

Research Round Up

Title of the project: Laboratory validation and field assessment of vitellogenin induction in two Australian perciform fishes: the tropical barramundi (*Lates calcarifer*) and the temperate black bream (*Acanthopagrus butcheri*).

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Funding Body: AIMS/RMIT

Collaborating organisations: RMIT University, Melbourne Water, Victorian EPA

Key issue/s addressed:

- Development of method for detection of endocrine disruption in two important, widely distributed native Australian fish species

Objectives:

- Determine if vitellogenin induction occurs in these two species in response to 17 β -estradiol
- Use multiple lines-of-evidence to confirm vitellogenin induction in laboratory assays
- Conduct field assessments to screen for vitellogenin induction as a sign of endocrine disruption in these species.

Planned Outputs/Outcome (by when):

- Laboratory exposure to 17 β -estradiol (November 2006)
- Confirmation of vtg induction using ELISA and Western blot (May 2007)
- In situ assessment of barramundi from several sites in tropical, northern Australia (July 2007)
- In situ assessment of black bream from several sites in southern Victoria (Two sites completed July 2007; more sites targeted for August and September 2007)
- Assess the basal levels of Vtg in male barramundi from different year classes to determine normal levels of Vtg for this species throughout its early years as a male. (October 2007- November 2007)
- Purification of E2 barramundi plasma injected into Sheep as a quantitative barramundi Vtg standard to be used in the ELISA bioassay.

Methodological approach:

- Develop semi-quantitative ELISA and Western blot using antibodies from other fish species that have displayed high cross reactivity with barramundi and black bream.

Key findings so far:

- Both species are sensitive to exposure to a potent oestrogen and produce Vtg in high amounts as a result
- Similar results for ELISA and Western blot data and reproducible
- Independent measure of E2 exposed barramundi from two different sources gave identical results for ELISA and Western blot techniques validated the sensitivity of this species

Please tick the relevant theme below:

Monitoring/ Analysis Exposure assessment Environmental Fate Effects

Treatment Technology Risk Assessment Other