



## **NIRB Application for Screening #125616**

### **Qikiqtani Marine Renewable Energy Resource Assessment**

**Application Type:** New

**Project Type:** Marine Based Activities

**Application Date:** 5/30/2021 7:26:03 PM

**Period of operation:** from 0001-01-01 to 0001-01-01

**Proposed Authorization:** from 0001-01-01 to 0001-01-01

**Project Proponent:** Heather Shilton  
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## DETAILS

### Non-technical project proposal description

English: Introduction Nunavut Nukkiqsautiit Corporation (NNC) is conducting a marine renewable energy (MRE) resource assessment for the Qikiqtani Region in Nunavut. The project aims to assess the MRE potential for the 13 hamlets in the Qikiqtani region from a social, technical, and environmental lens. It is part of a larger initiative to reduce diesel use and greenhouse gas emissions while improving energy security for Northern communities. Timelines Physical data collection for the envisioned project will take place in two distinct phases occurring in Summer 2021 and Summer 2022. The first phase will gather ocean/river current data and transects in five communities to assess the flow characteristics for MRE potential. The second phase will gather additional ocean/river current data over the entire open water season for the two communities determined to have the highest potential for MRE. Project Methodology The physical data collection component of the project includes the use/deployment of temporary equipment in open water areas. The equipment includes marine vessels, acoustic doppler current profilers (ADCP), vessel mounted ADCPs and other equipment (echo sounder and global positioning unit) to perform transect measurements. For the first phase of the physical data collection program, vessel mounted ADCPs and other equipment will be used to perform transect measurements in five communities to determine the flow characteristics and MRE potential. This will allow the project team to determine the two locations with the highest potential to be further investigated in the second phase. The second phase of the physical data collection program will deploy bottom mounted ADCPs in two of the highest potential areas to collect additional ocean/river current data over a longer time period. At the end of the data collection period, the equipment will be recovered. All data collected will be analyzed to determine the MRE resource potential and the findings will be included in a final report. Environmental, Social, & Wildlife Interaction The equipment being deployed for the physical data collection phases of this project will have no environmental, social, or wildlife impacts. The equipment is both temporary and non-invasive and will therefore have no impact on the surrounding environment, the people, or the wild/marine life. Data Management All data will be collected and analyzed for MRE potential. The results will be summarized and presented in a final report for the project. Raw and processed data will be stored in an electronic format and maintained by NNC. Local Benefits The physical data collection campaigns will be completed using locally hired vessels and crew members, with the campaigns being facilitated by qualified consultants. Results of the data collection campaigns will be shared with local stakeholders for review and determination of interest on future potential deployment of a hydrokinetic turbine. Distribution of Results All results will be summarized and available for viewing through the final report for the overall project. This is expected to be completed by March 31, 2023.

French: Introduction Nunavut Nukkiqsautiit Corporation (NNC) fait une évaluation des ressources des énergies marines renouvelables pour la région Qikiqtani, à Nunavut. Le projet vise à déterminer le potentiel de 13 hameaux dans la région Qikiqtani, du côté social, technique et environnemental. Ceci fait partie d'une plus grande initiative visant à réduire l'usage de diesel et des émissions à effet de serre, tout en améliorant la stabilité d'énergie pour les communautés du Nord. Calendrier Le recueil des données physiques pour le projet envisagé aura lieu en deux phases distinctes, en septembre 2021 et à l'été 2022. Pendant la première phase, on va recueillir des données actuelles des océans/des rivières de cinq communautés pour évaluer les caractéristiques d'écoulement afin de déterminer le potentiel d'énergies marines renouvelables. Pour la deuxième phase, on va recueillir les données actuelles supplémentaires des océans/des rivières pendant la saison d'eau libre entière pour les deux communautés ayant le plus haut potentiel d'énergies marines renouvelables. Méthodologie du projet La partie de ce projet qui recueille des données physiques inclut l'usage/le déploiement de l'équipement temporaire dans l'eau libre. L'équipement inclut des vaisseaux marins, les profileurs de courant à effet Doppler (ADCPs), les ADCPs montés sur les vaisseaux et d'autres équipements servant à prendre des mesures, et ce, en utilisant la méthode de transect. Pour la première phase du recueil des données physiques, les ADCPs montés sur les vaisseaux et d'autres équipements vont être employés servant à prendre des mesures, et ce, en utilisant la méthode de transect aux cinq communautés pour évaluer les détails d'écoulement, afin de déterminer le potentiel d'énergies marines renouvelables. Ceci va permettre à l'équipe de déterminer les deux locations ayant le plus haut potentiel d'énergies marines renouvelable, qui seront explorés plus profondément pendant la deuxième phase. Pour la deuxième phase de recueil des données physiques, les ADCPs montés en bas des vaisseaux vont être déployés aux deux endroits ayant le plus haut potentiel, afin de recueillir les données actuelles des océans/des rivières sur une période plus longue. À la fin de la période de recueil des données, l'équipement sera récupéré. Toutes les données seront analysées pour déterminer le potentiel des ressources d'énergies marines renouvelables et les conclusions seront incluses dans un rapport final. Les interactions environnementales, sociales et de la faune sauvage L'équipement qui sera déployé pour la phase de collecte des données physiques pour ce projet n'aura aucun impact environnemental, social, ni sur la faune. L'équipement est temporaire et non invasif, donc il n'aura pas de répercussion sur l'environnement, les personnes qui y habitent, ni sur la faune. Gestion de données Toutes les données seront recueillies et analysées pour son potentiel d'énergies marines renouvelable. Les conclusions seront résumées et présentées dans un rapport final pour le projet. Les données brutes et traitées seront gardées en format

