# CONSERVATION ACTION PLAN
## FOR THE
# EASTERN TAIWAN STRAIT POPULATION OF INDO-PACIFIC HUMPBACK DOLPHINS

**Prepared by:** John Y. Wang, Shih Chu Yang, Randall R. Reeves and the participants of the Second International Workshop on the Conservation and Research Needs of the Eastern Taiwan Strait Population of Indo-Pacific Humpback Dolphins, *Sousa chinensis*.

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(Also available from this website are the: *Report of the Second Workshop on Conservation and Research Needs of the Eastern Taiwan Strait Population of Indo-Pacific Humpback Dolphins,* Sousa chinensis (2007), *Research Action Plan for the Humpback Dolphins of Western Taiwan* (2004), *Report of the First Workshop on Conservation and Research Needs of Indo-Pacific Humpback Dolphins,* Sousa chinensis, *in the Waters of Taiwan* (2004) and the *Symposium Program of the First Symposium and Workshop on the Conservation and Research of Indo-Pacific Humpback Dolphins,* Sousa chinensis, *of the Waters of Taiwan* (2004).

# CONSERVATION ACTION PLAN
## FOR THE
# EASTERN TAIWAN STRAIT POPULATION OF INDO-PACIFIC HUMPBACK DOLPHINS*

The very small (< 100 individuals), isolated population of Indo-Pacific humpback dolphins (*Sousa chinensis*) that lives in the eastern Taiwan Strait, ETS (=waters of western Taiwan), close to shore along the western coast of Taiwan, is in serious trouble. Like the baiji (*Lipotes vexillifer*), a species of river dolphin that inhabited the Yangtze River until only a few years ago but is now likely extinct, the ETS humpback dolphins are mostly victims of unintentional or indirect harm caused by human activities. The river mouths where they congregate are severely polluted. Most – in fact nearly all – of the fresh water that once flowed into these estuarine ecosystems, cleansing and replenishing them, is now taken away upstream for industrial, agricultural and municipal consumption. In addition, the dolphins' coastal and estuarine habitat is now clogged with fishing nets, aquaculture facilities and boat traffic – all posing risks to the animals. Land reclamation for massive industrial projects has reduced, and continues to reduce, the limited habitat of these dolphins.

For many years, the international conservation and scientific community had been urging China to take immediate, decisive action to save the baiji. It is now too late. It will also soon be too late for the vaquita (*Phocoena sinus*), a tiny porpoise confined to Mexico's Gulf of California that is being driven extinct by accidental entanglement in fishing nets. In both of those cases, the science was clear and unequivocal – what was needed was action by government officials to protect the animals, not more research. The same is now true of the ETS humpback dolphins. Unless tough management action is taken immediately to protect them and improve the quality of their habitat, this small group of animals unique to Taiwan will be lost forever.

The ETS humpback dolphins were the focus of an international workshop held in Changhua City (Taiwan) on 4-7 September 2007. Participants included local dolphin researchers, conservationists and marine engineers, as well as experts from Canada, the United States, Japan, Brazil, United Kingdom and Hong Kong. Officials from government agencies, representatives of academic institutions and members of local conservation groups presented a grim picture of the state of the coastal marine environment along the west coast of Taiwan (for the report of the workshop, see Wang et al. 2007a). This Conservation Action Plan for the ETS humpback dolphins summarizes the main results of the workshop deliberations: the over-arching conservation goal; the objectives to serve the goal; and the recommendations for immediate conservation action.

*This Conservation Action Plan was drafted in English and reviewed by all invited participants who attended the entire workshop. A Chinese translation has been provided to assist Taiwanese readers in understanding the plan. However, the English version should be considered definitive if any discrepancy is found between the English and Chinese versions.

## New Information on the ETS Population of Humpback Dolphins

Some new information provided to the 2007 workshop (see Wang et al. 2007b) supplements what was known in 2004 and was summarized in the 2004 Research Action Plan (Wang et al. 2004). This includes the following:

- Based on clear differences in pigmentation patterns, ETS humpback dolphins are distinct from those of other nearby provisional populations and therefore represent a separate population;
- From data collected between 2002 and 2005, the number of ETS humpback dolphins was estimated to be 99 individuals (CV = 51.6%; 95% CI = 37 to 266);
- The core range of ETS humpback dolphins appears to consist of only about 515 $km^2$ of coastal water, from the estuarine waters of the Houlong and Jhonggang rivers in the north to the waters of Waishanding Jhou in the south (about 170 km in linear distance) with the main concentration of dolphins between the Tongsiao River estuary (Miaoli County) and Taisi (Yunlin County). This latter area encompasses the estuaries of the Dadu and Jhuoshuei rivers, the two largest river systems in western Taiwan;
- Humpback dolphins are found in shallow waters (< 25 m deep) within 3 km of shore but mostly within 1 km of shore and in water 7-8 m deep (dolphins have been observed in water shallower than 2 m);
- ETS dolphins have been confirmed in the above waters from April to November but interviews with fishermen suggest year-round residency;
- Approximately 30% of individually recognizable dolphins bear serious injuries, possibly caused by fishing gear or vessel collisions;
- A preliminary examination showed the ETS humpback dolphin population meets the IUCN Red List criteria for "Critically Endangered".

