

Whakatohea 'Mussel Farm'



Eastern Seafarms Water space

- 3,800 hectares
- 40 meters depth / 8.5 kilometers off the coast of Opotiki
- Ownership - Whakatohea 54%
 - Sealords 26%
 - NZ Seafarms 20%
- Property rights - 20 yrs with the right of renewal
- Consented to farm shellfish, sea cucumber, native seaweed ²

Commercial trials

- **3 year commercial trial / start October 2010**
 - anchoring systems
 - long line options
 - growth rates / condition
 - triploid mussels / oysters
- **Results to date;**
 - good natural spat catch
 - growing well
 - little wear and tear structures

Commercial trials – Monitoring

- longlines are monitored every two weeks;
 - floatation / wear and tear / spat catch
 - growth rates / water quality
- Ongoing testing;
 - longline backbone options
 - floatation (buoy) systems
- The information received from this commercial trial will largely determine the viability of the project

Monitoring data

- Inputs that most influence the profitability of the farm

| Input variables |
|----------------------------|
| Production meters per line |
| Crop yield |
| Spat purchase per meter |
| Cycle length |
| Price per tone |

- The commercial trials will determine the input variables used in the business plan



Business Plan

- **Farming and processing of mussels only**
- **Farm developed over 12 years**
- **Hatchery required - triploid mussels**
- **Processing factory - 6,000 tonnes**
- **Diversify into other products to spread risk**

Mussel Spat Supply

- Use natural spat first 4 years
- Build a hatchery in Year 4 – triploid mussel
- From Year 5 the farm would;
 - capture 50% spat from the farm
 - 50% triploid from the hatchery
- Capture natural spat for sale to third parties

Hatchery

- In-house production of triploid mussels
- Capability to breed;
 - oyster, scallop, goeduck
 - sea cucumber juveniles
- Reduced reliance on the vagaries of natural spat supply
- Supply to third parties

Farming

- **Spat management;**
 - **ensure continuous supply for production lines**
- **Crop management;**
 - **supply consistent product to the processing plant**
- **Longline maintenance;**
 - **maintain the integrity of the equipment**