Operations Phase: from 2021-06-01 to 2022-10-31

## Activities

Location	Activity Type	Land Status	Site history	Site archaeological or paleontological value	Proximity to the nearest communities and any protected areas
Rivers/Near Shore Ocean Areas Near Kimmirut	Marine Based Activities	Marine	No known site history - specific locations are not yet identified but known historical sites will be avoided for data collection activities.	There is no known archeological/paleontological value - specific sites are not yet identified but known areas of value will be avoided.	Specific locations are not yet identified but all protected areas will be avoided and all data will be collected using non-invasive equipment & techniques.
Rivers/Near Shore Ocean Areas Near Iqaluit	Marine Based Activities	Marine	No known site history - specific locations are not yet identified but known historical sites will be avoided for data collection activities.	There is no known archeological/paleontological value - specific sites are not yet identified but known areas of value will be avoided.	Specific locations are not yet identified but all protected areas will be avoided and all data will be collected using non-invasive equipment & techniques.
Rivers/Near Shore Ocean Areas Near Cape Dorset	Marine Based Activities	Marine	No known site history - specific locations are not yet identified but known historical sites will be avoided for data collection activities.	There is no known archeological/paleontological value - specific sites are not yet identified but known areas of value will be avoided.	Specific locations are not yet identified but all protected areas will be avoided and all data will be collected using non-invasive equipment & techniques.
Rivers/Near Shore Ocean Areas Near Pangnirtung	Marine Based Activities	Marine	No known site history - specific locations are not yet identified but known historical sites will be avoided for data collection activities.	There is no known archeological/paleontological value - specific sites are not yet identified but known areas of value will be avoided.	Specific locations are not yet identified but all protected areas will be avoided and all data will be collected using non-invasive equipment & techniques.
Rivers/Near Shore Ocean Areas Near Qikiqtarjuaq	Marine Based Activities	Marine	No known site history - specific locations are not yet identified but known	There is no known archeological/paleontological value - specific sites are not yet identified but known areas of value will be avoided.	Specific locations are not yet identified but all protected areas will be avoided and all data will be

			historical sites will be avoided for data collection activities.		collected using non-invasive equipment & techniques.
Rivers/Near Shore Ocean Areas Near Clyde River	Marine Based Activities	Marine	No known site history - specific locations are not yet identified but known historical sites will be avoided for data collection activities.	There is no known archeological/paleontological value - specific sites are not yet identified but known areas of value will be avoided.	Specific locations are not yet identified but all protected areas will be avoided and all data will be collected using non-invasive equipment & techniques.
Rivers/Near Shore Ocean Areas Near Pond Inlet	Marine Based Activities	Marine	No known site history - specific locations are not yet identified but known historical sites will be avoided for data collection activities.	There is no known archeological/paleontological value - specific sites are not yet identified but known areas of value will be avoided.	Specific locations are not yet identified but all protected areas will be avoided and all data will be collected using non-invasive equipment & techniques.
Rivers/Near Shore Ocean Areas Near Grise Fiord	Marine Based Activities	Marine	No known site history - specific locations are not yet identified but known historical sites will be avoided for data collection activities.	There is no known archeological/paleontological value - specific sites are not yet identified but known areas of value will be avoided.	Specific locations are not yet identified but all protected areas will be avoided and all data will be collected using non-invasive equipment & techniques.
Rivers/Near Shore Ocean Areas Near Resolute Bay	Marine Based Activities	Marine	No known site history - specific locations are not yet identified but known historical sites will be avoided for data collection activities.	There is no known archeological/paleontological value - specific sites are not yet identified but known areas of value will be avoided.	Specific locations are not yet identified but all protected areas will be avoided and all data will be collected using non-invasive equipment & techniques.
Rivers/Near Shore Ocean Areas Near Arctic Bay	Marine Based Activities	Marine	No known site history - specific locations are not yet identified but known historical sites will be	There is no known archeological/paleontological value - specific sites are not yet identified but known areas of value will be avoided.	Specific locations are not yet identified but all protected areas will be avoided and all data will be collected using non-invasive

