

CRITERIA FOR SITE SELECTION FOR SHRIMP FARM



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TOPOGRAPHY

- The steeper land should be avoid.
- Very flat land is preferable to construct pond walls well above the high water mark so that the pond bottoms can have slope to allow complete drainage
- Land should be above flood levels to prevent the loss of the crop or translocation of species
- Land to be used for pond construction should be 2 meters above highest high tide

SOIL TYPE

- Pond soil must have that hold water
- Soil should contain not less than 20% clay to eliminate or reduce the loss of water by seepage
- Soil that contain gravel or sand layers or rock strata formations should be avoided
- It is preferable to have soils with a neutral pH: 6.5-7.5

SOIL TYPE

If the land was used for crops, test the soil for accumulated pesticides residues

Soils that are acidic or have the potential to be acidic should be avoided. These soils often occur in salt fan and low areas adjacent to mangroves

Areas with high ground water cause problems. It is difficult or impossible, to built ponds, if ponds are built they cannot be completely drained and dried, steps which are necessary for efficient management

GENERAL GUIDE TO THE CLAY CONTENT OF VARIOUS SOIL TEXTURE

Texture	Clay (%)
Clay	> 40
Silty clay	40-60
Sandy clay	35-55
Silty clay loam	27-40
Clay loam	27-40
Sandy clay loam	20-35
Heavy silty loam	> 20 to 27
Silt loam	12-27
Loam	7-27
Sandy loam	< 20
Loamy sand	< 15
Silt	< 12
Sand	< 10

SOIL TYPE

Soil distribution, particle form and composition, uniformity and layer thickness are equally important

Suitable soils should be close to the surface and extend deep enough that construction, harvest activity or routine pond maintenance will not cut into a water permeable layer, causing leak

Soil analysis and the services of an engineer may be necessary

Along with soil condition, for growth of benthic algae is related to the amount of organic and inorganic fertilizers

Benthic algae is the basic nutrition source in the extensive culture system

The relation between soil type and algal growth

Sand %	Silt %	Clay %	Soil texture	Growth of benthic algae
28	22	50	Clay	Very abundant
15	44	42	Silty clay loam	Abundant
63	14	23	Sandy clay loam	Low
79	10	11	Sandy loam	Very low

