

# Discussion on Research and Conservation of Irrawaddy Dolphins in the Ayeyarwady River (following the workshop on Mekong River dolphins)

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25 April 2014

Anise Villa Hotel, Phnom Penh, Cambodia

## Participants:

Helene Marsh, President, Society for Marine Mammalogy (Co-chair)  
Randall Reeves, Chairman, IUCN/SSC Cetacean Specialist Group (Co-chair)  
Andrew Read, Duke University, USA (Rapporteur)

Aung Myo Chit (consultant, Myanmar, via Skype for preliminary discussion and slide presentation)

Robert Brownell (NOAA, USA)  
Gordon Congdon (independent, former WWF-Cambodia)  
Victor Cowling (WWF-Greater Mekong)  
Julia Goss (independent researcher, USA)  
Thomas Gray (WWF-Greater Mekong)  
Frances Gulland (Marine Mammal Centre, USA)  
Gerry Ryan (WWF-Cambodia)  
Brian Smith (Wildlife Conservation Society)  
Peter Thomas (US Marine Mammal Commission)  
Randall Wells (Mote Marine Laboratory, USA)

Marsh welcomed the participants and very briefly reviewed the history of research and conservation efforts with this freshwater population of dolphins. The group listened to a slide presentation by Aung Myo Chit delivered via Skype and reviewed material from the documents listed at the end of this report. On the basis of this background information as well as the first-hand knowledge of participants, the group reached the following conclusions.

## Surveys

Reliable population estimates are a critical component of the monitoring program for any species-oriented conservation, particularly when it pertains to a critically endangered population. However, the group concluded that there are no reliable estimates of total abundance or trends for this population. The direct-count survey conducted in 2004 indicated a minimum of 72 animals in the population at that time

(Smith and Tun 2007). The most recent (2014) WCS direct-count survey reportedly resulted in a count of 68 individuals (*Myanmar Times* February 25 2014)<sup>1</sup>.

Participants **recommended** that future surveys of the existing range use more robust methods, such as the combined visual and acoustic methods described by Richman *et al.* (2014). They also concluded that consideration should be given to photographic capture-recapture methods using both permanent and non-permanent markings such as scars and tooth rakes. There appear to be relatively few permanently marked animals in the Ayeyarwady population, making traditional photographic capture-recapture abundance estimation difficult or impossible.

### Habitat Degradation

The group reviewed available information on dredging for gold in the mainstem of the river. Because of sedimentation and mercury toxicity, gold mining is of concern with respect to both the future viability of the dolphin population and the general health of the river ecosystem. Gold mining using dredges has been banned in the recent past, due to concerns regarding navigation hazards, but it is unclear whether this ban is still in place. If it is, then based on recent surveys conducted by the Myanmar Department of Fisheries and the WCS Myanmar Program and recent observations made by Aung Myo Chit, it appears that the ban is not currently being enforced.

### Behavior

Very little is known about the behavior of the dolphins in the Ayeyarwady River. It would be useful to understand more about the movement patterns of individuals with respect to the fragmented range of the population and, specifically, about the question of whether dolphins move across defiles. If photo-identification using both permanent and ephemeral markings and better equipment proves feasible, this may be a way to improve understanding of movements of these animals.

The co-operative fishing behavior described by Smith and colleagues in the literature seems to have broken down in recent years due to decreased overall fish catches and disruption by electrofishing. A study is needed on the current status of the 'co-operative' fishery and the current behavior of dolphins in regard to fishing operations.

### Stranding Response

There is limited information on sources of mortality, anthropogenic or natural, of dolphins in the Ayeyarwady River and there is limited capacity to respond to or examine carcasses. Known levels of mortality indicated by recent strandings are of

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<sup>1</sup> On 28 April 2014, WCS Myanmar advised Marsh that the total number of dolphins sighted on that survey was 63.

concern, given the small size of the population. The group was unaware of formal necropsy reports or any information other than the summary statistics and photographs provided by Aung Myo Chit (2012) and Department of Fisheries and Wildlife Conservation Society (2013). Participants **recommended** that a mortality monitoring and carcass recovery network be established and that a site-specific necropsy protocol be developed to address known threats, taking into account the logistical challenges associated with data collection in this environment. At a minimum, basic data, including history of events surrounding carcass recovery, photographs, and observations of sex, length, condition, and external marks on the body, should be collected whenever possible. The group also stressed that training in carcass examination and data collection needs to be provided to key stranding responders<sup>2</sup>.

Aung Myo Chit has bones and teeth from five individuals and agreed to investigate the possibility of obtaining CITES permits to enable the specimens to be exported to laboratories with the expertise required to conduct genetic analyses and age determination.

### Fisheries Mortality

The group discussed the threats to this dolphin population from electrofishing and gill nets. A dolphin that stranded in 2009 is reported to have been killed in association with electrofishing. The animal had been speared, possibly accidentally during electrofishing, although the circumstances regarding the death of this individual are unclear. Fishermen often spear large fish that have been stunned by electricity. In general there is little formal documentation on the extent and impact of electrofishing, which is illegal but, according to the accounts of Marsh and Aung Myo Chit (2013) and Wildlife Conservation Society (2013), widespread in the Ayeyarwady. This situation signals a need for better information, including observations of electrofishing and details concerning actions taken by management authorities to control the practice.

Very little information is available concerning mortality of dolphins in gill nets, although there have been reports of such incidents. This reinforces the need for standardized examination of stranded dolphins, particularly for external signs of contact with fishing gear.

### Hydroelectric Development

Plans to construct the Myitsone Dam project in the Ayeyarwady River basin are currently suspended. The proposed dams included in this project represent a threat to the dolphin population because of expected changes in geomorphology, primarily

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<sup>2</sup> Both Aung Myo Chit and WCS reported to Marsh in April 2014 that a retired local veterinarian had been recruit to conducted necropsies of dolphin carcasses recovered in the Irrawaddy dolphin Protected Area.

due to reduced sediment transfer downstream. There are also concerns regarding the movement of fish past these dams. This development would not result in fragmentation of the dolphin population because all of the proposed dams are outside its existing range. Participants **recommended**, however, that a rigorous assessment be conducted on the potential ecological impacts of planned dams in the entire Ayeyarwady River basin and that alternatives to the currently envisioned project be considered before any development proceeds.

## General

The group was mindful that the participation of international experts has been extremely useful to the Government of Cambodia and WWF-Cambodia in helping to establish conservation measures and structure research initiatives directed to Irrawaddy dolphins in the Mekong River. It was suggested that a similar approach could be beneficial in Myanmar. Therefore, especially given the significant uncertainties regarding the current status of the Ayeyarwady population, the group concluded that a useful first step would be for officials from Myanmar to convene a workshop involving in-country stakeholders and a small number of invited international scientists with relevant expertise. Marsh was charged with discussing the workshop proposal on her upcoming visit to Myanmar.

## Documents available to the group

Aug Myo Chit (2012). Evaluation of the Wildlife Conservation Society's Irrawaddy Dolphin Project conducted along the Ayeyarwady River in Myanmar (Burma). Unpublished graduate student report prepared for assessment at James Cook University, Australia.

Aug Myo Chit (2013). Way forward for Irrawaddy dolphin in Myanmar. PDF of PowerPoint presentation to group, April 2014.

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Myanmar Times February 25 (2014). WCS finds more Irrawaddy dolphins in Myanmar. <http://www.mmmtimes.com/index.php/national-news/9670-survey-finds-more-dolphins.html>.

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- Wildlife Conservation Society (2013). A summary report on law enforcement and monitoring activities in Ayeyawady Dolphin Protected Area December 2013.