## New and Recent Information on Threats

The information provided to the 2007 workshop confirmed that the threats identified in 2004 have increased, not decreased. Major industrial development initiatives are going ahead with little, and usually no, recognition of their potential impacts on dolphins, other marine and estuarine organisms, and their habitats. In addition, the environmental protection policies and legal framework in Taiwan have been minimally effective and have continued to neglect the environment in favour of short-term economic gains.

Five major threats to the dolphins were identified: reduced river flow into estuaries, habitat loss (e.g., due to land reclamation), entanglement in fishing gear, industrial, agricultural and municipal pollutant discharges, and underwater noise.

## Conservation Goals and Objectives

The ETS humpback dolphin population is unlikely to persist over the coming decades, and it certainly will not recover, unless action is taken immediately to improve the quality of its habitat and to prevent human-caused injury and mortality. It is important to avoid viewing the plight of these dolphins as an isolated concern of little relevance to the everyday life of the people of Taiwan. As fellow mammals, the dolphins should be regarded as sentinels of environmental health in coastal waters and estuaries, living as they do at the interface between land and sea. Stopping environmental neglect and abuse, and indeed reversing the trend towards deterioration and loss, is as urgent for the people and other organisms living along Taiwan's west coast and in the watersheds flowing into the Taiwan Strait as it is for the dolphins.

The overarching, long-term **goal** is to ensure the long-term viability and ecological function of the ETS humpback dolphin population in its natural environment.

Three **objectives** must be pursued to serve that goal:

- Allow the dolphin population to increase.
- Prevent further reduction, and if possible allow expansion, of the population's geographic range.
- Maintain, improve or restore the quantity and quality of *Sousa* habitat along the west coast of Taiwan.

## Measures that Must Be Taken Immediately

Although a great deal more needs to be known about the animals and the nature of the threats facing them, enough is already known about the urgent state of the dolphins to proceed with a series of actions. The workshop therefore recommended that the central and local governments do the following:

1. Proceed with formal declaration and public announcement of important habitat for ETS humpback dolphins that is based on all available information;

In 2004, the workshop recommended that humpback dolphins and their habitat requirements should be considered routinely in the EIA process for development along the west coast of Taiwan. It was specified that inland developments on watersheds, even though many kilometres from the ocean, also need to be taken into account given their potential indirect impacts on the dolphins. Thus,

2. Carry out public and transparent evaluations of all existing and planned projects and future proposals that may have impacts on ETS humpback dolphins and their habitat (including upstream watershed areas). Such evaluations should employ precautionary reasoning, i.e., uncertainty should be explicitly acknowledged and incorporated in decision-making to avoid errors in judgment that could put the animals at greater risk. Such projects and proposals may include, but are not limited to:

    - Land reclamation and coastal construction

- Sand and other substrate removal
- Artificial reef projects
- Water resource management projects
- Industry and other pollutant point-sources
- Noise-generating activities
- All energy-generation projects

**3.** Mitigate all existing and planned projects and future proposals that may have impacts on ETS humpback dolphins and their habitat (including upstream watershed areas) using best available methods and based on precautionary reasoning and judgment (see item 2, above);

All laws and regulations regarding disclosure of environmental data should be interpreted in a manner that facilitates, rather than obstructs, the transmittal of information to all interested persons and groups, and their participation in the decision-making process. Without such facilitation, attempts to understand and mitigate threats and ultimately ensure the survival of ETS humpback dolphins will be compromised.

**4.** Prohibit use of gill nets and trammel nets in all waters inhabited by ETS humpback dolphins;

**5.** Limit development of tourism focused on humpback dolphin-watching to land-based platforms and ensure that it is integrated with nature-oriented education efforts and encouragement of a "take back the coastline" public spirit;

**6.** If any marine protected area is proposed for the benefit of humpback dolphins in Taiwan, it will require substantial resources and an open planning and consultation process. Also, it should cover the dolphins' entire effective range to provide meaningful protection (e.g., strict enforcement).

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