



Wave-Powered Desal Buoy Pilot Project

Presented by:

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Technologies*

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Blue Economy Initiative Goals, Fort Bragg, California



Ocean Resiliency

**Mitigation, Sequestration
and Adaptation**

Renewable Energy

Emissions Reduction

Aquaculture and
Sustainable Fishing

Marine Cleantech

**Protection of Ocean
Ecosystems**

Promote Jobs in the
Environmental Sphere



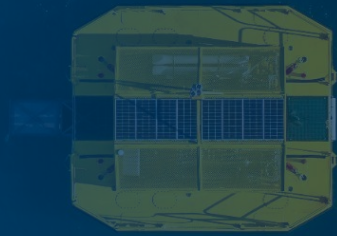


City of Fort Bragg

Water Challenges

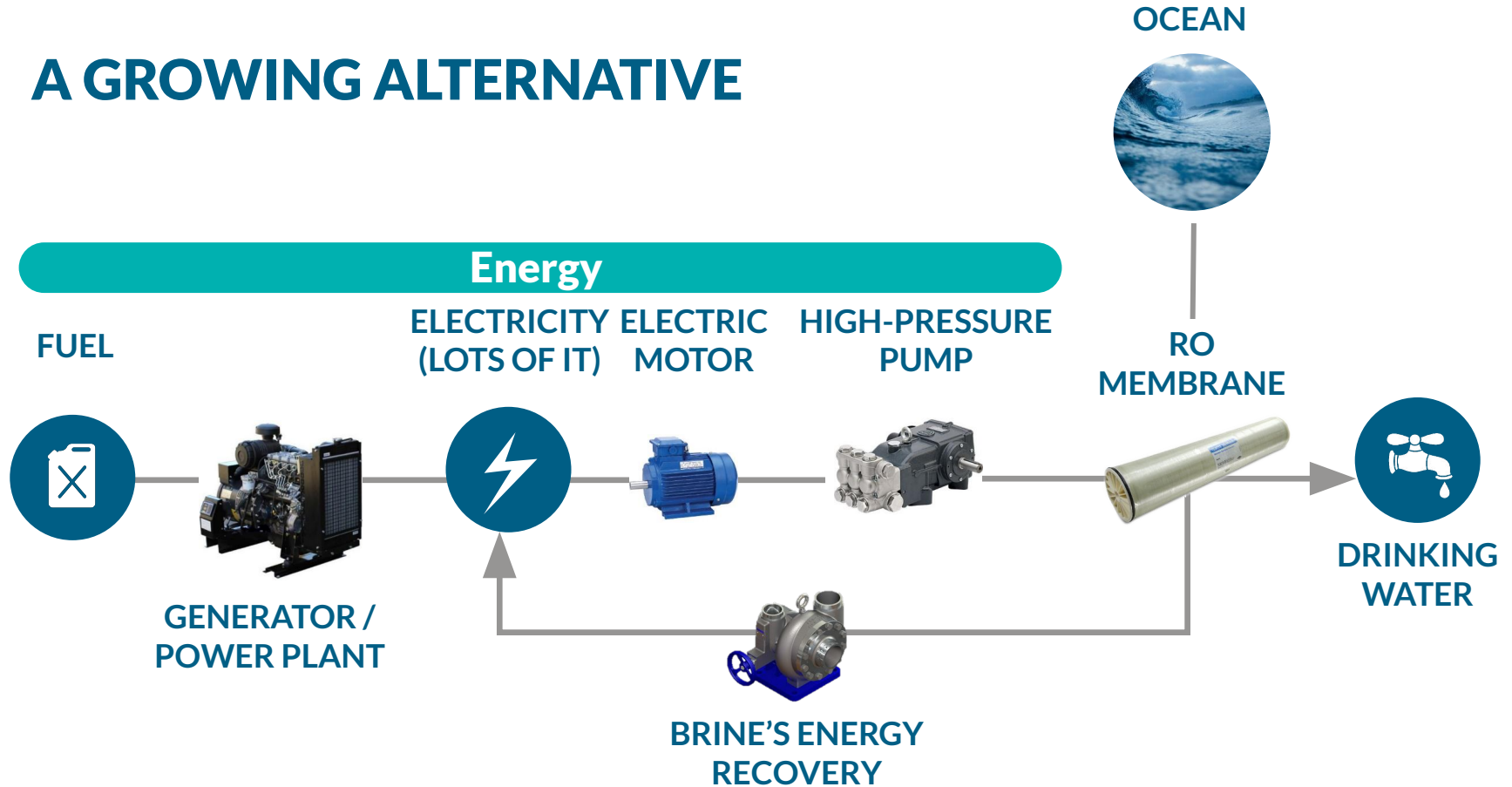


- Dependence on rainfall and river water for water supply
- Repetitive droughts strained the water supply
- Brackish water desalination plant added
- Water availability too low during droughts to supply local communities, requiring expensive trucking
- Self powered, affordable & sustainable water supply required



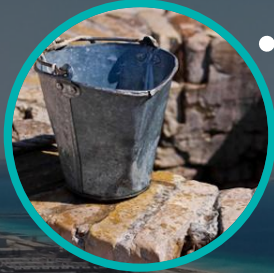
WHO IS ONEKA?

A GROWING ALTERNATIVE



CONVENTIONAL DESALINATION TURNS FUEL INTO WATER

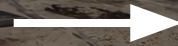
**WATER
SCARCITY**



**CONVENTIONAL
DESALINATION**



**CLIMATE
CHANGE**



Conventional desalination does not currently appear to have a sustainable trajectory under existing energy models.



2020

2050

~1 %

of world's population
lives on desalinated
water

=

~0,5 %

of world's CO₂
emissions

10 %

of population

desalination expected to
increase at current
growth rate

=

~3 %

of today's world's
CO₂ emissions

more than today's
aviation industry

The oceans, the perfect match for sustainable freshwater

RESOURCE
(Water)

ENERGY
(Waves)

PROXIMITY
(To coastal
populations)

