Save the Last "River Pigs" and their Last Refuges

By XIN Ling (Staff Reporter)

A blunt snout, a pair of small but clear and clever eyes, a natural smiling shape of mouth mixing friendliness with mischief, and a round and robust streamlined body without a dorsal fin — this is a Yangtze finless porpoise (*Neophocaena phocaenoides asiaeorientalis*), the world's only finless porpoise subspecies that dwells in freshwater. Local elders call them "river pigs", and hail the animal as a symbol of good luck, as fishermen can use them to foresee storms or trace fish shoals. Scientists say this charismatic mammal came into being about 25 million years ago and are endowed with outstanding intelligence and sociability. Like human beings, they have very strong parental instinct and rarely, if ever, abandon their offspring in the face of danger.

Some 100 thousand years ago, the finless porpoises arrived at the Yangtze River for the first time, and settled down here to enjoy the once crystal clear waters and luxuriously ample food. From the main stream of Yangtze to its adjoining lakes, they happily cruised and leaped up high to play with the birds that skimmed the water.

But 100 thousand years later, when a considerable part of that same river has turned foul with floating rubbishes and dead fishes, what we can see is an eyeful of fishing boats, cargo vessels and dredgers coming and going in an endless stream, and a forest of factories with high chimneys and long drain-pipes lining the riverside. The "river pigs" become a rare sight. Some of them choose to stay at their sludge-colored homes, seeking all day for food which has decreased sharply due to overfishing, and trying to unskillfully avoid the fatal propellers, hooks and electro fishing nets. Some hide themselves in tributaries, risking the continuingly lowering water level in there and a much slimmer chance for propagation.

From October to December, 2012, a 40-people squad made up of scientists from the Institute of Hydrobiology (IHB) under the Chinese Academy of Sciences, WWF officials and conservationists from all over the country carried out a systematic survey on Yangtze finless porpoises along the middle and lower reaches of the Yangtze River along with adjoining freshwater lakes, Dongting and Poyang. According

Two Yangtze finless porpoises (*Neophocaena phocaenoides asiaeorientalis*) living in their cozy home at the Freshwater Dolphin Aquarium at the Institute of Hydrobiology, Chinese Academy of Sciences in Wuhan. (Photo: IHB)

A baby Yangtze finless porpoise is sucking milk from his mother. (Photo: IHB)

to Prof. WANG Ding, the expedition's commander and a senior researcher at IHB, the initial result indicated a dramatic decline in the population of the porpoises in the last six years — probably already less than 1,000 in the wild. The result confirmed his previous speculations, but "the porpoises are doing worse than we estimated," said the worried professor who has been working with the animal for more than thirty years. The biggest question haunting his mind was: under the massive pressure for economic development, will Yangtze — the "mother river" for generations of Chinese people — one day still be able to support the existence of human beings after having lost all the life living in it?

The Survey

On December 24, 2012, when many were happily preparing for Christmas Eve, Prof. WANG and his coworkers had just finished their 44-day mission and returned to their offices. Again, the mischievous smile and lonely shadows of the porpoises in the Yangtze emerged in their mind to arouse their deepest concern over the animal's doom.

Prof. WANG still remembered when the team set out from Wuhan on November 11. According to plan, in the first leg of the survey, the members would sail upstream from Wuhan to Yichang (the dividing point between Yangtze's upper and middle reaches) to look for the porpoises. Every day from 7 am to 5 pm, the scientists and volunteers took turns to use high-powered binoculars to detect the animals, and at the same time they towed sensitive hydrophones behind the two boats to listen for the porpoises' calls.

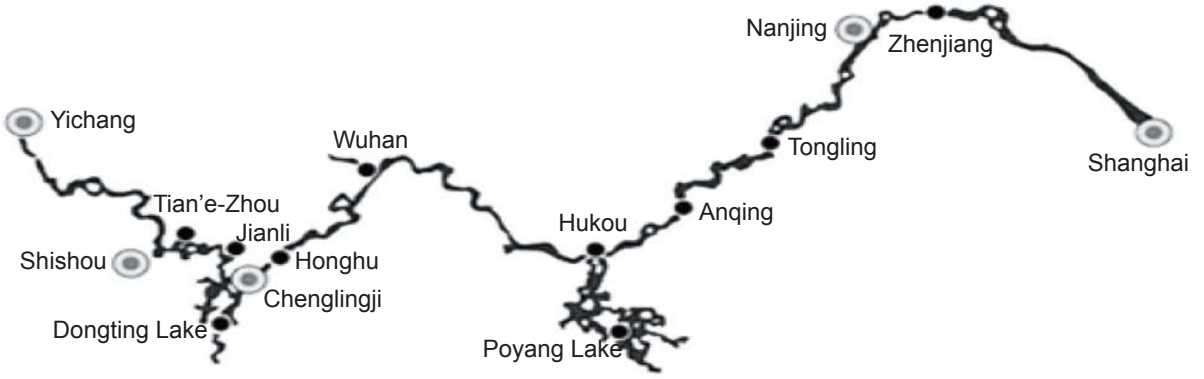
For the first three days, the team was upset for not finding a single porpoise. It is only when they approached the Honghu section that everybody felt relieved to see a small group of those lovely freshwater mammals swimming around.

