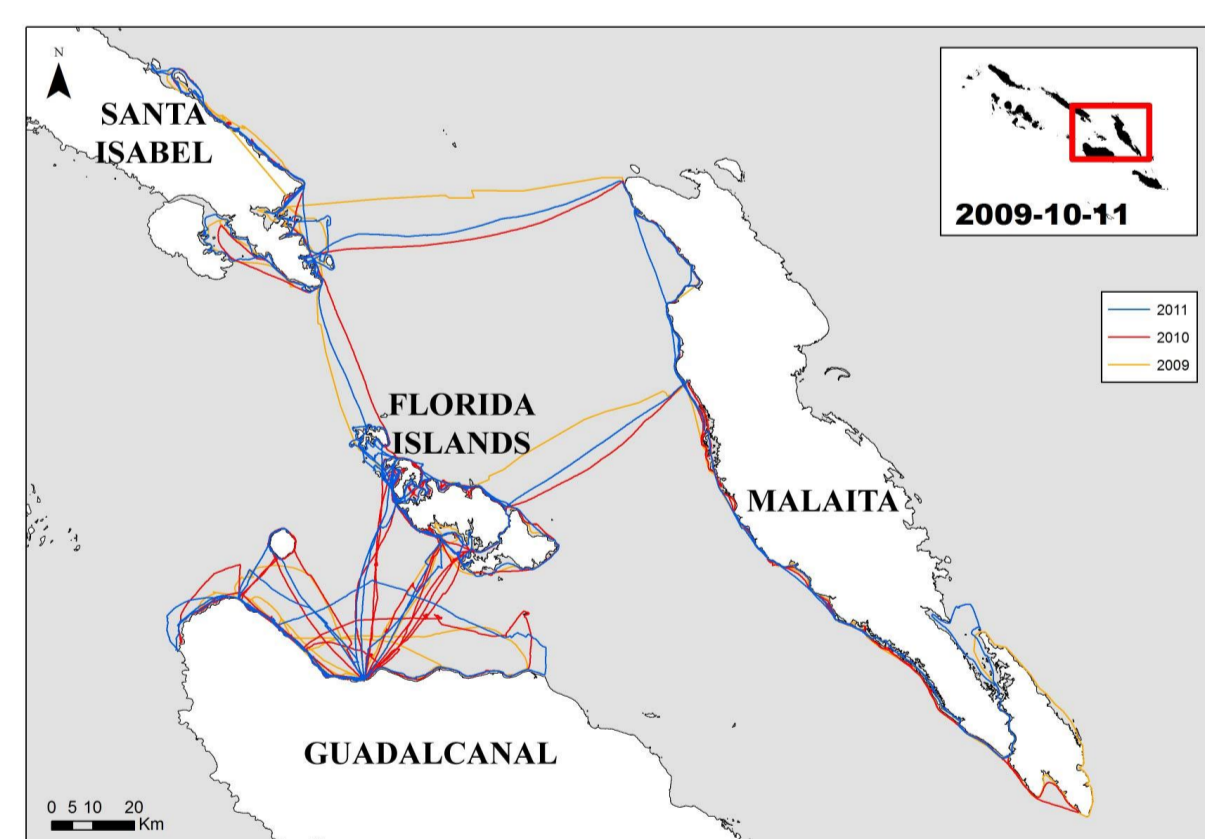
