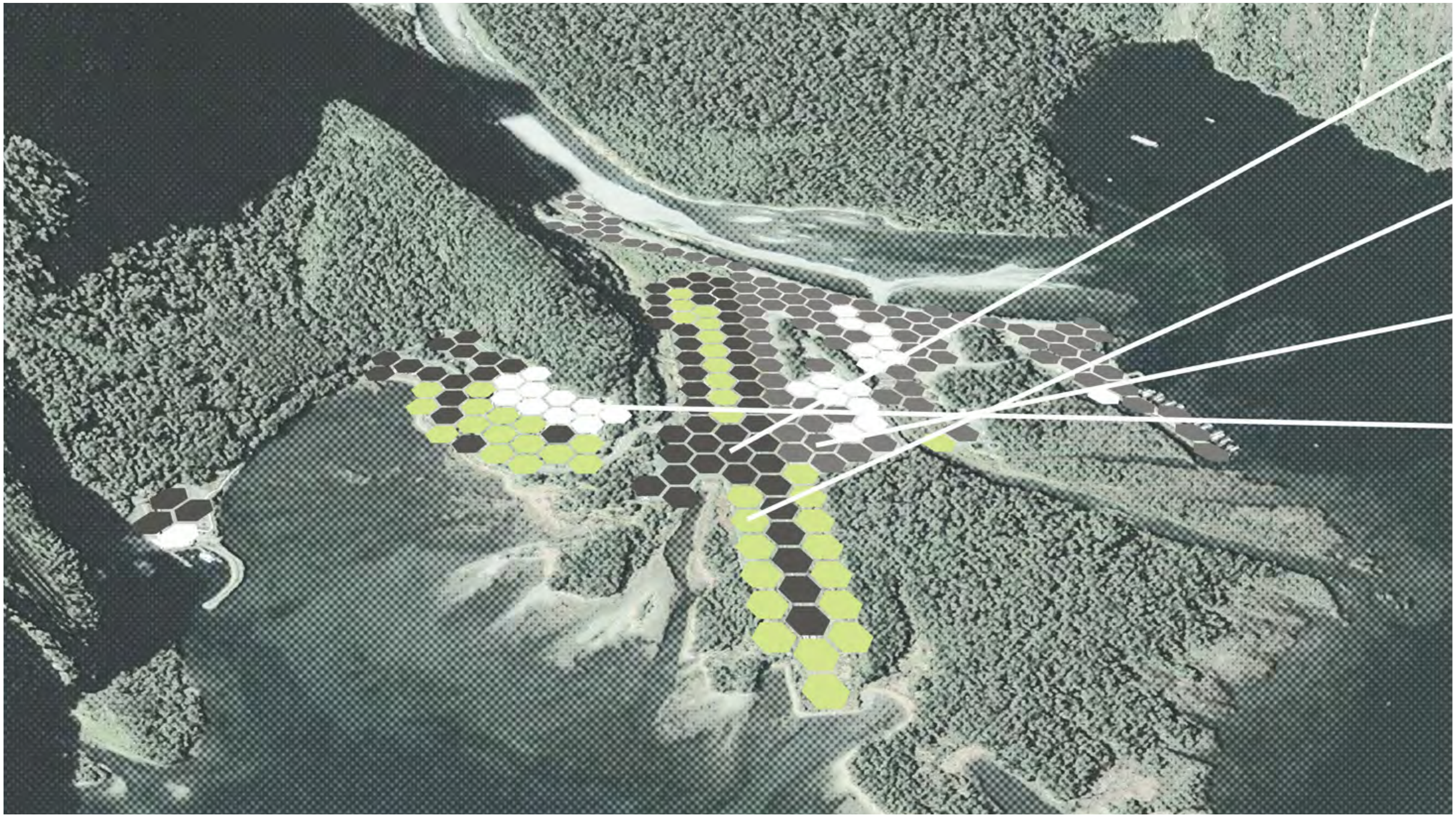


| | |
|---|---|
| Country / City | New Zealand |
| University / School | Lincoln University / School of Landscape Architecture |
| Academic year | 2017 |
| Title of the project | The Beating Heart of Piopiotahi |
| Authors | Tom Steck |

- Bull Kelp Crops
- Ecological Incubator
- Electricity Generation
- Allocation for Land Loss (future sea level rise 2m)
- Built Form

over time by limiting the means of road access to the sound to a set number of shuttles that depart from Te Anau. The seats in these shuttles will have to be booked well advance due to these limitations, with a 20% reservation on seats for New Zealand citizens.

