SEAFDEC Initiatives on Cetacean Sighting in the Waters of Southeast Asia

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Many questions have always been raised on whether the waters of Southeast Asia really have large cetaceans such as whales in addition to dolphins that are often seen in the region's coastal areas. As it is widely recognized, most large cetaceans are highly migratory species and thus, are not often found on the continental shelves or coastal areas. Recently however, large cetaceans such as the blue whale, fake killer whale, Bryde's whale, and humpback whale calf, among others, have been frequently found stranded in the coastal areas in the region. The interaction of large cetaceans to the coastal habitats was therefore one of the questions raised during the various meetings of the SEAFDEC Council considering the present declining of cetacean stocks in the waters of Southeast Asia. In order to address such concern, SEAFDEC has continued to gather information on the distribution and composition of cetacean species in the region through a cetacean research program focusing on cetacean sighting in Southeast Asian waters.

Although cetacean research activities are currently being carried out in the region, most of the research works are focused mainly on the conservation of cetaceans and are mostly conducted by environment agencies and NGOs working with the fisheries sector. Meanwhile, the fisheries sectors in many countries of Southeast Asia have developed their respective programs on dolphin conservation as well as on the assessment of the standing stock/population of dolphins in collaboration with the NGOs such as those conducted in the Philippines, Lao PDR, Myanmar, Malaysia, Thailand, Indonesia, Cambodia and Vietnam. However, only very few cetacean research studies are focused on the interaction of cetaceans with the fisheries resources and habitats.

Data collection of cetaceans onboard the M.V. SEAFDEC 2

Current Status of Cetaceans in Southeast Asia

The Convention on Migratory Species (CMS) has been assessing the standing commitments of the Southeast Asian countries for the conservation of marine mammals such as cetaceans and dugongs that have been exposed to a number of threats (Perrin *et al.*, 2002). The CMS as an intergovernmental treaty under the auspices of the United Nations Environment Programme (UNEP) which is concerned with the conservation of terrestrial, marine and avian migratory species. In the course of their assessment, the CMS had noted that by-catch and non-targeted catch by both legal and IUU fisheries had been the culprits for the dwindling populations of cetaceans and dugongs in Southeast Asian waters.

In an attempt to evaluate the efforts of the countries in the region towards conserving the cetaceans and dugongs, two important conferences had been conducted. The First International Conference on Marine Mammals of Southeast Asia was conducted in the Philippines in 1995 where recommendations were raised for the conduct of surveys to improve knowledge on the migratory behavior and distribution of marine mammals, and study on by-catch of cetaceans and dugongs in fisheries; development of marine mammal action plans; and raising awareness of various conservation threats on such mammals. The progress of the Southeast Asian countries on the implementation of such recommendations were reviewed during the Second International Conference on Marine Mammals of Southeast Asia also conducted in the Philippines in 2002, where the associated Workshop on the Biology and Conservation of Small Cetaceans and Dugongs of Southeast Asia discussed the various concerns and research needs of Southeast Asia, and the need to conduct stock assessment of cetaceans and dugongs in the region; study of the stock structure and abundance of the populations including their distribution; and investigation of the impact of by-catch on the cetaceans and dugongs.

SEAFDEC research on cetaceans in the waters of Southeast Asia

Recently, many large cetaceans have appeared close to coastal habitats in Southeast Asia presumably to feed, but very few works had been done on the interaction between

the cetaceans and habitats as well as on the need to clarify the degree of impacts of large cetaceans to the coastal fishery resources. In addressing such concern and with support from the Fisheries Research Agency of Japan, SEAFDEC initiated in 2008 the "Cetacean Research in Southeast Asian Waters: Cetacean Sighting Program" which aims to make an inventory of cetacean species found in the Southeast Asian waters through sighting survey using the SEAFDEC research vessels and respective national research vessels of participating countries (**Fig. 1**); gather information on accidental deaths of cetaceans on the coastal areas of the region; enhance human resources capacity; investigate the interaction of migrating large cetaceans to the marine coastal ecosystems and habitats; and disseminate information on cetacean species distribution in relation to their habitats/coastal ecosystems in the Southeast Asian waters. The identification of cetaceans and dolphin species were recorded using single lens camera and binocular camera as shown in **Fig. 2**.