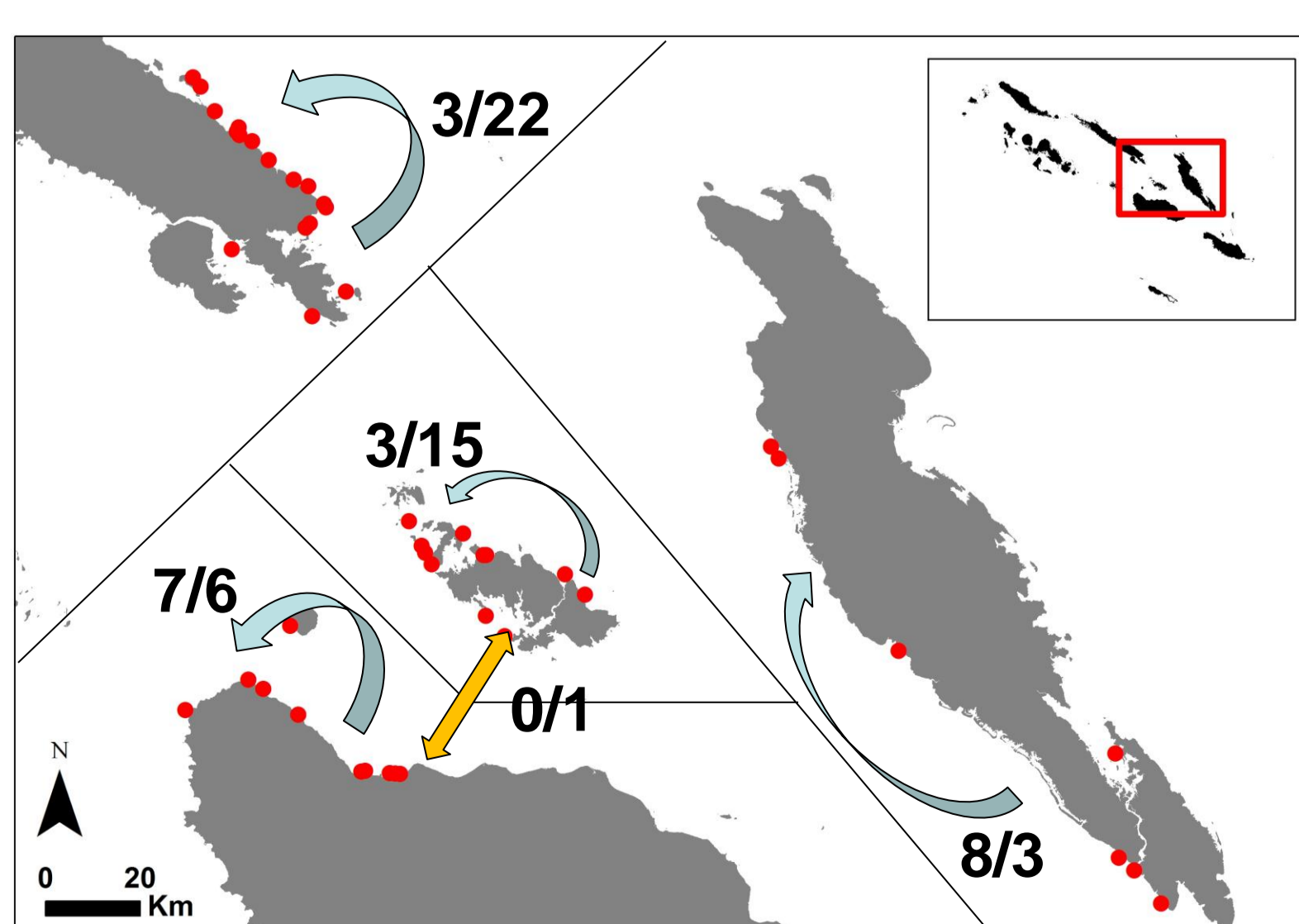