This intervention will eliminate the current drive in (4 hours), have a boat ride (1 hour) then drive back to Queenstown (4 hours), currently experienced though photo lens or bus windows, style of tourism in the area. Visitors will require a genuine interest or desire to visit Milford Sound and experience its beauty and natural systems in such a way that does not degrade the area's environmental and experiential quality.

Board walk access to the Milford Sound lookout, creating a interactive journey to the sound

Revegetation Area

Mahinga Kia Innovation Centre

Visitor's entry into the settlement

Settlement Centre

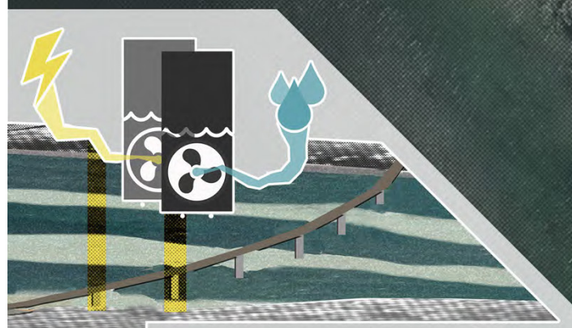
Road access from Te Anau

River stop bank no longer managed past this point allowing the mouth to take natural form over time.

Hydroelectric Bridge

Ecological Incubator

Marine Farm Yards



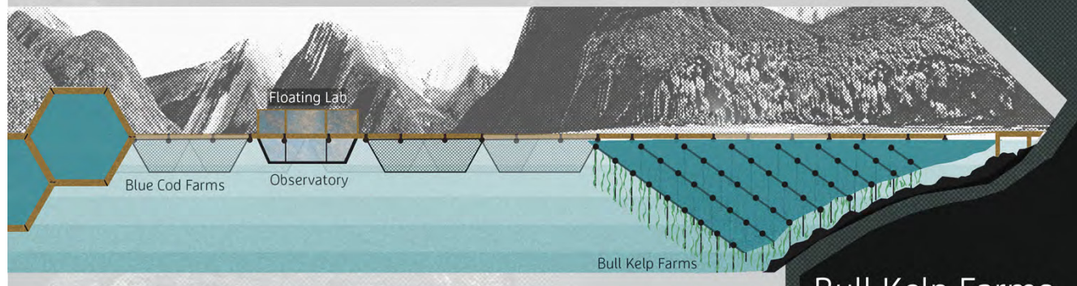
## Passive Electric Generation

The bridge that spans the Cleddau River connects the central section of the settlement to the ecological incubator, marine farms and Milford track .The bridge also sustainably generates the electricity for the entire settlement. It achieves this though passive hydroelectric generation created by turbines below the water surface that are set in to the structural supports of the bridge structure. Milford's near 6.5 metre annual rainfall ensures there is no shortage of moving water for generation.

## Deep Water Basin Farms

The deep water basin marine farms will become the main source of food in the settlement. The blue cod floating structures splay out along the southern edge of the basin creating a walkable connection over the basin between Sandfly Point (the current end of the Milford track) and the Milford settlement.

The cod farms will not only produce a viable food source for the residents and a valuable commodity that is from Milford sound, but will replenish the currently depleted blue cod fisheries of the Milford Sound Marine reserve.




The farms will not only become a human and ecological machine of production, they will also accommodate world class research and education in the unique and diverse marine biology of the Milford Sound, along with researching and producing innovative solutions for food production in our marine environment that are both economically and environmentally productive.

The faculty buildings and laboratories that service and study the marine farms and surrounding biology will be above and below the waters service. Detachable form the farm structure the barges will be able to move freely servicing all locational requirements directly at their source, while the structures that meet with the end of the marine farms on the land provide storage and working space for the farms machinery and produce management.


