

DEVELOPMENT OF POTENTIAL INTEGRATED MULTITROPHIC AQUACULTURE IN ARGENTINA

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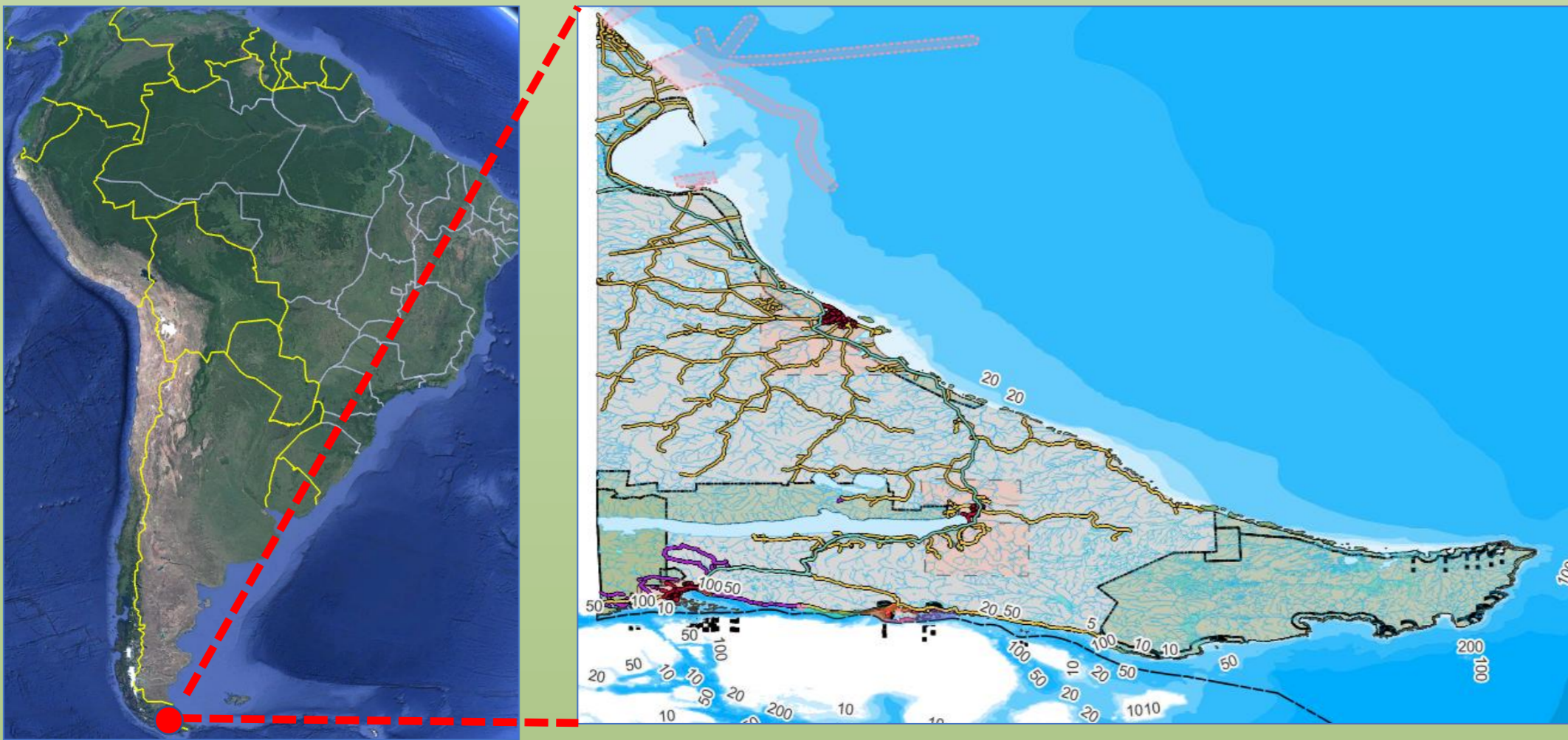
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INTRODUCTION & OBJECTIVES

Marine aquaculture in Argentina has been characterized by the development of experimental and pilot-scale projects that have yet to be transformed into commercial ventures. Therefore, holistic planning is needed to impulse sustainable and profitable growth for this activity. Under this framework, we set out to generate data for marine aquaculture planning in Tierra del Fuego Island, focused on the development of IMTA.

RESULTS

Two potential IMTA configurations were described. One comprises the whitebait fish *Galaxias maculatus* and the halophyte glasswort *Sarcocornia magellanica* cultivated in land-based facilities. The other option includes the blue mussel *Mytilus chilensis* grown in longlines with the red sea urchin *Loxechinus albus* cultivated in lanterns. The figure shows the productive cycle of the proposed IMTA.