On November 20, the team turned around from Yichang, heading downstream towards Shanghai to search over a continuous 1,700-km water area along the Yangtze River.

The 2012 Yangtze Freshwater Dolphin Expedition was organized by the Chinese Ministry of Agriculture and led by experts from the Institute of Hydrobiology, Chinese Academy of Sciences. (Photo: Ms. GAO Baoyan from *Yangtze Daily* newspaper)

"The Hukou-Anqing section is a traditional hotspot for Yangtze finless porpoises. This time we spotted the most abundant population in this area, up to 45 in a day," said Dr. ZHANG Xinqiao, WWF finless porpoise program officer and a member of the survey team.

But from the Wuhu section, the animals appeared less and



From November 11 to December 24, 2012, the expedition travelled a total of 3,400 kilometers along the middle and lower reaches of the Yangtze River following the Wuhan-Yichang-Shanghai-Wuhan route to find Yangtze finless porpoises.

Members of the survey team are sighting Yangtze finless porpoises via binoculars. (Photo: GAO Baoyan)

less frequently, and Dr. ZHANG owed that to more and more ships and ports they had seen from then on. "The booming shipping industry has severely fragmented, degraded and deprived of the natural habitats of the porpoises. Especially in the Nanjing and lower sections, there are clusters of ports which hardly leave the animals any complete stretch of water to live in. For example, in the Zhenjing-Jiangyin section, about 40 porpoises were detected in 2006, but this time we only got 13," Dr. ZHANG alleged.

Dr. ZHANG's words were echoed by Dr. WANG Kexiong from IHB, who is the expedition's deputy head. "Although the main distribution areas of the finless porpoises did not change much, their home in the Yangtze mainstream is falling apart. Throughout the survey we only found small groups of porpoises in about 10 sections or areas. Such isolated existence will definitely harm their reproduction and survival as a species", he was quoted as saying.

By the end of the survey, a total of 380 Yangtze finless porpoises had been counted while 172 heard by the sonar. The number 380 is even lower than half of the population spotted six years ago. Together with the 450 found in Poyang Lake and the 90 in Dongting Lake in October, the final number will likely approximate one thousand.

"We still need time to analyze the survey results and work out a scientific estimation about the population status," Prof. WANG remarked. "The detailed report will be released next March."

Data shows that over 2,000 river pigs lived in Dongting Lake three decades ago. A survey in 1993 recorded a total of 2,700 in the Yangtze River system. In 2006, the number was 1,800. This year it dropped to about 1,000. What about five or ten years later? Maybe very soon, we will never see a river pig in the Yangtze.

(From left to right) Dr. Tomonari Akamatsu, a underwater bioacoustics expert from the National Research Institute of Fisheries Engineering, Fisheries Research Agency of Japan, Prof. WANG Ding from IHB, and Mr. LEI Gang, head of WWF China's Central Yangtze program. (Photo: GAO Baoyan)

6.4%: Extinction or Survival

6.4% is the annual decline rate of Yangtze finless porpoises calculated by Prof. WANG's group and confirmed by recent surveys. At this rate, if no effective action is taken, the animal will be extinct in the wild within 10 to 15 years' time.

When it comes to animal extinction in the Yangtze, many Chinese will recall another cetacean that used to live in the River — the Yangtze River Dolphin (*Lipotes vexillifer*), known locally as baiji or "goddess of Yangtze". During the 1950s, the baijis lived in large populations in the Yangtze River Basin. But their numbers declined dramatically since the River was transformed into a crowded artery of mass shipping, fishing and power generation amid China's industrialization.

A survey in 1999 only sighted five baijis. After a vain search for baiji in 2006 along the Yangtze by international scientists, the animal was declared functionally extinct.

"When the Baiji Dolphin was declared 'functionally extinct', it was a once-in-25-million-year event. Never before had a whole species of dolphin been wiped off the planet because of human activity", WWF website wrote.

However, the tragedy of baiji did not earn enough concern for its struggling cousin — the Yangtze finless porpoise, who may now follow it into extinction within 15 years. And like the baijis, the only reason for Yangtze finless porpoises to have

A dead Yangtze finless porpoise: its head all over with scars left by fishing jigs, an illegal fishing gear on the Yangtze. (Photo: IHB)

suffered such massive population shrinkage is human activities.

A sharp drop in food resources due to overfishing and illegal fishing is the No.1 killer atop the long list of reckless human activities, Prof. WANG pointed out in a telephone interview with *BCAS*.

Overfishing has slashed Yangtze's total fish production by more than 70% over the last decades. An illegal fishing practice called electro-fishing will discharge electric current into the water to stun fishes before they are caught. Although the porpoises usually make no fishing targets, some still get electrocuted or choked to death after diving straight into the electric nets by accident.

The busy shipping on the Yangtze also poses a serious threat to porpoises' lives, even in the reserved areas. "As the waterways are not fixed, the animals are still vulnerable to accidental injury by the propellers," Dr. WANG Kexiong explained.

