

**University Sponsorship Programme 2005-06:
Student's diary**

**Project : Baiji (Yangtze river dolphin) and Finless
Porpoise – Population Monitoring**

Date : 15 to 24 November 2005

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Day 5 (19 November)

Today, we had fixed-point survey at the outlet of Poyang Lake, just before entering the Poyang Bridge. I'm on the 2nd boat and with Wang, Cheng, and Wang again, which located closer to the bridge. Acoustic sensor was set and we observed the porpoises at the same time. In total, we observed about 30 porpoises today, not bad.

We had fixed-point because we would like to find out if populations in the Yangtze and in the Poyang Lake are of the same group or are actually separated. If there's no interaction between two groups, then it would be very dangerous for the future development of each group. This is because as populations become smaller, the bad homogenous gene would arise more frequently. This would decrease the quality of each population.

There are five points from Yangtze toward Poyang Lake. My boat is on point 1 while Tracy's one is on point 0. When we saw porpoise(s), we would record the time and their direction. If their direction is toward 1st boat, i.e. entering Yangtze, then we would inform the 1st boat about this using walki-talki. When the other boat told us the time that the porpoise passed by their boat, then we can use the time interval, boat distance (600-700m) to calculate their speed, which can be further elaborated for future calculation of the retention time in the lake. However, Wang said it seems that there's no interaction between the populations in the lake and in Yangtze. This is because he had once fixed-point survey at point 5 before and he observed no porpoise. The record of the acoustic sensor also showed the same result. This means that although when we are at point 0/1 and see some porpoises swimming toward Poyang Lake today, they may swim backward before entering the lake.

I also asked Wang something about the dredging work inside Poyang Lake. He said it

is still legal to dredge in Poyang and there's no limit. I asked if it's possible to ban this destruction work. He said no one will try to ban because of the all of them, including province government staff, are money-minded. Even dredging is made as illegal, people will continue at night. Boatman said the dredging companies need to pay tax to the government. But I'm not sure whether it's real or not. Boatman also told me something about the operation of the dredging industry. Poyang Lake is just like a land in HK. People can buy an area in the lake and do their dredging work. All the dredged sand will be transported to East China like Shanghai for reclamation. He said some are also sent to HK and Lee Ka Shing also takes part in the transportation of this industry (really?).



Personally, I think the best method to stop this dredging work is to stop the demand. Take HK as an example, we can use rubbish for reclamation; this would be able to reduce the demand of sand and also find some ways for the increasing rubbish.

Around 1700, we went to Wang's room to have a look of how to download the data from hydrophone and how to analyse the data. The process is quite complex and we two tried to get a clear idea.

Firstly, we saw a graph with x-axis of time and y-axis of strength of sound. The higher the strength, the closer is the sound. This graph is formed by a program called Igor. As there were many noise from boats, another program is used to remove the noise and find out the sound of porpoise, which is shown as pulse per minute on the graph. The more the pulses, the more the no. of sound recorded. Compared with the "whistle" sound of Baji, the "click" sound of porpoise is of higher frequency (higher pitch) but smaller amplitude (softer). Since the sound of baji is more like that of boats, baji is of higher threat from the increasing shipping industry along Yangtze because they cant locate the boats and food.

The cell for the hydrophone is quite expensive, 30-40 dollars is needed for one cell. At most, the data recorder can record about 60 hours.

Ideally, there should be three pulses from a porpoise, one from the porpoise directly,

one from the reflected one from water surface, the last one from the reflected one from water bottom. With the use of these pulses, the distance of the porpoise from our boat can be calculated. However, there may be no reflection due to waves from water surface and uneven bottom.

It may be possible to calculate the no. of porpoises with the use of “pulse” graph. However, since only one/two porpoises would produce sound in a group, this method may not be accurate. Now, they are trying to match the data from observation and acoustic recorder to see if there is any model between these two. Then, the model would allow them to estimate the no. of porpoises passing by with the use of acoustic data.

We also asked them some questions about their project.

They said the main problem of their current conservation project is the lack of funding. It's very difficult to raise funds in China. If they want to catch 5 porpoises from river, this would cost about 10 million.

Last large scale survey of baiji is in 1995. Yangtze is divided into several sections and survey is carried out coincidentally. After that, no scientist can find anymore baiji. However, some fishermen or boatmen did report that they saw baiji. If no baiji is found in 50 years, they are thought to be extinct.

There's currently a porpoise baby in baiji museum, they think they would not release it to the wild because captivity of a species succeed only if the new born can breed.