

Lagoon / Pond Workshop Summary Notes

Background

A project proposal outline was presented at the 'Lagoon/Pond Workshop' held at Coogee on 28th May 2009. This outline is included in the attached PowerPoint (pdf) file. Following a series of technical and background presentations, a workshop session was convened to elucidate the strengths, weaknesses, gaps and desired outcomes on this topic.

The following notes comment on the project outline presented at the workshop (i.e. refer to the PowerPoint slides) and are arranged in order of strengths, weaknesses, gaps and outcomes, as identified by workshop participants.

Workshop Notes

Strengths

- Existing commercial models exist and if used correctly can provide good info
- Know benefits of mixed systems
- Shallow depth ponds (HRAP)

Weaknesses

- Models require many parameters (complex & expensive)
- Monitoring of appropriate parameters (which ones)
- Lack of data sets
- There are a variety of systems, making validation tricky
- Need to have the ability to vary conditions to the point of failure
- Expensive to monitor (e.g. EDC's)
 - o Suggestion was that EDC's should be included in monitoring programs
- Poor understanding of nutrients
- How does the project team decide which ponds to study?

Gaps

- Predict performance of existing lagoons (with and without changes/modifications made)
- Design of new effective lagoons (i.e. best practice)
- Hydraulic & biophysical/biochemical & water quality model desired
- Uncertainty of GHG fugitive emissions
- Issue of scale, investigating the need to research small, medium and large ponds based on how many of each there are
- Identifying the scale of the use of ponds by authority across Australia
- A key point made was that prior to improving pond performance, we need to understand how they work
- Odour and how to control it was highlighted. Generally related to microbial ecology and thus we need a better understanding of microbial ecology.

- Modelling parameters - the consensus was that we need to measure 'all variables' (as many as we can afford) up front to avoid extending modelling work indefinitely and to more quickly identify important information
- What are the impacts of climate change on pond systems?

Desirable Outcomes

- Model that can be practically applied with reliable results
- Guideline manual (design and operation)
- Influencing regulators – regarding energy use, pathogen reduction, chemicals, greenhouse gases, odours etc.
- Understanding the big picture issues like what are the most effective systems, can existing systems be retrofitted to cope with more load, should alternative systems be used (maybe a Decision Support System could assist with this)

Next Steps

The next steps will be the circulation of a written project proposal on lagoon/pond systems, taking into account data collected in the pre-workshop survey, (see attached Excel summary file), the workshop feedback and outcomes, and previous work/knowledge of the project team.

The project team is currently preparing a draft of the project proposal. A draft is anticipated in approximately 8 weeks.

This document will be circulated to industry and others who indicated at the workshop that they would like to comment on the draft proposal. Project funding will depend on a number of factors including the degree of overlap with the WQRA research agenda (i.e. water quality with public health outcomes) and the degree of industry support.