Location of Tierra del Fuego Island at the south tip of South America and the landscape of the Beagle Channel

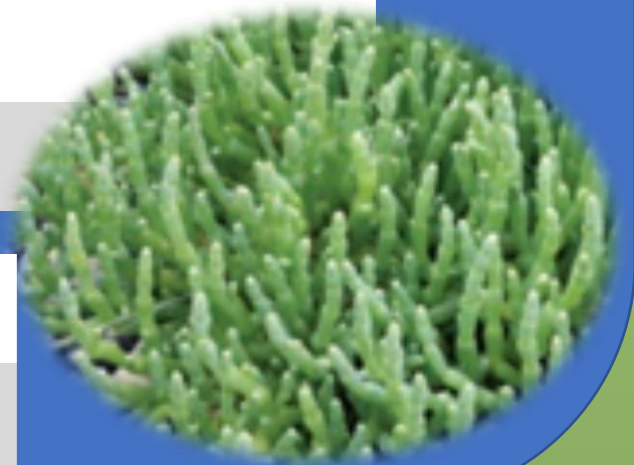
Whitebait *Galaxias maculatus*

Biology	Market
Finfish	Gourmet product
Diadromous	High value
Low trophic	No commercial fisheries
Aquaculture	Limitations
Fed aquaculture	No aquaculture regulations
Land based	
Low biomass	
Seed availability	



Glasswort *Sarcocornia magellanica*

Biology	Market
Halophyte	Gourmet product
Perennial	High value
Low trophic	High nutritional value
Aquaculture	Limitations
Extractive aquaculture	Dish topping
Land based	Low artisanal collection
Low biomass	No commercial fisheries
Seed availability	Limitations No regulations

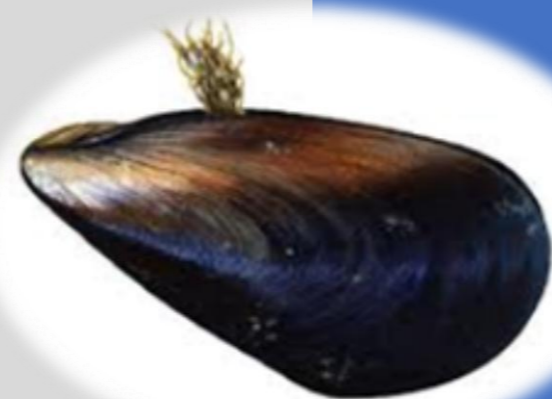


Integration

- ✓ Similar salinity
- ✓ Glasswort can be irrigated with waste water of whitbait
- ✓ Similar temperature
- ✓ Both on land based

Blue mussel *Mytilus chilensis*

Biology	Market
Mollusc bivalve	International market
Planktonic larval	Low value
Low trophic	Commercial fisheries
Aquaculture	Limitations
Extractive aquaculture	Harsh weather
Open water	Biofouling
High biomass	Red tide
Seed availability	
Clear regulations	



Red sea urchin *Loxechinus albus*

Biology	Market
Echinoderm	Gourmet product
Low growth	High value
Low trophic	Low artisanal fisheries
Aquaculture	Limitations
Fed aquaculture	No aquaculture regulations
Open water	No seed availability
Low biomass	
Seed availability	



Integration

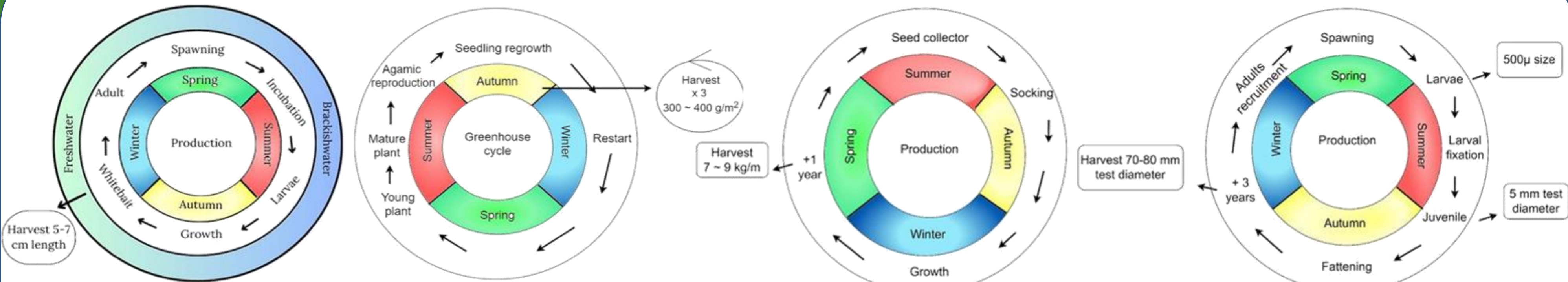
- ✓ Same environmental needs
- ✓ The larvae of sea urchin naturally attach to the longlines
- ✓ Sea urchin feeds on biofouling
- ✓ Both on open water system with the same structures

Whitebait

+ Glasswort

Blue mussel

+ Red sea urchin



Theoretical productive cycles of 4 native species of the Beagle Channel identified with high potential for IMTA

