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# A project to translocate the Baiji, *Lipotes vexillifer*, from the mainstream of the Yangtze River to Tongling Baiji Semi-nature Reserve

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1. Taxonomy

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| Class | Mammalia Linnaeus 1758 |
| Order | Cetacea Brisson 1762 |
| Suborder | Odontoceti Flower 1867 |
| Family | Lipotidae Zhou, Qian and Li 1978 |
| Scientific Name | *Lipotes vexillifer* Miller 1918 |
| Common Names | Baiji, Chinese River Dolphin |

2. Biological data

2.1 Life history parameters

Length at birth is about 0.9 m, length at attainment of sexual maturity is about 2 m for females and males. Maximum recorded length is 2.53 m and 2.29 m for the females and males respectively. Maximum recorded weight is 237 kg for the females and 135 kg for the males (Zhou, Qian and Li, 1977). Coloration is pale blue-grey above and white below. This curious dolphin is characterized by a very long beak-like snout and a low triangular dorsal fin. There are 32 to 36 teeth in each side of each jaw. The eye is greatly reduced, but is functional.

2.2 Distribution

Baiji is a relict species belonging to the monotypic family Lipotidae (Zhou, Qian and Li, 1978, 1979; Zhou, 1982). It is found chiefly in the mainstream of the middle and lower reaches of the Yangtze R (Figure 1). The range of distribution of the Baiji in the Yangtze in the 1940s was similar to that at the end of the last century, i.e. ranging from estuary of the Yangtze to Yichang City, even up to the river by Huanglingmiao about 30 km upstream of Yichang City in the Three Gorges. In 1955, the Baiji in the Qiantang River was found up to Fuyang County and reached Tonglu County sometimes (Zhou, Qian and Li, 1977). But since 1974 it has only been seen in the Yangtze R downstream from Zhicheng City and has not been found in the Qiantang R again.

2.3 Population estimates and trends

No investigation was made on the population size of the Baiji in the Yangtze R until 1979. Ecological surveys between 1979 and 1981 have produced population estimates roughly less than 400 as the maximum for Baiji in the middle and lower reaches of the Yangtze (Zhou, Pilleri and Li, 1980; Zhou, Li, Nishiwaki and Kataoka, 1982; Zhou, 1982). But rapid reduction in number of the Baiji has not been controlled yet and we estimate a total world population of only about 200 animals today, scattered in small groups along 1600 km of the river. Therefore, the Baiji is the rarest dolphin species in the world, it may become extinct unless proper measures are taken to protect it.

2.4 Habitat

River is susceptible to human activities. The development of the industrial activity, shipping, together with the reduction of the fish resources in the past thirty-five years have caused changes which are unfavourable to Baiji on the ecosystem of the Yangtze and hence the rapid declining of the Baiji. It is injured or killed occasionally by the propeller. The shortage of fish makes it more vulnerable to certain types of gear, particularly multiple-hook lines and stake net traps. 50% of the dead body of the Baiji taken in the Nanjing-Guichi section during 1979–1981 were killed by the propellers and 37.5% were captured incidentally by hooks and nets (Zhou, 1982). At least 18 are known to have died in 1984, most of them were drowned by fishing gear or hit by boats.

Relatively speaking, shipping activities in the Anhui section are not very developed. The volume of transport per kilometre is less than one-sixteenth of that of the Rhine River in West Germany. However, the survival of the Baiji is already greatly threatened. According to the recent trend of economic development in China, that volume will be multiplied in a short period of time. Moreover, the death caused by the fishing gear will continue to occur. Instead of being eliminated or reduced, the pressure on the survival of Baiji caused by the above-mentioned factors will become more severe in the foreseeable future.

3. Protections

3.1 Legal protections

Baiji is one of the nationally protected animals in China. Catch of the Baiji, like other animals

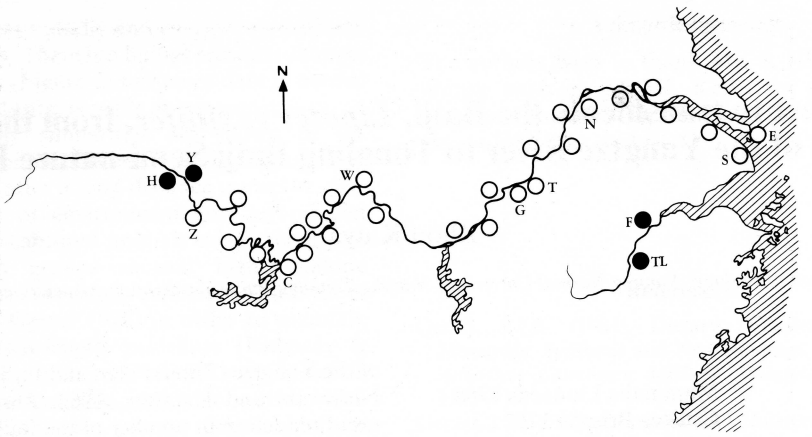


**Figure 1.** Distribution of Baiji (*Lipotes vexillifer*) in the Yangtze River and Qiantang River.
Open circle: present distribution; closed circle: distributed about 30–40 years ago. C. Chenglingji, E. estuary of Yangtze R, F. Fuyang, G. Guichi, H. Huanglingmiao, N. Nanjing, S. Shanghai, T. Tongling, TL. Tonglu, Y. Yichang, W. Wuhan, Z. Zhicheng.

under key protection, is strictly prohibited by the Regulation Regarding the Propagation and Protection of Fishery Resources and the State Council Decree Concerning the Strict Protection of the Rare Wild Animals. Measures taken accordingly include the wide dissemination of the regulations concerned, publication of articles about Baiji in newspapers and periodicals and the issuance of Baiji Stamps and a film on the same subject.

