PP251 Population trends and habitat preferences of Pink and Grey Dolphins in the Peruvian Amazon

The pink and grey river dolphins are endemic to the Amazon River. Dolphins are a good indicator species for the hydroscape and their population trends and habitat use are being used to monitor the overall conservation status of the aquatic system.

Dolphins are used as indicators of the health of the rivers, lakes and channels because they are mobile species, they are not killed by local people and they are relatively easy to census. Dolphins range widely throughout the rivers, lakes and channels of the Amazon River basin, and are renowned for their mobility. Thus, if either human induced changes (such as pollution or overfishing) or natural changes (such as effects of climate change) occur in the aquatic system dolphins would likely move out of the effected areas. They would therefore rapidly indicate a change in the system, unlike other species that would go through demographic changes that would take much longer to observe. In addition, dolphins are good indicator species, because they are not hunted or killed by local Amazonians. Throughout the Amazon basin, and especially in the Peruvian Amazon, river dolphins hold very strong taboos among the local people. These taboos prohibit the killing of dolphins and retain enormous respect for the species. Dolphins are also relatively easy to count, which allows for long term monitoring of the species over time.

Research is being conducted at the Samiria River research sites in the Pacaya-Samiria National Reserve on the population trends and habitat use of the dolphins. The research aims to monitor the dolphins at several river sites and understand the ecology and habitat use of the species. The grey river dolphin is restricted more to the river environments, whereas the more ancient pink river dolphin is better adapted to the flooded forests and ranges frequently in the lakes and channels. Behavioural studies have shown that the pink river dolphins use the lakes as nurseries for their young, whilst the grey dolphin raises their young in the main rivers. The two species also have very different feeding behaviour, with the grey dolphin often feeding in communal pods that ambush fish along river banks. In contrast, pink dolphins are more solitary fishers who dive and stun fish with blasts of sonar.

Research on the species abundances and densities, group composition, and behaviour are being conducted in different habitat types along the Samiria River that has high population densities of the dolphins and a varied hydroscape of river, lake and channel habitats.

The Amazon basin is going through dramatic climate changes that will impact the largest rainforest on Earth. In 2010 the water levels of the Amazon River were at a historic low resulting in extreme dry conditions. In 2009, the same river was at a historic high, flooding huge area of Amazonian forests. More recently in 2011, the high water was again at historic highs, and then drained to historic low levels. Each year the Amazon River goes through seasonal changes between the flooding period from December to June and the low water period between July to November. However, these normal seasonal changes are now becoming more intense, which is impacting the wildlife and local people.

Research on dolphin populations is being conducted to understand how the ever increasing climatic changes are impacting their ecology, behaviour and populations. The wildlife of the Samiria River lives in an ecosystem that is driven by the large seasonal fluctuations occurring between high and low water seasons. The ecology of the aquatic and terrestrial wildlife revolves around these seasonal changes in water level.

The ecological conditions of long periods of flooding, up to 6 months, are very harsh on much of the floral and faunal community. The aquatic wildlife is affected by the large seasonal inundations. Dolphins have a more difficult time during the floods, since their prey is more sparsely distributed throughout the large expanses of the flooded forests. When the waters recede during the dry months, fish populations become condensed in the reduced lakes, rivers and channels. During this period many fish populations migrate out of the smaller rivers and into the larger rivers. The dolphins have an abundance of prey during the low water season and even follow the fish migrations down the rivers and channels.

The normal cycles in the Amazon forests are now being disrupted by the extreme flooding and drought events that are occurring. The flooded forests are particularly important at understanding the impacts of climate change in the Amazon, since the aquatic and terrestrial interface between high and low water seasons makes this habitat sensitive to greater seasonal variations.

The pink and grey river dolphins are an important part of the aquatic ecosystem in the Samiria River. The research is using these species as general indicators of the aquatic system. The historic low water levels are having a negative impact on the aquatic system of the Amazon if one uses the dolphins as indicators. The extreme low water conditions of 2010 resulted in lower dolphin numbers throughout the Samiria River. The dolphins left their habitats in the Samiria River to find refuge in the larger channels of the Amazon. The decreases in dolphins numbers is directly related to the fish populations. The fish were also impacted by the extremely low water levels of the Samiria River.

Methods

Aquatic Surveys

Aquatic surveys will be used to census dolphins. 5 km aquatic transects will be marked out, traveling upstream on the main river, traveling downstream on the main river and in nearby channels or lakes. Each transect will be marked using the aid of a GPS (Global Positioning System). At least two dolphin transects will be carried out per day, weather permitting. Transects usually take three hours to complete depending on the speed at which the river is flowing.

An auxiliary boat will be used to carry out the census. Any dolphins seen coming to the surface for air, swimming with their heads above water, sunbathing or swimming just below the surface of the water will be recorded. With the aid of the GPS the exact distance along a transect will be recorded, while the animal's position on the river and the time at which it was seen will also be noted. The dolphin species will be determined and observations on the behaviour will be recorded, including feeding, resting, moving, or playing.

The statistical analyses will involve comparisons between the grey and pink river dolphins, their use of marco habitats (river, lake or channels), their use of micro habitats (position in the river, lake or channels), and their behaviour. Comparisons will also be made in relation to the time of day, age classes, and macro habitats. In addition, data from previous years will be analysed to compare changes in dolphin densities, habitat use and age class composition over time.