## Bull Kelp Farms

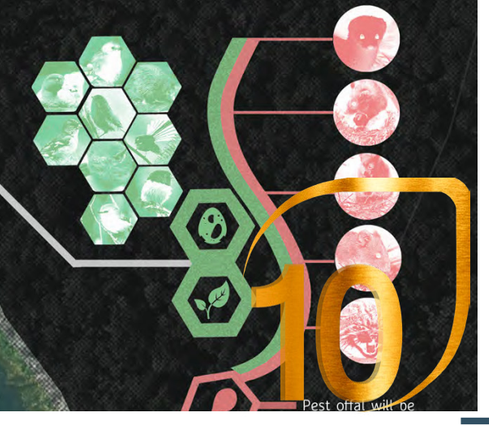
Between the cod farms and the land lie rows of bull kelp growing lines and oyster cages. Bull Kelp will become somewhat of a staple for the Milford guests and residents. Its presence has beneficial impacts for both human use and the surrounding ecology by:

- Creating Marine Habitat for surround fauna
- Being high in nutrients, more iron than red meat and more calcium than milk
- Having five times the carbon sequestration than land based plants
- Being the second fastest growing plant on the earth
- Being winter and summer harvestable
- Needing zero inputs required for growth

## Ecological Incubator

The ecological incubator will become a safe haven for native flora and fauna to thrive in. With its connecting road to the bridge and central section of the settlement being lined with predator proof fencing with easily serviceable predator traps set into it, the ecological incubator not only protects its inhabitants as it also manages the pest populations in the surrounding native bush; creating safe habitat for the birdlife of the ecological incubator to disperse into.

The two surrounding structures house the faculties of ecological conservation, both of native flora and fauna, focused on not only educating conservation practices but innovating new methods and technologies toward effective ecological conservation in New Zealand's and the rest of the worlds national parks. Intensive research and ecological regeneration testing take place in the central "courtyards" of the buildings; acting as nurseries and hatcheries for the surrounding native flora and fauna.



10

Pest offal will be

Boardwalk to the Milford Sound lookout

To the Milford Sound port

Mahinga Kai innovation centre

Mahinga Kai Cropping

Service vehicle yard

16m

15m

14m

13m

12m

11m

10m

+15m FFL

Bike and cart rentals / Milford Sound activities office

Bus station / Information centre

Bus stop for vistitor arrival

Tourism retail

Rooftop restaurant

Milford lodge rooms

Milford lodge main building

Weary walkers hostel

+13.5m FFL

Mixed sized appartments

Community centre building

Mixed sized appartments

+10.5m

A

Vehicular services access

Grey water filtration patches

Student Dorms

+13.5m FFL

Student Dorms

## Shelly

8:30am – Shelly leaves the dorm early to join her class on a visit to the kelp farms for an exhibition on nylon - flax fibre blend wetsuits, and their effectiveness in below zero conditions.

1:00pm – After a fascinating exhibition, Shelly rides back to her studio in the institute of product design building to finish her design project on lightweight organic textiles in aquatic conditions.

11:00pm – Quite exhausted Shelly goes down the track to the general good store to grab a caffeinated kelp shake.

1:30am – Shelly goes back to her dorm to add the final touches to her project before her presentation later that afternoon to the suppliers at the outdoor clothing store, on her research and designs.

## Hans

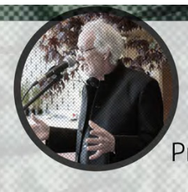
10:00am – Hans arrives on the morning shuttle from Te Anau very excited to join the Institute of sustainable design and engineering for living in isolated areas, for a two week workshop on passive hydroelectric generation technology.

10:30am – Hans checks in at the Milford Lodge and settles into his forest view room on the ground floor and spends some time watching two fantails flitter through the podocarp vegetation.

12:30pm – After looking though the Piopiotahi souvenir shop he buys a beautiful Tangiwai Pounamu pendant for his wife back in Hannover.

2:00pm – Having walked down the boardwalk trails to see the sound, Hans makes his way back to the settlement to join the first session of the workshop.

7:00pm – The workshop done for the day, Hans visits the restaurant on the rooftop over from his building for a meal fresh blue cod and bull kelp spaghetti before going back to his room ready for the next day.



## Prof. Herb

9:00am - Herb leaves his apartment and joins his colleagues in his unit's common room for breakfast.