"Also, the frequency of the noises produced by the boats is very close to that of the communication sound used between mother and baby porpoises. When a half-year-old porpoise is separated from his mom, the chance for his survival is almost zero," he added.

Besides insufficient food and dense ships, pollution has played a key role. Statistics show more than 20 billion tons of sewage and industrial discharge end up in the Yangtze every year in China. The heavy mental element in the emission will enrich in the porpoises, who are at the top of the food chain, and lead to their death.

All these factors, together with many others including dam building and climate change, have made the Yangtze finless porpoise the most endangered wild animal in China today in terms of both the volume and velocity of population decline.

Soon, the animal's endangered category will be elevated from "endangered" to "critically endangered" as defined by the IUCN Red List, and its protection grade from Category II to Category I Protection in China, Prof. WANG revealed.

In-situ and *Ex-situ* Conservation

As for the protection of Yangtze finless porpoises, experts agree that *in-situ* conservation is the fundamental solution while *ex-situ* conservation is a more realistic way out.

In-situ conservation is to protect the animals' natural habitats in the Yangtze ecosystem. Prof. WANG and Dr. WANG Kexiong both advised to strengthen administrative enforcement of fishing regulations to ensure the animals' food. At the same time, more regulations on shipping, sand-dredging and pollution emission should be made to minimize their impacts on the ecosystem of Yangtze.

For instance, the scientists are actively helping shape the nation's first regulation on waterways, which involves setting up fixed channels and limiting the speed of the ships.

However, experts are also aware that the ecosystem will hardly be improved overnight, and "it is impossible to restrict the entire Yangtze River for protecting the porpoises," Prof. WANG confessed bitterly.

Therefore, at present, *ex-situ* conservation is the key to preventing the animal from vanishing. "There is no other choice. Of course, we will release them to the River when it is suitable for living again."

In fact, China has already set up seven natural reserves for the *ex-situ* conservation of the endangered freshwater mammal. The one at Tian'e-Zhou Oxbow, Shishou County is one of the first and most successful natural reserves for Yangtze finless porpoises. Prof. WANG told *BCAS* that in the year 1990, he and colleagues from IHB captured the first five porpoises from Yangtze and transferred them to the oxbow. Since then, they have happily lived and effectively propagated in the reserve. The population number has been on the rise by 3 to 4 animals on average each year and now Tian'e-Zhou is home to nearly 40 porpoises.

According to Prof. WANG, Tian'e-Zhou Oxbow is the only reserve with a positive growth in porpoise population in China by far. It is also the first and only natural reserve to have successfully conducted *ex-situ* conservation on a cetacean species in the world.

"These conservation practices and research laid a solid foundation for scientific protection in the future," he noted.

But *ex-situ* conservation also has its own problems. Delayed release of the animals to their natural habitats could cause inbreeding troubles, and a disease outbreak could kill the whole population. So finally people will still have to mend the Yangtze ecosystem.

Save Our Mother River

Before 2006, the Yangtze River was one of the only two rivers in the world that are home to as many as two species of cetaceans, Prof. WANG told *BCAS*. He was very upset to realize that the River, having already lost the Baiji dolphin and is about to lose the finless porpoise, may one day also fail to support the existence of human beings.

"In fact, we are calling for not only protecting the porpoise itself, but rescuing the Yangtze as a whole," he emphasized repeatedly.

"The finless porpoise is an 'indicator species'. At the top of the food chain, such an animal can effectively tell the healthiness of the ecological system in which it lives. If the porpoises can no longer survive, it only means the entire system has been extremely deteriorated."

As he pointed out, the Yangtze River has been regarded as the "Mother River" of the Chinese nation and the very foundation of its development. If this foundation collapses someday, we will definitely lose a most important foothold to survive.

The situation with Yangtze is worsening at an alarming rate. Today, there are more than 400 thousand chemical plants along the Yangtze River, which are contaminating our Mother River with enormous toxic wastes every day. Due to climate change and dam constructions, the water level in dry season keeps going down. These lead to the rapid loss of biodiversity in the system. As indicated by the Red List of Endangered Species in China, among all aquatic animals living in the Yangtze Basin, 18% fishes, 48% amphibians and 33% reptiles are threatened.

On the Yangtze, the contradiction between development and conservation seems particularly outstanding and hard to solve.

"To work out the dilemma, we need a lot of compromises," Prof. WANG believed. "A major criterion of compromising is to safeguard the very foundation of our future development. We must realize that if we let go of that foundation, we'll one day pay the price. So, short-term and long-term development should be well balanced on the basis of sustainability."

In his eye, the transformation of concepts among policy makers is vital. While local government attaches more importance to immediate economic benefits, he called for the central government to often reiterate the importance of sustainable development instead of GDP. As for the general public, he advocated refraining ourselves from the pursuit of luxurious lives, and leaving some space for the survival of our offspring. "If not, today's development will be meaningless, and human beings will step into the tomb they dig for themselves," the professor warned thoughtfully.

Launching ceremony of the 2012 Yangtze Freshwater Dolphin Expedition, November 11, Wuhan. (Photo: IHB)