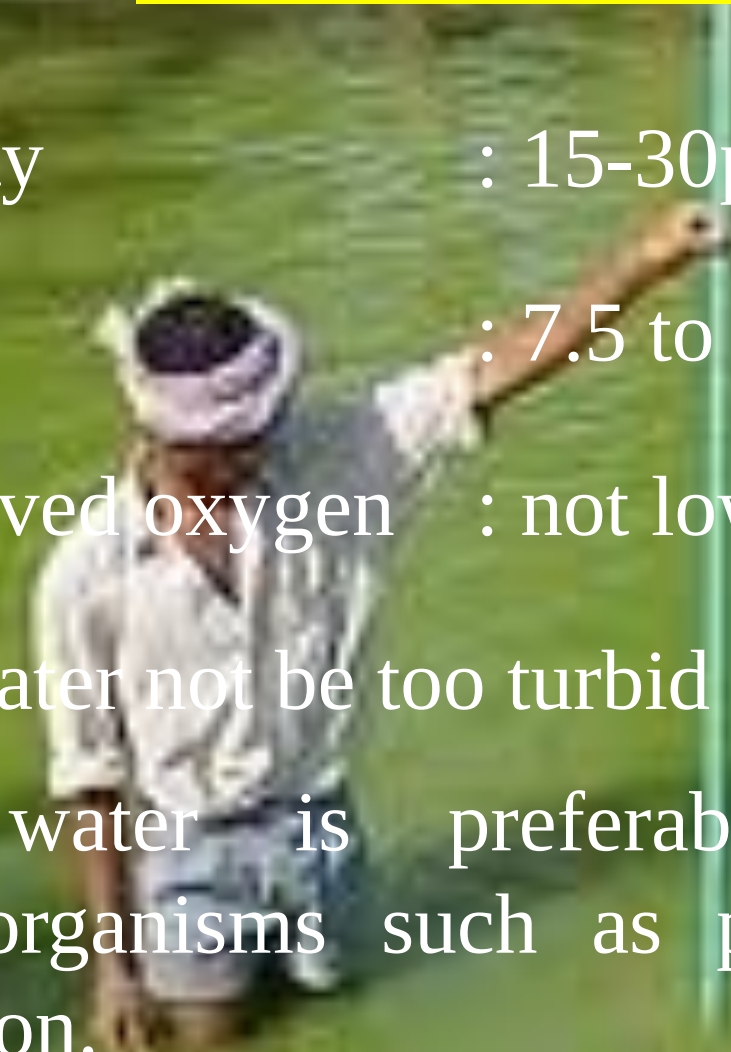
SOIL TYPE

Generally compact soils with high clay content are more appropriate

Soils very high in clay content are difficult to work with machinery during construction

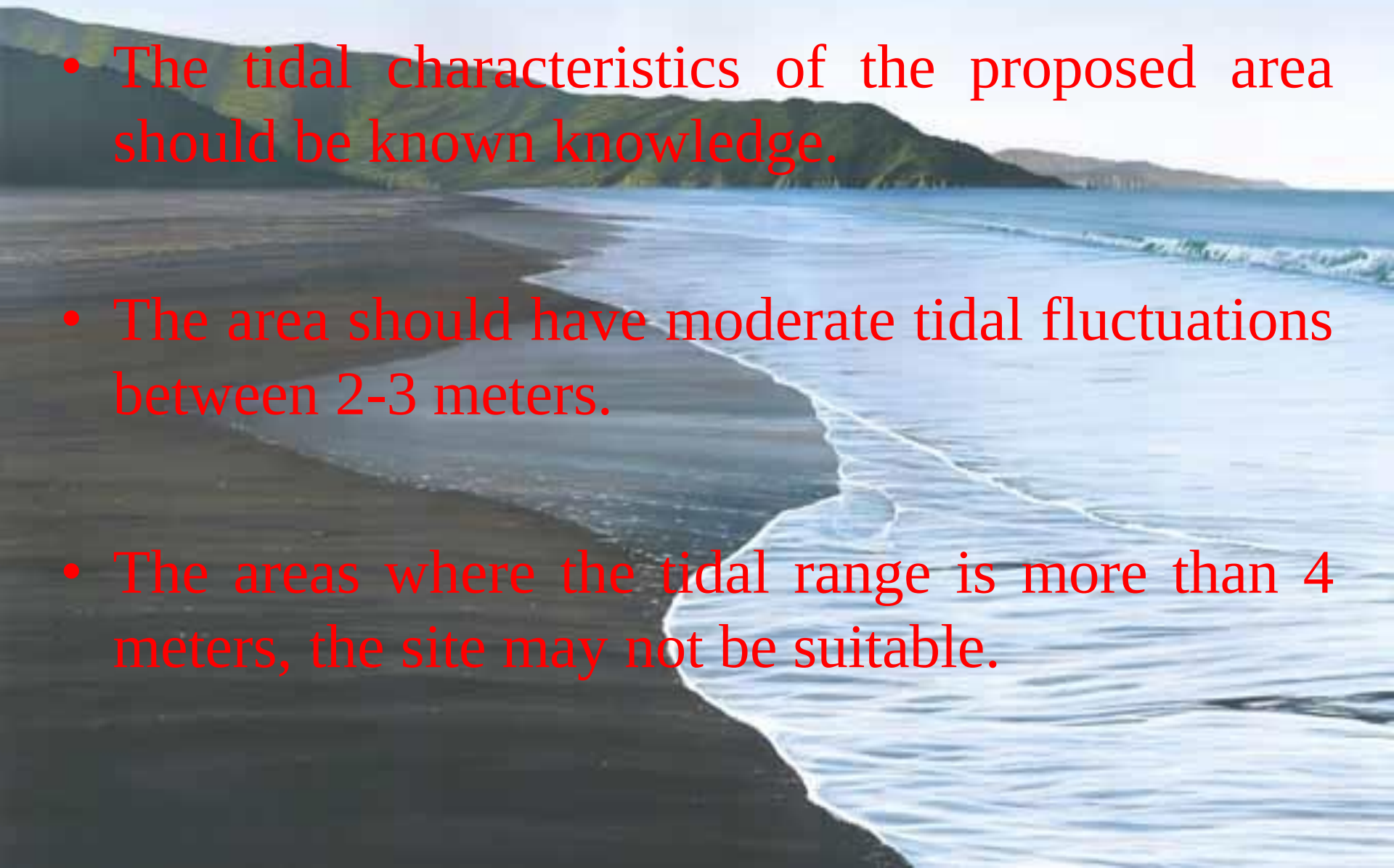
Whereas porous and loose soils may suffer from high water seepage and difficult during harvest because prawns and some fishes may burrow

