

TOOLBOX AQUACULTURE

Spatial planning and developing zones for aquaculture

Spatial planning

Many of the issues associated with the aquaculture sector are a result of poor spatial planning. The suitability of a location for aquaculture is determined by many factors including biological, environmental, social and regulatory issues. Furthermore, other activities will be competing for space and resources so not all areas are available for aquaculture. Aquaculture zones can be a useful way of planning and managing aquaculture.

Aquaculture zones

An aquaculture zone is an area that is suitable for aquaculture and has been allocated for aquaculture development. Zones are usually established by national or local governments and are supported by relevant policy and regulation. Although aquaculture development is prioritised in the zoned area, depending on the policy, other activities may still be allowed. An aquaculture zone does not allow uncontrolled development, it is a mechanism to allow more integrated planning of aquaculture, coordinate management strategies and avoid potential conflict with other sectors.

Regulatory and licensing authorities can use zones to:

- Identify potential areas for aquaculture
- Implement regulatory measures to control the development of aquaculture
- Control or manage disease and treatment
- Minimise conflict with surrounding area
- Reduce environmental impact
- Protect sensitive habitats and species

In recent years, zoning has gained more attention due to increased use of marine spatial planning to coordinate activities within coastal and marine waters. But it is important to remember that zoning can also be used for freshwater systems, and can be particularly useful for shared waterbodies. Figure 1 shows examples of potential zones within marine and freshwater environments.



Figure 1: Examples of potential zones, A) a specific area defined in a coast or marine area B) within a freshwater lake system C) around a coastline, and D) a group of freshwater ponds

Establishing a zone

First and foremost, an aquaculture zone is an area where the conditions are considered suitable for aquaculture. Therefore, the zone must fulfil the biological and environmental requirements of the species concerned. Though the assessment may not be as detailed as more specific site selection, there will still need to be some data analysis and consideration of relevant criteria. Additionally, it is important that the process for designating a zone is clear and transparent. Stakeholder engagement is essential. This is especially important in areas with potential for conflict between competing activities or special considerations such as sensitive habitats or protected areas.

To be effective, the designation of a zone should be supported by relevant policies, guidelines and depending on the process, perhaps even regulation. These should outline what is permitted within a zone and any conditions of use.

Within a zone, regulators and licencing authorities could manage the planning process for individual sites in a number of ways:

- The licensing authority identifies the number of sites available, performs the impact assessment and determines the allowed biomass. Then sells or auctions the site to producers.
- Prospective applicants identify sites within a zone and do the analysis, feasibility assessment and impact assessment and then applies for a licence to the relevant authority.

Development of management areas

Management areas are areas that have common strategies to minimise environmental, social and fish health risks. Action may be coordinated between farms such as treatment plans, water abstraction/discharges or limits for maximum biomass in an area. Farms may be owned by more than one company, and there may also be agreements with other users of the environment. Stakeholder engagement and cooperation is key for the success of a management area. There can be single or multiple aquaculture management areas within a zone, or the zone itself can be a management area.

Furthermore, surrounding environment and other activities all have an influence on the use of space and resources by aquaculture and it is important that wider conditions such as the surrounding catchment are included in planning and management of aquaculture.

Further reading

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