ONEKA SUSTAINABLY TURNS WAVES INTO FRESHWATER

**NO
ELECTRICITY**

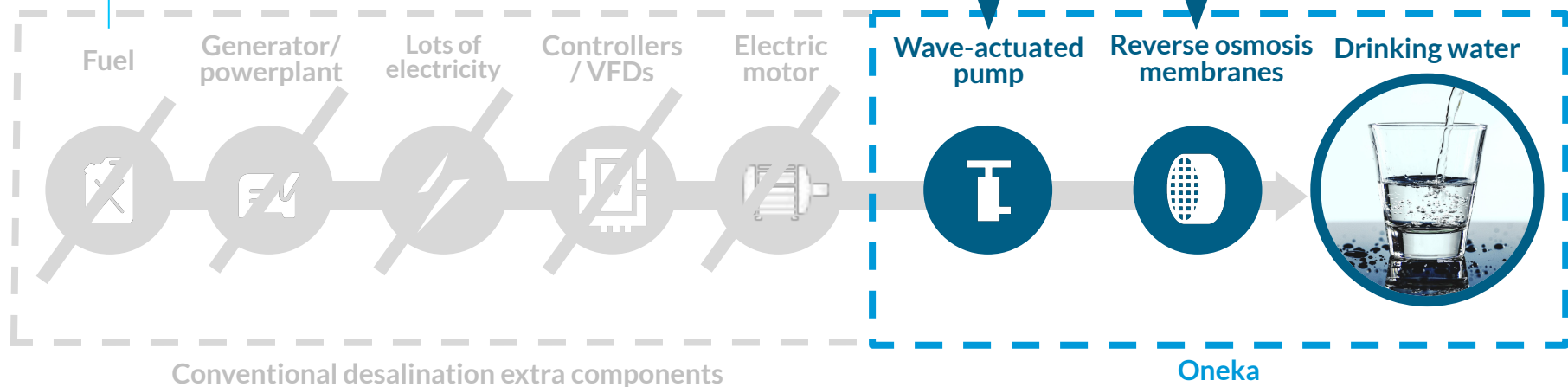
**0\$
ENERGY COST**

SIMPLICITY

ONEKA SUSTAINABLY TURNS WAVES INTO WATER



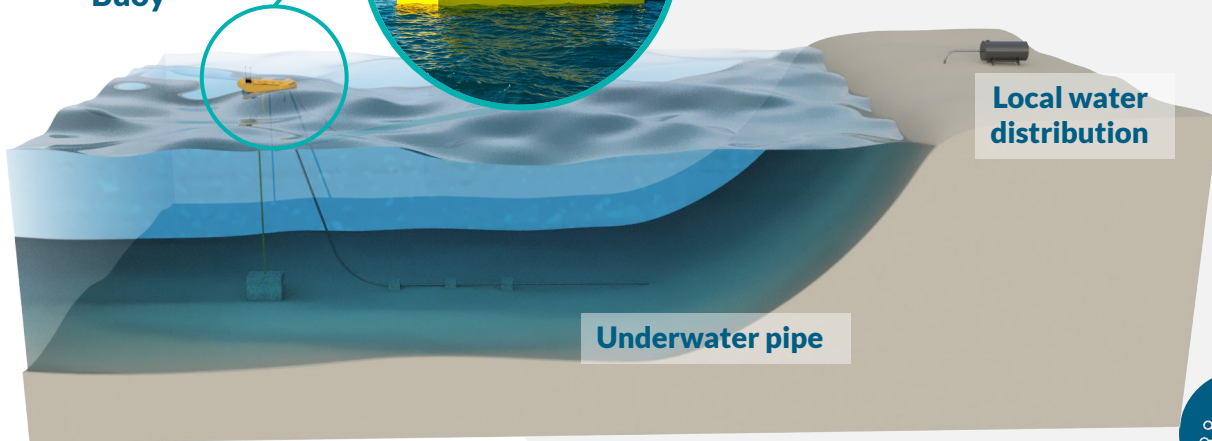
30-50% of
cost eliminated



ONEKA'S WATER TAP FROM THE OCEAN



Wave-Powered
Desalination
Buoy



Underwater pipe

Local water
distribution



ZERO GHG EMISSIONS



**ZERO LAND USE
FOR
DESALINATION**



**LOWER SALINITY &
WELL DILUTED BRINE**



**WATER INTAKE SAFE
FOR MARINE LIFE**

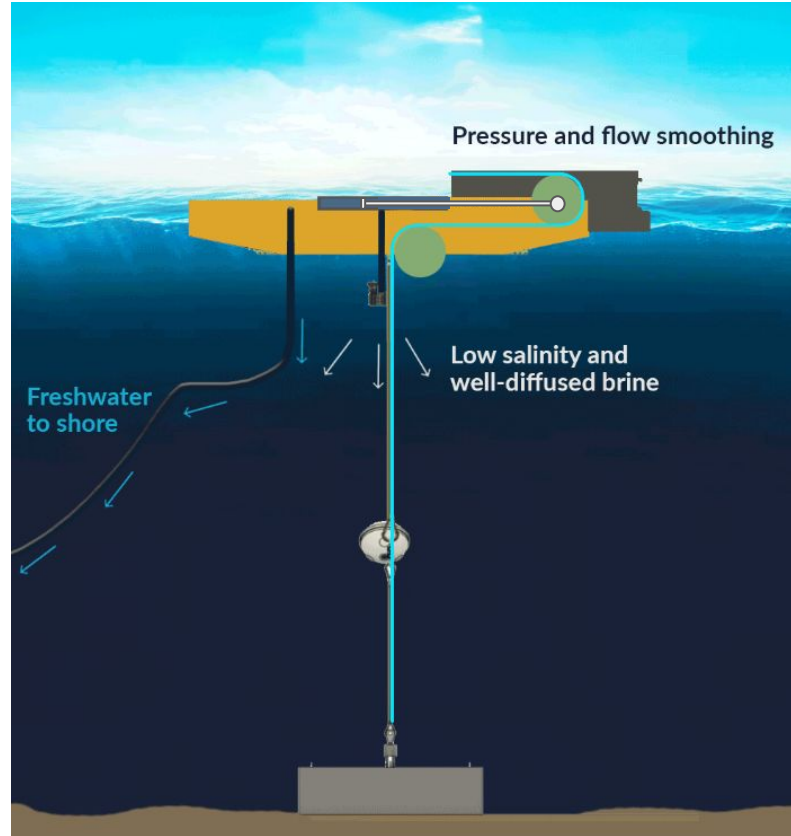