Although SEAFDEC has insufficient knowledge and skills on cetacean research, but with the technical assistance of cetacean experts from Japan and other national institutions, SEAFDEC was able to conduct cetacean sighting surveys in the region as well as enhanced the human resource capacity of the SEAFDEC Member Countries on cetacean research through various hands-on activities during shipboard training and workshops. **Box 1** shows the information on the cetacean sighting surveys conducted by SEAFDEC in collaboration with the Member Countries since 2008.

During such sighting surveys, the number of dolphins and whales found along the cruise path was estimated and recorded, to determine the existing density of dolphins and whale populations in the sea waters before future works would be made on the cetacean identification and estimation of the cetacean populations.

SEAFDEC also conducted actual sighting surveys using the research vessels of SEAFDEC Member Countries. When the Philippine Bureau of Fisheries and Aquatic Resources (BFAR) conducted a marine research survey in Philippine waters using its research vessel, the M.V. DA-BFAR on 16-26 August 2009, two SEAFDEC/TD

Fig. 1. Research vessels involved in the cetacean sighting surveys

scientists joined the survey onboard the research vessel. Such SEAFDEC initiative was meant to collaborate with the staff of BFAR for the cetacean sighting research survey; and to disseminate and exchange information on cetacean sighting methodology adopted by the BFAR scientists onboard the M.V. DA-BFAR.

The distribution of cetaceans and dolphins recorded during the cetacean sighting surveys conducted by SEAFDEC in the waters of Southeast Asia from 2008-2010 is shown in **Fig. 3**. While **Fig. 4** shows the species of cetaceans

Fig. 2. Equipments used for cetacean sighting surveys

and dolphins identified through the photographs taken by scientists during the cetacean sighting surveys in the waters of Southeast Asia.

Furthermore, for the analysis of the status of cetacean works in the region, the Regional Workshop on Information Gathering and Cetacean Research in the Southeast Asian Waters was conducted by SEAFDEC on 30-31 July 2009. The Workshop was aimed at providing a forum for the SEAFDEC Member Countries to share and exchange information related to their conservation efforts on cetaceans, and national issues related to cetacean research. Specifically, the Workshop aimed to: review and discuss the cetacean research programs in Southeast Asia; gather cetacean data/information as inputs for the check list on cetacean species existing in the Southeast Asia waters based on results of sighting surveys by the countries and SEAFDEC; identify the whale/dolphin watching spots existing in the Southeast Asian waters, share/exchange information on the stranding of large cetaceans in the coastal areas and seashores of the countries in the region; and discuss the interaction of large cetaceans to the coastal resources/habitats.

In order to develop the human resource capacities of the ASEAN countries on cetacean stock assessment methodology, SEAFDEC/TD with the collaboration of Department of Marine and Coastal Resources (DMCR) and the Ministry of Natural Resources and Environment of Thailand, and Fisheries Research Agency of Japan, the Regional Training Program on Cetacean Information Gathering and Research Methodology on Cetacean