Propellers and fishing gears are two main factors threatening the survival of Baiji. These two factors, however, cannot be eliminated by the decree banning the catch of Baiji, which means that the situation of Baiji is still deteriorating even though there are government decrees and the great publicity in the media.

3.2 Emergency rescue measure—translocation

The survival of Baiji is in great danger. It is time to take emergency measures. As far as we know, one of the immediate rescue measures needed at the moment is to remove some Baiji from the natural habitat in Yangtze River to the waters where shipping and fishery are prohibited. The present author is organizing and implementing the translocation project and help or contributions will be greatly appreciated.

4. Tongling Baiji Semi-nature Reserve

4.1 Brief descriptions

The semi-nature reserve is located in a strip between the two islets, Heyuezhou and Tiebenzhou, which are opposite the Datong Town of Tongling City (Figure 2). The strip is 1550 m long and 40–220 m wide. The water level of the mainstream of Yangtze River measured in Tongling-Datong region in August 1984 was 9 cm lower than that of the by river. Therefore, the water can flow through the strip by itself. After some digging and construction, and provided with pumping facilities, the depth of the strip can be kept at 5 m or above 5 m throughout the year. The water in the strip will flow by itself at least in eight of the twelve months. For the other months, pumps will be needed. The total water volume in the strip will be about 190 000 cubic metres when the average depth is 5 m. In the flooding period, the maximum volume will be about 700 000 cubic metres.

The strip is only several kilometres away from the Yangshanji area where the Baiji frequent. The space for Baiji is sufficient and with natural water. The eco-environment is basically similar to that of the Yangtze River. The water-quality monitoring from 1973 to 1984 proves that the quality of the water two km down-stream the strip is good. There are no shipping and fishing activities in the strip and no industrial and domestic sewage is discharged into it. As for feeding, the fish in the strip is not sufficient for the long run, but with artificial feeding, the problem can be solved. There are fish ponds near the strip. They are sufficient sources of feed for Baiji. Separated from Datong Town by a by-river, the strip is relatively isolated, easy to control and free from outside disturbance. It therefore is an ideal natural environment for setting up a reserve.

The two islets took their shape in the past several hundred years. According to the historic data, the two islets and the river beds in this area are relatively stable. Provided with proper protection measures such as local river bank protection, there will be no danger of the strip being disrupted by scouring and sludging.

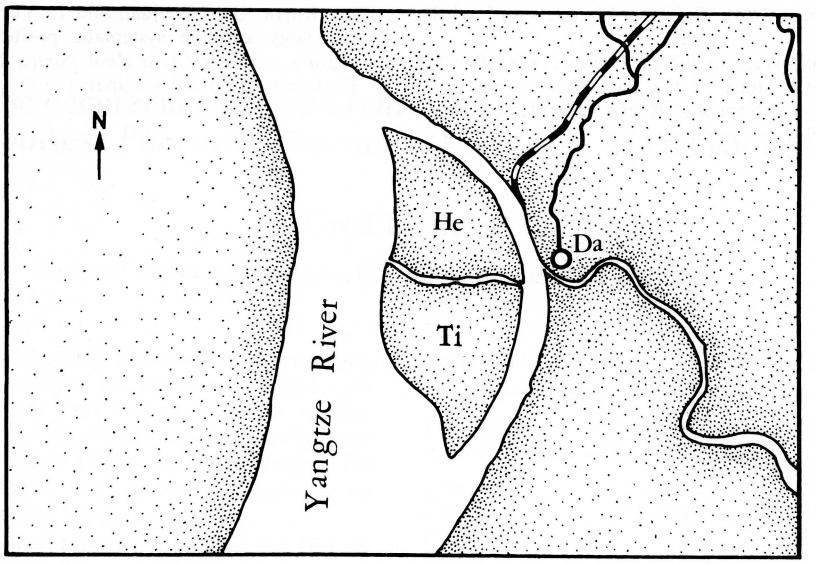


**Figure 2.** Datong (Da) region of the Yangtze River showing Heyuezhou (He) and Tiebanzhou (Ti) Islets.

Opposite the strip is Datong Town, which can provide the staff of the reserve with daily accommodations. It is convenient for Chinese and foreign experts to come by highway or by river to do research here.

4.2 Specific measures and research programmes

(1) Digging and construction work and pumping facilities are needed to keep the depth of the strip at or above 5 m throughout the year. Ensure that the water from Yangtze flows constantly through the end of the strip opposite Datong Town and then back through the other end.

(2) Build a holding pool and a hospital pool on one bank of the strip. The holding pool will be used mainly to keep the newly-caught Baiji, observe their health for a short period of time and train them for artificial feeding. The hospital pool will be used to cure the injured individuals.

(3) First try to catch finless porpoise (*Neophocaena phocaenoides*) in the Yangtze by making use of the circle net technique for catching marine dolphins. After experiences are gained, try to catch Baiji. In the meantime, try to cure the injured or stranded individuals and then put them into the strip.

(4) The individuals caught will be kept in the holding pool for a short period of time. After they are used to artificial feeding, they will be put into the strip, with artificial feeding continued. For the first stage, the number of individuals kept will be between 5–10.

(5) Observe and study the ecology and behaviour of Baiji in this semi-nature reserve, especially the structure of school, acoustic communication, courtship, immitative and altruistic behaviours. These studies will be the basis for studying their reproductive characteristics and for providing guidance for the protection work in general.

(6) Try to make their reproduction possible in semi-natural environment on the basis of the above-mentioned researches.

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