Figure 2: Map of the study area and boat tracks over the 3 years project

DOLPHIN ENCOUNTERS



Groups of *T. aduncus* were encountered at all study sites ($n_{TOT}=45$, Fig.3). Average group size was 10.6 dolphins (SD=10.5). All groups were seen within 1.5NM from coastline (average of 0.39NM) and within less than 100m depth.

Figure 3: Positions of *T. aduncus* encounters and history of photographic re-sighting within and between the four study sites, showing # of resightings (within year/between year).

T. aduncus are widely distributed in the Solomon Islands with preference for coastal and shallow waters, as found is other locations².

MOVEMENTS AND SITE FIDELITY

225 unique dolphins were identified using photo-identification. 68 resighting events were found, including 22 within year and 46 between years. All but one resighting was made within one or the other study sites (Fig. 3), suggesting strong level of site fidelity. This result was confirmed by ML analyses indicating low probability of movements between study sites.

Sighting-resighting history suggests that each study site shelters independent populations of *T. aduncus*, i.e., distinct 'units to conserve'.

ABUNDANCE ESTIMATES

Given evidences of high site fidelity at the four study sites, population abundance of *T. aduncus* was estimated separately for each site.

Table 1: Abundance estimates at the four study sites using four-closed population models

	Mo		Mt (Chao)		Mh (Chao)		Mth (Chao)	
	N (95% CI)	CV	N (95% CI)	CV	N (95% CI)	CV	N (95% CI)	CV
Guadalcanal	132 (84-264)	0,33	98 (69 – 182)	0.28	162 (93-359)	0.39	126 (75-175)	0.43
Florida Islands	131 (102-198)	0,20	120 (95-177)	0.18	158 (111-271)	0.25	137 (92-309)	0.35
Santa Isabel	252 (197-352)	0,16	249 (191-361)	0.18	327 (232-510)	0.22	287 (187-567)	0.31
Malaita	459 (200-1263)	0,53	283 (148-685)	0.44	644 (256-1888)	0.58	570 (223-1751)	0.60
SUM of ALL	973 (582-2078)		750 (503-1405)	-	1291 (691-3027)	-	1120 (577-2802)	-

All study sites were found to shelter small communities (Table 1), in the low hundreds at most, despite low precision for estimates of Malaita.

POTENTIAL BIOLOGICAL REMOVALS

Based on abundance estimates and recovery factor of 0.1, the PBR for Guadalcanal and Florida Islands is one dolphin every five years. For Santa Isabel and Malaita the PBR was one dolphin every two and a half years (Table 2).

Table 2: Values of PBR calculated for the different study sites and overall, depending on the model of population abundance and on two values of recovery factor (Fr).

	Mo		Mt		Mh		Mth	
	PBR (Fr=0.1)	PBR (Fr=0.5)	PBR (Fr=0.1)	PBR (Fr=0.5)	PBR (Fr=0.1)	PBR (Fr=0.5)	PBR (Fr=0.1)	PBR (Fr=0.5)
Guadalcanal	0.2	1.0	0.2	0.8	0.2	1.2	0.2	0.9
Florida Islands	0.2	1.1	0.2	1.0	0.3	1.3	0.2	1.0
Santa Isabel	0.4	2.2	0.4	2.1	0.5	2.7	0.4	2.2
Malaita	0.6	3.0	0.4	2.0	0.8	4.1	0.7	3.6
SUM of ALL	1.5	7.3	1.2	5.9	1.9	9.3	1.5	7.7

Authorized export quota and the effective number of dolphins exported since 2003 (average 12 dolphins per year) are likely to be unsustainable, even considering the combined abundance estimates.

RECOMMENDATIONS

- Any quota to be set should be specific to the unit to conserve, i.e., the species and the population, as identified by scientific studies.
- Given evidence of a likely past impact on the local populations of *T. aduncus* targeted for live-capture, no future capture should be allowed in areas where data are unavailable on population status.
- Any future quotas should not exceed the PBR. Given past exploitation, we recommend use of the conservative recovery factor (Fr = 0.1).
- Any quota should refer to "capture" event and not "export", as it is currently the case. By referring to "export", the quota ignore mortality events that are potentially numerous during capture and captivity.
- Any capture should be attended and supervised by local authorities and documented (e.g. timing, location, species, sex) including collection of size measurements, DNA samples and dorsal fin photographs.
- Considering the likely impact on the Guadalcanal population (potentially as much as half of the population was removed), a moratorium on capture is recommended for this population to allow recovery.
- A monitoring program should be developed to document the recovery (or not) of the populations in impacted zones. Furthermore, future research effort should extend the study area to cover the entire coastline of Guadalcanal and Malaita.

ACKNOWLEDGEMENTS

We thank the Government of Solomon Islands as primary sponsor of this project. We also thank the Pew Environment Group (through ST) and the IWC Small Cetacean Fund for supporting field expenses, data analyses and report preparation, and the Pew Fellowship in Marine Conservation (to CSB) in support of the larger study of genetic diversity in dolphins of the South Pacific. We greatly appreciate the assistance of the SI MFM and MECMD for providing field and technical assistance, as well as for providing research an CITES permits. Thanks to Kirsten Thompson and Mélanie Hamel for help with laboratory analyses and figures, respectively.

REFERENCES

- 1) Takekawa D. (1996) The Method of Dolphin Hunting and Distribution of Teeth and Meat: Dolphin Hunting in the Solomon Islands 2. *Nat. Mus. Ethno.* 42:67-80.
- 2) Reeves R.R., Brownell Jr. R.L. (2009) Indo-Pacific bottlenose dolphin assessment workshop report: Solomon Islands case study of *Tursiops aduncus*:53p
- 3) Whitehead H. (2009) SOCPROG programs: analysing animal social structures. *Behav.Ecol.Socio.* 63:765-778.
- 4) Rexstad E., Burnham K.P. (1991) Users guide for interactive program CAPTURE. Abundance estimation of closed animal populations.
- 5) Wade P.R. (1998) Calculating limits to the allowable human-caused mortality of cetaceans and pinnipeds. *Mar. Mamm. Sci.* 14:1-37.