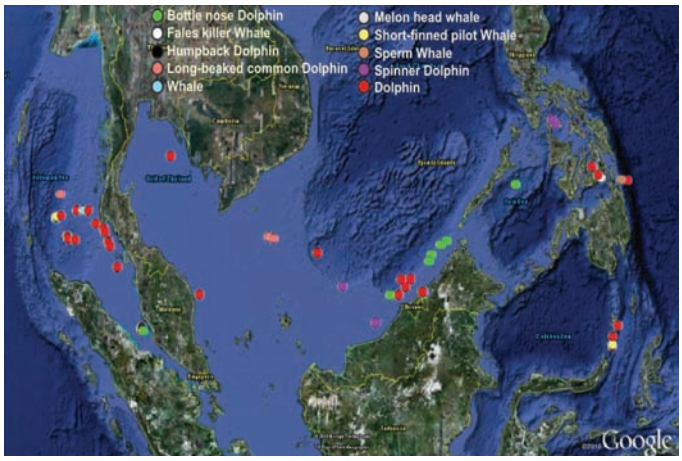

Fig. 3. Distribution of cetaceans and dolphins in Southeast Asian waters (based on the results of the sighting surveys conducted by SEAFDEC)

Box 1. Data recorded from the sighting surveys conducted by SEAFDEC

Cruise No.	Destination	Survey Route	Lat/Long	No Observed	Species
28-1/2008 3 Mar-4 Apr	Andaman Sea Thailand	Gulf of Thailand-Singapore Strait-Malacca Strait-Andaman Sea	Lat 3.25-8.50 Long 096.22-103.77	213 12	Unidentified dolphins Unidentified whales
29-2/2008 4 Jun-5Jul	Brunei Darussalam	Gulf of Thailand-South China Sea-Brunei waters	Lat 5.01-10.96 Long 102.08-114.43	56 60	Unidentified dolphins Long-beaked common dolphins
30-3/2008 24 Nov-25 Dec	Andaman Sea, Thailand	Gulf of Thailand-Singapore Strait-Malacca Strait-Andaman Sea	Lat 3.23-9.20 Long 095.71-100.73	17 2 4 40	Unidentified dolphins Indo-Pacific hump-backed dolphins Bottle nose dolphins Long-beaked common dolphins
32-2/2009 23 Apr-22 May	Sulawesi Sea, Indonesia	Gulf of Thailand-South China Sea-Sulu Sea-Celebes Sea-Sulawesi Sea	Lat 2.26-3.23 Long 125.50-125.80	36 15	Unidentified dolphins Short-finned pilot whales
DA-BFAR 16-26 Aug 2009	Philippine waters	Mindanao Sea-Camotes Sea-Visayan Sea-Sibuyan Sea-Manila Bay	Lat 9.74-12.60 Long 122.20-126.18	22 5 1 60 10	Unidentified dolphins Common bottle nose dolphins Sperm whale Spinner dolphins Melon head whales
FRV Chulabhorn 5 May-7 June 2010	Andaman Sea, Thailand	Andaman Sea	Lat 8.07-8.18 Long 095.47-095.50	30 4	Short-finned pilot whale False killer whale
35-3/2010 26 Jun-11 Aug	Sabah and Sarawak waters	Gulf of Thailand-South China Sea-Sabah-Sarawak Seas	Lat 3.49-7.18 Long 111.01-116.17	70 50	Common bottle nose dolphins Spinner dolphins
36-4/2010 15 Sep-25 Oct	Brunei Darussalam waters	Gulf of Thailand-South China Sea-Brunei waters	Lat 5.07-5.37 Long 113.50-114.19	4 5 10	Unidentified whales Unidentified dolphins Bottle nose dolphins

Stock Assessment was organized in November 2010 at Chachoengsao Province, Thailand. Representatives from the SEAFDEC Member Countries including staff from universities in Thailand and from SEAFDEC participated in the workshop, which specifically focused on cetacean stock assessment and abundance estimation techniques, *i.e.* photo identification and sighting data as well as on relevant topics, *e.g.* forensic identification for whales and dolphins, linkages between cetacean abundance and environmental features, among others. In addition, the proposed Regional Handbook on Estuarine/Riverine Cetacean Stock Assessment Methodology by Photo Identification is now being produced in collaboration with the DMCR for possible release before the end of 2011.

Fig. 4. Cetacean species in Southeast Asian waters identified from photographs taken during the cetacean sighting surveys

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