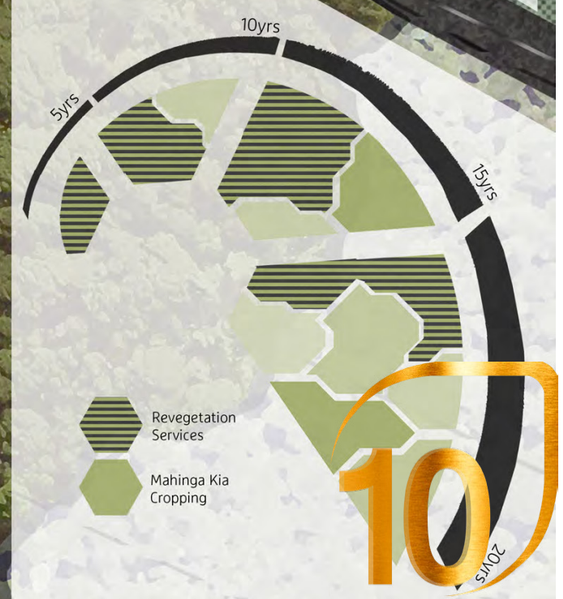
9:30am - Herb rides his cycle cart across the bridge to the ecological incubator labs to work on his research developing new methods of pest control through genetic modification. On his way in he empties two stoat traps along the predator proof fencing and drops them in the fish food bins.

12:00pm – Herb decides to cycle back to the podocarp café for lunch as he's expected at the nearby Mahinga Kai generation centre this afternoon for a guest lecture.

1:00pm - Herb presents his lecture on the effect that crop management can have on pest populations in the surrounding Podocarp forest communities.

3:00pm – Being Friday Herb finishes early and catches up with his good friend Dave, who works up at the port, for a bull kelp beer at the community centre brewery and bar.

6:00pm – Not in the mood for cooking Herb goes to the Milford fish monger for a meal of fried cod and chips before he goes back to his apartment.




Rooftop restaurant tables
+ 16.20m
+ 14.40m
+ 14.00m
Greywacke and schist boulder guttering to prevent soil washout from water runoff from glass roof
+ 22.20m
+ 21.00m FFL
Access to the roof top decking via restaurant
+ 14.50m
Bar leaners
Native timber handrail capping
Galvanized steel grate panels
+ 22.20m
+ 21.00m FFL
+ 21.00m
Native hardwood bridge decking
+ 21.40m
Access to the roof top decking via lodge
+ 21.00m FFL
+ 15.00m FFL

# PERFORMATIVE NATURE

**Barcelona International Landscape Architecture Biennial**

September 2018 Barcelona

SCHOOL PRIZE

**X International Landscape Architecture Biennial**

**Máster d'Arquitectura del Paisatge -DUOT - UPC**
ETSAB- Escola Tècnica Superior
d'Arquitectura de Barcelona
Avenida Diagonal, 649 piso 5
08028 Barcelona-Spain

## TECHNICAL DOSSIER

| | |
|---|---|
| Title of the project | The Beating Heart of Piopiotahi |
| Authors | Tom Steck |
| Title of the course | LASC 409: Major Design |
| Academic year | 2017 |
| Teaching Staff | Don Royds |
| Department/Section/Program of belonging | School of Landscape Architecture |
| University/School | Lincoln University, New Zealand |

Written statement, short description of the project in English, no more than 250 words

Piopiotahi village will become a living organ of the surrounding wilderness, where its active interventions in the landscape manifest from an overall driver of enhancing both the ecological and social essence of Piopiotahi. Research, education, and industry that embodies and physically engages with its immediate environment becomes the catalyst for ecological growth; giving purpose to its human occupation creating a rich and evocative relationship with our unique natural landscape.

The ecological incubator will become a safe haven for native flora and fauna to thrive in. With its connecting road to the bridge and central section of the settlement being lined with predator proof fencing with easily serviceable predator traps set into it, the ecological incubator not only protects its inhabitants as it also manages the pest populations in the surrounding native bush; creating habitat for the birdlife of the ecological incubator to disperse into.

For further information
**Máster d'Arquitectura del Paisatge -DUOT - UPC**

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