WATER QUALITY

- Salinity : 15-30ppt.
 - pH : 7.5 to 8.5
 - Dissolved oxygen : not lower than 4ppm.
 - The water not be too turbid
 - The water is preferable to be rich in microorganisms such as probiotic bacteria and plankton.
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TIDAL FLUCTUATION

- The tidal characteristics of the proposed area should be known knowledge.
- The area should have moderate tidal fluctuations between 2-3 meters.
- The areas where the tidal range is more than 4 meters, the site may not be suitable.



OTHER CRITERIA

- Average air temperature : 26°C.
- Average pond temperature: 30°C.
- Estuarine water of high natural productivity.
- Water should not be contaminated by pollutants.
- Locate site far from industrial activity.
- Low flood risk.
- Good level of sunshine round the year. Low cloud level.
- Low evaporation rate-function of ambient temperature and humidity level round the year.

OTHER CRITERIA

- Land of suitable elevation to enable drainage at highest tide level.
- Good electricity connections and supply.
- Good availability of labour.
- Reasonable communication.
- Reasonable road and transportation facilities.
- Availability of formulated and natural feed.
- Availability of equipment supply and service.
- Proximity to processing facilities.
- Availability of seed round the year.
- Assessment of existing farms in the vicinity and their water sources and water drainage points and environmental impact assessment.

TYPES OF CULTURE

CHARACTERISTICS	EXTENSIVE	MODIFIED EXTENSIVE	SEMI INTENSIVE
Production level (Kg/crop/ha)	300-800	1500-3000	4000-7500
Stocking density (no/Sq.m/crop)	1-2.5	5-10	15-30
Survival (%)	50-90	70-80	70-80
Feed	Natural	Natural feed + Formulated feed	Formulated feed
Feeding frequency	-----	1-4 times	3-6 times
Water exchange (%/day)	For evaporation and seepage through tidal exchange or pumps	Up to 15% controlled exchange using pumps	Up to 30% controlled exchange using pumps
Pond size (ha)	More than 5 h.	1-2	1 or less

TYPES OF CULTURE

CHARACTERISTICS	EXTENSIVE	MODIFIED EXTENSIVE	SEMI INTENSIVE
Water depth (m)	0.5-1.2	0.8-1.5	0.8-1.5
Supplemental aeration	Not required	For emergencies supplemental	Continual mechanical & flushing
Requirement of engineering of farm	Not required	Moderate	Must be engineered for sustainable production
Level of pond management required	Low	Moderate systematic	Very high Delicate
Need of dependable electricity supply and Generator backup	Not required	Partial back-up necessary	Full back-up necessary
First level of investment	Low	Moderate	Very high
Availability of sites	Widespread	Widespread	Selective
Harvest size (gms)	20-60	20-50	20-40
FCR	----	1:1 to 1:1.5	1:1.5 to 1:1.7



Extensive Farming



Modified Extensive Farming



Semi-intensive Farming