

National SEA for Aquaculture in South Africa Workshop Notes

EXPERT REFERENCE GROUP (ERG) WORKSHOP: Key Siting Criteria And Species Specific Thresholds - Level 1 and 2 Screening/Mapping

Date and Time:

24 January 2017 from 10h00-15h00

Location:

CSIR Stellenbosch, Mountain View Seminar Room

Attendees

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Apologies

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National SEA for Aquaculture in South Africa Workshop Notes

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Note: *In pursuit of efficiency, these notes are intended to capture the key outcomes from the discussion that influence the approach to the SEA and not as detailed minutes of the entire workshop as some aspects/issues are captured in the siting criteria matrix.*

Notes

- Presentation by Lizande Kellerman, CSIR
- Comments and inputs from attending participants on each of the key variables discussed were electronically captured by CSIR on the PowerPoint presentation during the workshop. The updated PowerPoint presentation is attached to these notes.

The notes below supplement the information in the presentation:

Level 1 National-scale screening

Ferdie Endemann: The production system using racks for oysters in estuaries is being phased out; however there is one small project in Hamburg, Eastern Cape that still use racks.

Roger Krohn: The production of prawns e.g. white-leg shrimp is not a viable species in natural inshore environments off the South African coast. And prawn producers are often outcompeted by imported product available at half the price of local production. Chris Fouché and others agreed that prawns should not be included as a priority species in the SEA.

National SEA for Aquaculture in South Africa Workshop Notes

Ferdie Endemann: Seaweed can be grown using longlines like oysters. He recommended that the SEA also look at the Operation Phakisa project in Saldanha Bay where seaweed (*Gracilaria* sp.) is grown on longlines along with abalone.

Stewart Bernard: In terms of Harmful Algal Blooms (HABs) and extreme conditions (wave dynamics) it would be useful to consider the frequency and persistence of these undesirable events, as well as the location of occurrence, but given limited available time and budget this might not be feasible. He also added that for algae/cyanobacteria it is important to know whether a particular species is toxic, since different fin- and shellfish species at different stages of their life cycles have different sensitivities to HABs.

Mary-Jane Thaela-Chimuka: A possible workaround the complexity of the HAB variables is to perhaps consider where devastating HABs have occurred in the past 10 years and regard those as potential exclusion or 'push' areas. Ferdie Endemann supported Mary-Jane's comment adding that inshore abalone farms should ideally be located away from potential freshwater influences.

Brett Macey: Harmful cyanobacteria concentrations will probably not be an issue in big dams.

Ferdie Endemann: The definition of "offshore" could be redefined to "all areas outside of sheltered bays". Mary-Jane Thaela-Chimuka added that steep slope is a constraint for development in terms of facility construction costs onshore; however, the functioning of land-based flow-through systems is assisted by slight slope.

Dee Fischer: In other SEAs such as the Wind and Solar SEA, "no-go" areas (where development is restricted in terms of environmental legislation) were masked. This could assist in the mapping exercise to identify those areas where aquaculture development is not recommended due to unsuitability of the receiving terrain. With regards to exclusion of such areas, national parks, Marine Protected Areas (MPAs) and National Key Points e.g. coastal power stations such as Koeberg should be considered "no-go" areas.

Mary-Jane Thaela-Chimuka: There are about 117 irrigation schemes in Limpopo where the Limpopo Department of Agriculture and Rural Development (LDARD) has initiated the integrated farming of freshwater aquaculture species using irrigation water as intermediate water source. The CSIR is to contact Mr Khoza at the LDARD for more information.

Ferdie Endemann: Excluding dams currently used for domestic water use may exclude rural communities that could potentially benefit from the transformation that aquaculture may bring in that area. He further commented that data on ammonia concentrations would be the most useful indicator of freshwater quality. Pat Morant added that ammonia is very volatile and

National SEA for Aquaculture in South Africa Workshop Notes

would not form dangerous concentrations in open waters e.g. dams; however, it could be a problem in tank-based systems. Stewart Bernard commented that the SEA will have to apply sensitivity mapping for each of the identified suitable dams.

Mary-Jane Thaela-Chimuka: There is a need to also look at former protected areas as some now fall under the custodianship of provincial agriculture departments. Mellisa Naiker added that there are also some forested areas in the Western Cape that have been awarded to agricultural departments.

Level 2 National-scale screening

Roger Krohn: Waste outfalls may provide an indication of marine water quality; however, discharges from storm water outfalls have a greater influence over water quality (e.g. in Saldanha Bay). He further added that access to electricity is an important factor for establishing an aquaculture facility, and that an aquaculture facility generally uses approximately 2 MW of electricity per day. Effectively it is not the proximity to electricity infrastructure that is important, but rather where there is capacity for sufficient electricity supply. Luanita Snyman-van der Walt commented that current spatial data used for the purposes of the SEA include physical areas where electricity infrastructure is present; future expansion plans may be considered, where applicable, to account for potential capacity. Ferdie Endemann, Roger Krohn and Mary-Jane Thaela-Chimuka suggested that proximity to electricity could be a Level 1 screening variable.

Roger Krohn: The SEA should also consider mines that have spare electricity capacity and may also be a potential water source.

Actions:

- 1) CSIR to source FAO data available on ammonia standards for aquaculture.
- 2) Ferdie Endemann to provide CSIR with a copy of the draft Western Cape aquaculture market analysis and development programme/strategy dated 2012.
- 3) Ferdie Endemann to provide CSIR with extra data, including a spreadsheet model to assist in determining water needs per ton of fish production.
- 4) CSIR to contact Prof John Bolton and Dr Anderson at University of Cape Town (UCT) with regards to seaweed culture.
- 5) CSIR to contact Catherine Greengrass about marron culture, as well as to obtain a copy of the ARC's PhD study done on marron from Mary-Jane Thaela-Chimuka.
- 6) CSIR to contact Dr Gerhard Backeberg at the Water Research Commission (WRC), and Dr Khalid Salie at the Stellenbosch University about information on studies done regarding wave height on dams.
- 7) Other variables to consider: existing Operation Phakisa projects as well as existing aquaculture projects can be added by CSIR as pull factors.

National SEA for Aquaculture in South Africa

Workshop Notes

Presentation on consolidated project description and approach to specialist inputs

Lizande Kellerman gave an overview of the consolidated project description and Terms of Reference for the specialist inputs.

Actions:

- 1) CSIR to obtain study from Ferdi Endemann on aquaculture value chains, including diagrams, to include in Project Description.
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