Coastal Mangrove Habitats and Shrimp Farming

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COASTAL aquaculture and mangroves have an uneasy relationship. It is uneasy because mangroves are still being cleared in some countries to provide land for aquaculture, even though it is now recognised that mangrove land is generally not suitable for intensively managed aquaculture ponds.

Issues

Coastal mangroves are being lost or degraded due to:

- destruction for aquaculture and agriculture;
- mining;
- urban, port, industrial and tourist development; and
- uncontrolled cutting for firewood and timber.

Coastal water quality is deteriorating due to:

- aquaculture;
- industrial effluent;
- agricultural chemicals (herbicides, pesticides);
- sewage and domestic effluent;
- urban run-off;
- seepage from industrial and mining containment ponds and from refuse dumps; and
- shipping wastes (solid refuse, bunker oil and ballast water).

Why do mangroves matter?

- Coastal protection;
- fish nurseries;
- food chains;
- habitats and coastal ecosystems;
- forest products;
- fisheries; and
- subsistence coastal dwellers.

Constraints

Issues which place constraints on the mangrove–shrimp farm system are:

- international, national and regional standards/guidelines;
- cost of compliance; and
- other sources of contamination.

Research for Mangrove–Shrimp Farming Systems

The general question becomes: "How much can we discharge and comply with the constraints?" The specific questions are as follows.

- What is the carrying capability of a mangrove habitat?
- What criteria should be used to evaluate the impacts?
- What is the fate of the effluent from shrimp farms in mangrove habitats?
- How do we measure the assimilative capacity of mangrove habitats with respect to:
  - time,
  - scale,
  - inputs, and
  - decay or removal?
- What bio-indicators should we use in our studies?

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Research Approach

When designing a research project on mangrove habitats and shrimp farms, we need to pay attention to the approach which will be most productive. Researchers need to consider:

- modelling versus monitoring;
- time frames; and
- milestones.