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A Range Wide Survey of the Yangtze
Finless Porpoise (*Neophocaena
asiaeorientalis*)

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SUMMARY

- A range-wide Yangtze finless porpoise (YFP) survey was conducted between November 10 and December 31, 2017.
- Preliminary results estimate that the total population size is ~1000 individuals, with 445 in the main stem, 457 in Poyang Lake and 110 in Dongting Lake. The Critically Endangered status of this species remains unchanged.
- Trend analysis indicates that the rapid decline in population numbers observed between 2006 to 2012 has now slowed, and population size may even be increasing in Dongting Lake.
- YFP distribution within the main stem remains fragmented, as observed previously in the 2006 and 2012 surveys. The porpoise tend to concentrated in the better quality habitats of the river, therefore leading to more severe fragmentation.
- Overall, habitat quality and habitat connectivity are very poor. Most habitats are degraded and continue to deteriorate, although small parts of the main stem and some lake areas are showing some degree of improvement. Overall, water quality appears acceptable for YFP survival.
- Ship traffic remains one of the main threats to YFP and forces the porpoise to congregate around the shallow sandbars of the main stem.
- Conservation actions including the *in situ* and *ex situ* management programmes, habitat protection and restoration and the management of shipping traffic require urgent action.

Key words: Yangtze finless porpoise; Critically Endangered; abundance; fragmentation; conservation

In 2017, the Ministry of Agriculture of China, and the Institute of Hydrobiology of the Chinese Academy of Science organised and conducted a range-wide survey for the Yangtze finless porpoise (YFP) between 10th November and 31st December: “The 2017 Yangtze finless porpoise Expedition”. Thirty-five scientific expedition members participated in the survey, comprising representatives from the relevant

authorities, experts from national YFP research institutes, managers of the YFP reserves, fishery administration officers as well as NGOs and volunteers who work on porpoise conservation issues. This is the third range wide survey that has been conducted, the previous two taking place in 2006 and 2012. The surveys have all followed the same route, from Yichang to Shanghai in the main stem, in addition to covering both Dongting and Poyang Lakes. Both visual and acoustic methods were used to collect data on YFP population size and distribution. In addition environmental data were gathered, including water and sediment samples, habitat quality information, shipping traffic data and fishery statistics, similar to that collected in previous surveys. For the first time, this survey deployed two drones with the aim of surveying the habitat quality of the main stem floodplain, and acoustic devices were deployed to record ambient noise levels for the entire survey area.

Two fishery law enforcement ships were used to survey the main stem, each having an observation platform 5m above water level. And two 15m vessels were used to conduct surveys in both lakes. The main stem survey was conducted over 38 days and each vessel completed a total transect length of ~3300 km. In total, the lake surveys were completed in 11 days.

Preliminary line transect analyses estimate a total population size of YFP of ~1000 individuals, with 445 in the main stem (CV=17.19%, 95% CI: 295-595), 457 in Poyang Lake (CV=16.83%, 95% CI: 329-634) and 110 in Dongting Lake (CV=27.45%, 95% CI: 65-187), which is similar to that estimated in 2012 (505 in the main stem, 450 in Poyang Lake and 90 in Dongting Lake). No baiji was sighted. The Critically Endangered status of the YFP remains in place, however, population trend analyses indicates that the rapid decline in population abundance observed from 2006 to 2012 (13.73% decline per annum) is no longer apparent and that in some areas, e.g., Dongting Lake, the population may even have increased a little.

In the main stem of the river, there have been concerns over the fragmented nature of the population since at least 2006. This fragmentation appears to have worsened and the habitat continues to degrade, however, a few areas of the main stem and within the lakes show some degree of improvement. Sightings concentrated in the river section from Ezhou to Nanjing. Since 2006, it was observed that porpoise sighting rates have increased in certain sections of the river, while adjacent sites show a decreasing sighting rate. This may indicate that fragmentation may be increasing as the useable habitat becomes more restricted within some sections in the main stem. Notably, some sections surveyed recorded no porpoise; from Zhicheng to Jinzhou (about 150 km in length), sections around Wuhan (about 60 km in length) and from

Taicang to Shanghai (about 100 km in length).

Overall, the river's water quality is adequate for porpoise survival. The porpoises preferred habitat was observed to be the gently sloping, natural coastline areas of the main stem of the Yangtze River, however, these habitats are prone to rapid degradation from bank erosion and sedimentation. Overall, habitat quality and connectivity are overall poor.

Compared to 2012, more cargo ships and fewer fishery boats were recorded. On average, 4.39 travelling cargo ships per kilometer were recorded in the main stem. As these larger ships cannot navigate the shallow sandbar areas, it is assumed that one of the reasons for this observed distribution is that for porpoise it is safer to occur near to these sandbars as there are less shipping impacts in these areas. The reduction in the number of fishing vessels is likely due to the decline in fish resources over the last few years.

The number of the porpoise in Poyang Lake appears stable, as expected from the survey results from the last few years. The estimated abundance of porpoise in Dongting Lake has increased a little, as anticipated from the survey information gathered over the last few years from this area.

It is believed that the increase in some conservation efforts, such as improved law enforcement, seasonal fishery management, e.g., the seasonal fishing ban, better sand mining management, habitat restoration initiatives, e.g., removal of derelict jetties, have resulted in the observed increase in porpoise abundance in some sections of the river and in Dongting Lake. This is very encouraging and indicates that *in situ* conservation for YFP is feasible and is proving to be effective in some areas.

Based on the results of this survey, management measures must continue and increase throughout the historic range of the YFP. These include the protection and restoration of aquatic habitats in the Yangtze River itself; increasing capacity building and management of the reserves; maintaining the natural connectivity between lakes and the main stem of the river; strengthening *ex situ* conservation management; re-designing the Yangtze River shipping development plan by incorporating the importance of protecting the biological resources of the river and; implementing a year round fishing ban throughout the entire Yangtze River basin.