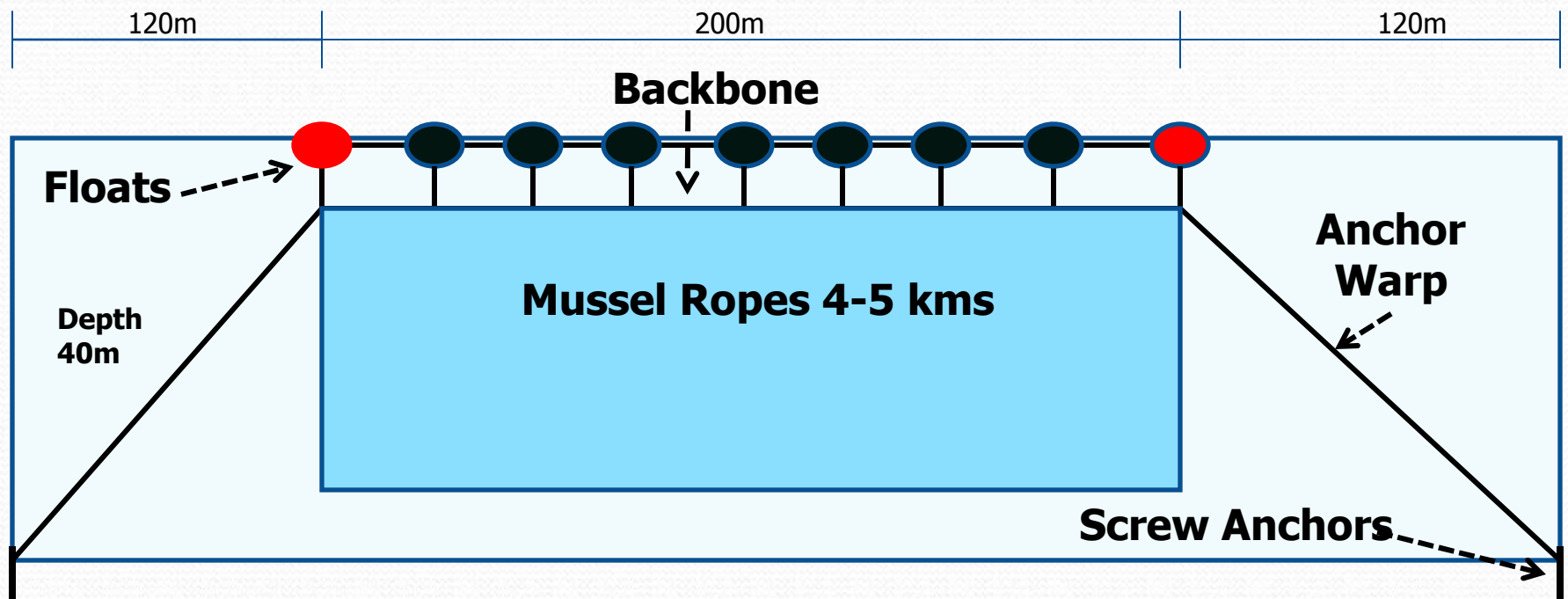


Farm Structures

- Fully tested through the current trials
- Similar to other open ocean sites
- Coastal permit stipulates a staged development
- Assumed change to the consent develop over 12 years
- Ongoing monitoring from stage 1A

Mussel farm structure

Diagrammatical



Vessels and Equipment

- **Owned and managed by the company**
- **Harvest vessel (1) – year 1**
 - 30m long, 8m draft, draft 2.5m –100 tonne mussels
- **Spat seeding vessel (1) – year 4**
 - min 20 m long, 8m draft, draft 2.5m – seed 8 lines day
- **Farm servicing vessel (2) – year 8 & 11**
 - similar to the spat vessel /multi-task / dive tender

Port Facilities

- Wharf owned by 3rd party
- Vessels turn around and maneuver in port
- Wharf long enough for more than one mussel vessel
- Mooring / berthing facilities for all mussel vessels (4 or 5)
- Vessel cranes designed to offload / on-loading of product

Processing Plant

- **Located as close to the wharf as possible**
- **Product offloaded at wharf, forklifted to coolstorage**
- **Manual opening to produce half shell mussels**
- **Viable mussel processing plant, 10,000 tonnes**
- **Additional capacity added in 5,000 tonne modules**

Packing Capacity

| Year of Operation | Forecast GWT | GWT Capacity | Capacity % |
|-------------------|--------------|--------------|------------|
| 5 | 8,804 | 10,000 | 88% |
| 6 | 11,272 | | 113% |
| 7 | 11,809 | 15,000 | 79% |
| 8 | 14,107 | | 94% |
| 9 | 16,675 | | 111% |
| 10 | 17,842 | 20,000 | 89% |
| 11 | 18,976 | | 95% |
| 12 | 22,278 | | 111% |
| 13 | 24,678 | 25,000 | 99% |

Note; # GWT = greenweight tonnes

- Construction would start 1 year before processing starts

Potential Employment

| Year | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|------------|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|
| Hatchery | 4 | 5 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| On-water | 10 | 10 | 20 | 20 | 20 | 30 | 30 | 30 | 30 | 40 | 40 | 40 |
| Processing | | | | | 192 | 288 | 288 | 288 | 384 | 384 | 384 | 480 |
| Admin/Man | 1 | 1 | 1 | 1 | 9 | 13 | 13 | 13 | 17 | 17 | 17 | 20 |
| Total | 15 | 16 | 27 | 28 | 228 | 338 | 338 | 338 | 438 | 448 | 448 | 547 |

Note;

1.FTE's to operate the core business

2. Exclusive of necessary service industries



Summary

- **The commercial trial and market forecast will largely determine the viability of the project**
- **Costs and revenues are currently being verified from the ground up using industry participants**
- **If the Opotiki port construction does not go ahead then this venture would need complete reassessment to gauge its viability.**

Mussel farm



Opotiki



Trial Work



Commercial Trial