**DECENTRALIZED -
GRID INDEPENDENT**



PORTABLE

HOW IT WORKS



LIMITED OR NO LAND OR VISUAL IMPACT

Nova Scotia, Canada, 2020

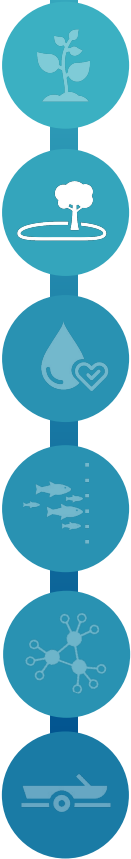


1 mi offshore

Algarrobo, Chile, 2022

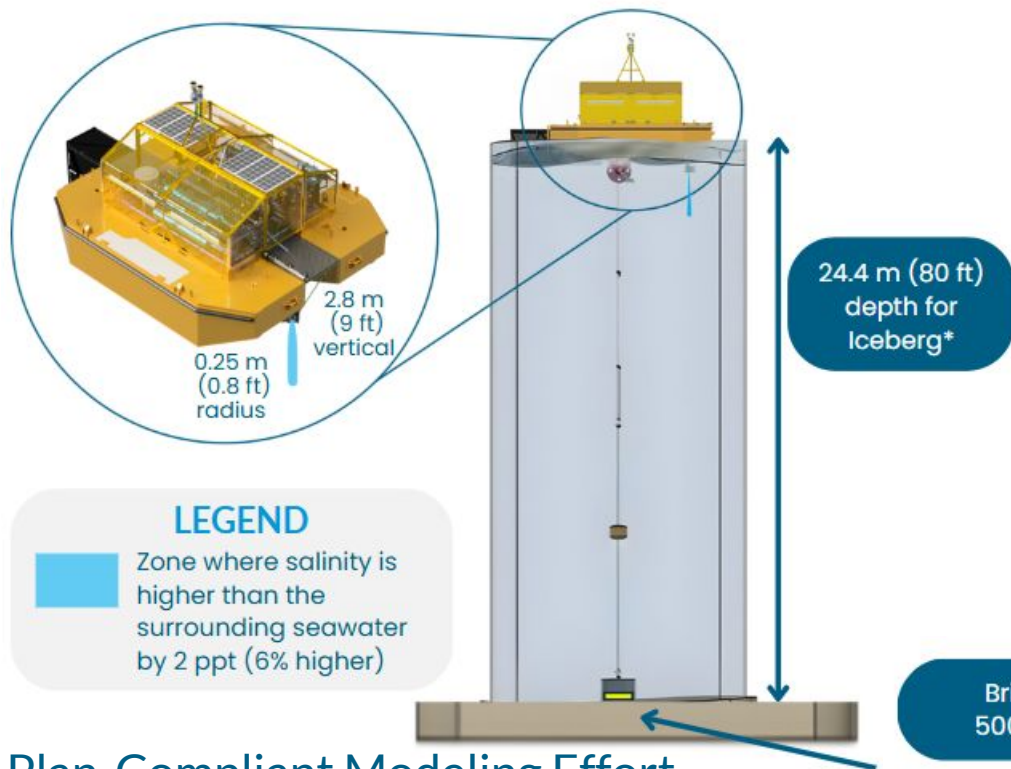


0.6 mi offshore



ICEBERG BRINE DILUTION

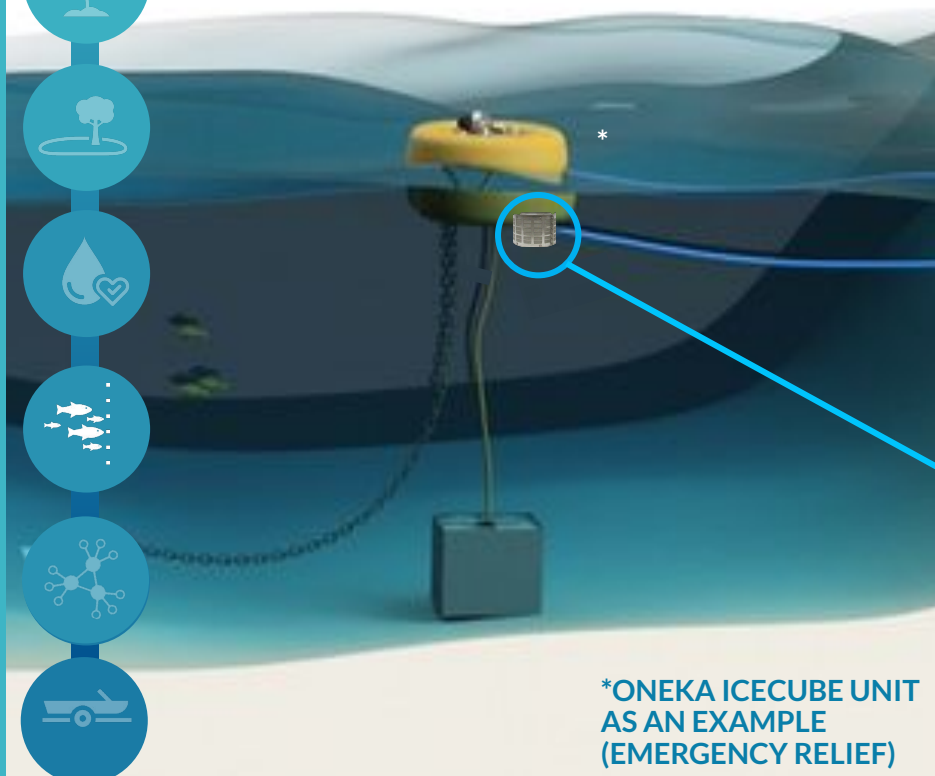
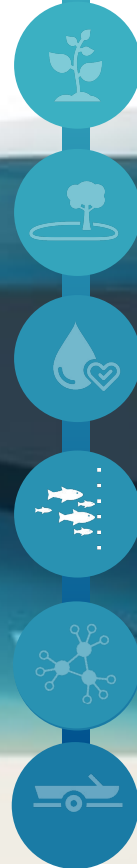
Without Waves and Sea Currents in Compliance with California's Regulations



Brine is diluted to ambient concentration within a 10-foot radius of the discharge point, consistent with brine modeling and the ISMND.

