Research Round Up

Title of the project: An assessment of the presence of endocrine disrupting chemicals, in Melbourne's waterways, by investigating biomarkers of exposure in mosquitofish (*Gambusia holbrooki*), carp (*Cyprinus carpio*), brown trout (*Salmo trutta*) and eel (*Anguilla sp*.)

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Funding Body: Partially funded by Melbourne Water.

Collaborating organisations:

- **Key issue/s addressed:** Assessment of the extent of endocrine disruption in freshwater fish requires widespread sampling of a variety of wild populations of fish, ideally using nondestructive sampling methodologies and biomarkers. This study will aim to identify waterbodies that may contain levels of endocrine disrupting chemicals (EDCs) that could significantly affect native wildlife by examining fish specimens that will be collected from such sites around Melbourne for evidence of endocrine disruption The sites selected will include streams, lakes, rivers and wetlands receiving urban runoff, agricultural runoff, treated sewage effluents and industrial wastes. The aim is to sample populations of mosquitofish, trout, carp and eel evaluate the occurrence of EDCs in Melbourne's waterways using biomarkers of exposure in these different fish species.

Objectives:
- To investigate the presence of endocrine disrupting chemicals in Melbourne waterways using a number of reproductive biomarkers in field caught freshwater fish.
- To evaluate links between exposure to endocrine disrupting chemicals in Melbourne's waterways and altered reproductive function in freshwater fish.
- To assess seasonal differences in endocrine function/disruption and investigate interspecies differences
- To link the occurrence of endocrine disruption in freshwater fish with areas of different land geographically using GIS mapping.

Planned Outputs/Outcome (by when):
- Expect results from assessing endocrine disruption in mosquitofish in Melbourne wetlands by the end of the year.
- To collect fish samples at the start of 2008 until 2010. This s will be an ongoing PhD project and results expected within a few months after collection.

Methodological approach:
- Sampling mosquitofish adults from selected sites around Melbourne and assessing gonopodium morphology.
- Sampling carp, trout and eel from selected sites around Melbourne and collecting blood and other organs for evaluating various biomarkers
- Correlating results from the field with laboratory experiments on one of the chosen fish species.
- Correlating results from the field with Melbourne water's data on water quality and mapping land use (eg. Agricultural or urban) and occurrence of endocrine disruption in fish, if any, with GIS.

Key findings so far:
- Early stages of research. Currently assessing endocrine disruption in mosquitofish.

Please tick the relevant theme below:

Monitoring/ Analysis ☐ Exposure assessment ☐ Environmental Fate ☐ Effects X

Treatment Technology ☐ Risk Assessment ☐ Other ☐