Using acoustic recorders to monitor wetlands in the Goulburn Broken Catchment

Acoustic monitoring has been routinely used since 2008 in wetlands of the Goulburn Broken Catchment to gauge animals response to environmental water deliveries.

This information has provided insight to: population dynamics, species presence and activity periods and succession during periods of flooding, drawdown and drying at these wetlands. Data has also shown the impact of human induced noise on animal calls.

1. What is environmental water?

Environmental water is water set aside by the Commonwealth and State Governments to maintain the health of rivers, streams, creeks and wetlands

2. Where is the Goulburn Broken Catchment?

The Goulburn Broken Catchment is located in northern Victoria Australia. The whole of the catchment extends from the outskirts of Melbourne to the Murray River and yields more than 10.5% of the Murray-Darling Basin's water.

3. What acoustic technique is used?

- Ecoacoustics are used to monitor wetland faunal response to environmental water deliveries.
- Songscope sound recorders are placed in the field for a 48 hour period and record every 30 mins for 30 seconds.
- Sampling usually occurs during:
    a. Delivery of water
    b. After delivery
    c. Drawdown of the wetland

4. Where are acoustics being used?

Acoustic monitoring occurs at six wetlands within the Goulburn Broken Catchment. These are:

1. Reedy Swamp – 130 ha red gum swamp
2. Black Swamp – 16 ha red gum swamp
3. Moodie Swamp – 180 ha Cane Grass swamp
4. Doctors Swamp – 200 ha Red Gum Swamp
5. Kinnairds Wetland – 90 ha red gum/ plains grassy wetland
6. Barmah Forest - 28,500 ha red gum wetland/forest

5. What have we found?

We have learnt a lot from using acoustic recorders at our wetlands that we haven't found using exisiting traditional monitoring techniques. It has given us a better understanding of animal movement in and out of the wetlands during the day and night.

The Plumed Whistling Duck utilised our wetlands at night only and the cryptic, nationally threatened Australasian Bittern has been recorded utilising some of our wetlands.

Magpie Geese were recorded using our wetlands before being sighted. This allowed the Goulburn Broken CMA to obtain more environmental water to maintain a feeding site for these birds over the summer.

The Pobblebonk Frog call was being affected by trucks passing on the highway over 1km away. The frequency of the passing truck was the same as the Pobblebonk call, causing the frogs to stop calling. This can impact upon the competition and reproduction of the species.

6. Where to from here?

Using acoustic recorders in our wetlands has broadened our knowledge of these sites, assisted with natural resource management decision making and improved the basis for future planning of environmental water deliveries. It has allowed us access to increased funding and promote the benefits of environmental water.

Future monitoring includes using hydrophones to monitor underwater activity of aquatic insects, fish and turtles and their response to environmental water.