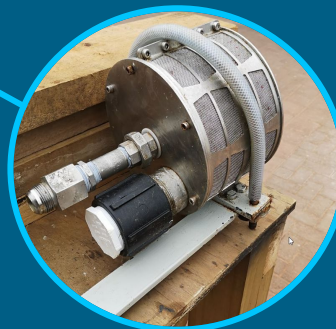
***Ocean Plan-Compliant Modeling Effort.

WATER INTAKE SAFE FOR MARINE LIFE



*ONEKA ICECUBE UNIT
AS AN EXAMPLE
(EMERGENCY RELIEF)

- ✓ Smaller than the Ocean Plan's requirement for intake screens.
- ✓ 60-micron-size intake holes to prevent harmful impact on ecosystems (adjustable)
- ✓ 60 micron is smaller than nearly all fish larvae at any stage including egg
- ✓ Backwashed to reduce maintenance and ensure enhanced suction protection



2014

2016

2017

2019

2020

2021

2022

2024

2024

AWARD WINNING TECHNOLOGY

GLOBAL FRESHWATER CHALLENGE WINNER

WORLD
ECONOMIC
FORUM

HCL

- Among the 10 winners named Top Innovators from hundreds of applicants
- Total of \$250k CAD in grant
- Member of UpLink Innovation Network

US DOE - WAVE TO WATER PRIZE GRAND PRIZE



- World renowned competition
- Total of \$1,3M CAD in winnings
- 1st place among 70 participants
 - Highest water production
 - Best water quality
 - Fastest assembly & deployment

PEERS RECOGNITION



2022
Innovation
Award



Innovative game-changing desalination or water reuse technical solution reaching a commercial stage.

Voted by a panel of industry experts

World's first fully deployed wave powered desal system



Full system including piping to shore and water reservoir



Survived 10-years storm (2022)



Cofradia Nautica Del Pacifico
ALGARROBO, CHILE

ICEBERG DEMONSTRATOR UNIT Ft. Pierce, FL, USA



up to
**13 US
kgal/d**

Production capacity

Status:

- Operational

50 TCO₂/yr saved

Baseline : conventional
desalination solution at
nominal capacity



Showcase for the Caribbean
market, strategically located.





City of Fort Bragg partners with Oneka Technologies

SUSTAINABLE DESALINATION PILOT PROJECT



Capacity of the demonstration project:
13,200 GPD over a 12-month period

Oneka Buoy &
FreshWater
Production
Area

Underwater
Pipe to Shore

Fort Bragg
Wastewater
Treatment Plant

Water Reservoir

ResilientSea
Fort Bragg Desal Buoy

ONEKA'S ICEBERG





TEAM MEANT FOR AN AMBITIOUS MISSION

MULTIDISCIPLINARY
TEAM OF > 40
EMPLOYEES

✓ International
team

✓ Diverse
experience

STRUCTURE

✓ Subsidiary US

✓ Subsidiary Chile



DRAGAN TUTIĆ, P.Eng.
Founder & CEO

Vision and technology



SUSAN HUNT, P.Eng., MSIS, MBA
Chief Product & Impact Officer

20 yrs + Naval & Ocean
Innovations



ALEXANDRE BERTRAND, P.Eng., MBA
Chief Operating Officer

20 yrs + Industrial &
Manufacturing



RICKY WATKINS, PMP, LEED AP BD+C
Director of Operations

10 yrs + Project Management



Fort Bragg's Sustainable Supply Initiative



TRANSITION

to a drought-proof
sustainable water
solution



ALIGNMENT

with Fort Bragg's Blue
Economy Initiative



INCREASE

community resilience to
climate change



Oneka

CONTACT US!

Oneka Technologies

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OnekaWater.com



Contact Details

EXCELLENT TRACK RECORD IN PERMITTING

FORT BRAGG, CA, USA

In Progress

Authorization for I2 and Pipeline
(Applications submitted or in progress for USCG, USACE, CSLC, CCC, Water Board)

FORT PIERCE DEMO SITE, FL, USA

2017-2022

5-year authorization for V4, V5, P1, S1
(Approved or exempted by USCG, USACE, FDEP)

2022-2023

Authorization for I1
(Approved or exempted by USCG, USACE, FDEP)

2024-ongoing

I2, MG2 and IceCube permitted
(Approved or exempted by USCG, USACE, FDEP)

OCEAN VILLAGE, FL, USA

5-yr+ Commercial site permitting process

Including pipe to shore (Reviewed by USCG, USACE, FDEP, FWC, FWS, NFMS)

Steps completed: brine release, navigation hazards, animal entanglement, coral reefs (hard bottoms impacts), turtle nesting, public noticing etc), Plans changed

COFRADIA SITE, ALGARROBO, CHILE (2022)

1-yr Commercial demo permit including pipe to shore and optional onshore process plant (led by our partner REDE)

WILMINGTON, NC, USA, V2 TESTING, (2016)

SCARBOROUGH BEACH, ME, V3 TESTING (2016-2017)

4 to 12 mth authorization for testing and improvements

MAGDALEN ISLANDS, QC, V1 TESTING

in partnership with CTMA – 1 week

NOVA SCOTIA



HALIFAX

CAPE SABLE, NS, GLACIER (2023)

Deemed by DFO to not require an Authorization.

P1 TESTING, Eastern Passage (2020)

1 month testing, 1 year authorization

HULK TESTING, Eastern Passage (2024)

2.5 year authorization for HULK
(Approved or exempted by Transport Canada, NRR, DFO)

ICECUBE DEMO, Cow Bay (2021)

7 month authorization, including pipe to shore and process plant on shore for IceCube
(Approved or exempted by Transport Canada, NSLF, DFO & Municipality)

ICECUBE DEMO, Cow Bay (2023)

4 month authorization, including pipe to shore and process plant on shore for IceCube
(Approved or exempted by Transport Canada, NSLF, DFO & Municipality)