			avoided for data collection activities.		equipment & techniques.
Rivers/Near Shore Ocean Areas Near Igloolik	Marine Based Activities	Marine	No known site history - specific locations are not yet identified but known historical sites will be avoided for data collection activities.	There is no known archeological/paleontological value - specific sites are not yet identified but known areas of value will be avoided.	Specific locations are not yet identified but all protected areas will be avoided and all data will be collected using non-invasive equipment & techniques.
Rivers/Near Shore Ocean Areas Near Hall Beach	Marine Based Activities	Marine	No known site history - specific locations are not yet identified but known historical sites will be avoided for data collection activities.	There is no known archeological/paleontological value - specific sites are not yet identified but known areas of value will be avoided.	Specific locations are not yet identified but all protected areas will be avoided and all data will be collected using non-invasive equipment & techniques.
Rivers/Near Shore Ocean Areas Near Sanikiluaq	Marine Based Activities	Marine	No known site history - specific locations are not yet identified but known historical sites will be avoided for data collection activities.	There is no known archeological/paleontological value - specific sites are not yet identified but known areas of value will be avoided.	Specific locations are not yet identified but all protected areas will be avoided and all data will be collected using non-invasive equipment & techniques.

### Community Involvement & Regional Benefits

Community	Name	Organization	Date Contacted
Pangnirtung	Mayor Eric Lawlor	Hamlet	2021-05-20
Pangnirtung	SAO Joanasie Evik	Hamlet	2021-05-20
Pond Inlet	Mayor Joshua Arreak	Hamlet	2021-05-20
Pond Inlet	SAO David Stockley	Hamlet	2021-05-20
Pond Inlet	HATO Manager Molleen Anaviapik	Hamlet	2021-05-20
Qikiqtarjuaq	Mayor Alookie	Hamlet	2021-05-20
Qikiqtarjuaq	SAO Geela Kooneelusie	Hamlet	2021-05-20
Resolute Bay	Mayor Mark Amarualik	Hamlet	2021-05-20
Resolute Bay	SAO Steve Piercey	Hamlet	2021-05-20
Resolute Bay	HTO Manager Nancy Angmarualik	Hamlet	2021-05-20
Sanikiluaq	Mayor Johnnie Cookie	Hamlet	2021-05-20
Sanikiluaq	SAO Ronald Ladd	Hamlet	2021-05-20

Sanikiluaq	President Joel Heath	Eider Duck Society/Hamlet	2021-05-20
Hall Beach	Mayor Audlakiak	Hamlet	2021-05-20
Hall Beach	SAO Louie Primeau	Hamlet	2021-05-20
Hall Beach	HTA Manager Lizzie Qanatsiaq	Hamlet	2021-05-20
Igloolik	Mayor Merlyn Recinos	Hamlet	2021-05-19
Igloolik	SAO Greg Morash	Hamlet	2021-05-19
Clyde River	Mayor Natanie	Hamlet	2021-05-19
Clyde River	CAO James Arreak	Hamlet	2021-05-19
Clyde River	HTO Chair Apiusie Apak	Hamlet	2021-05-19
Kimmirut	Mayor Maliktoo Lyta	Hamlet	2021-05-20
Kimmirut	SAO John Mabberi-Mudoni	Hamlet	2021-05-20
Cape Dorset	Mayor Timoon Toonoo	Hamlet	2021-05-20
Cape Dorset	SAO John Hussey	Hamlet	2021-05-20
Grise Fiord	SAO Marjorie Dobson	Hamlet	2021-05-19
Grise Fiord	HTO Chair Amon Akeeagok	Hamlet	2021-05-19
Arctic Bay	Mayor Mosesie Oyukuluk	Hamlet	2021-05-19
Arctic Bay	SAO Deborah Johnson	Hamlet	2021-05-19
Arctic Bay	HTA Chair Oaumayuq Oyukuluk	Hamlet	2021-05-19
Iqaluit	Mayor Kenny Bell	Hamlet	2021-05-20
Iqaluit	CAO Amy Elgersma	Hamlet	2021-05-20

## Authorizations

Indicate the areas in which the project is located:

North Baffin  
South Baffin

### Authorizations

Regulatory Authority	Authorization Description	Current Status	Date Issued / Applied	Expiry Date
Fisheries and Oceans Canada	DFO stated through the request for review process that this project will not require authorization under the Fisheries or Species at Risk Acts	Active	2021-05-26	
Government of Nunavut, Nunavut Research Institute	Physical Research License is required for the collection of ocean/river current data.	Not Yet Applied		

### Project transportation types

Transportation Type	Proposed Use	Length of Use
Water	Marine vessels will be used to deploy temporary equipment and transit around areas and collect data	

### Project accommodation types

Community



## Material Use

Equipment to be used (including drills, pumps, aircraft, vehicles, etc)

Equipment Type	Quantity	Size - Dimensions	Proposed Use
Marine Vessel	5	~15 m	Marine vessels will be used to deploy equipment and collect data. Quantity is 5 given that a local vessel will be hired in each of the selected communities
Lowered Acoustic Doppler Current Profiler	1	~ 1 m x 0.5 m	The LADCP will be mounted to the vessels for the initial site surveys and used to collect current speed data.
Multibeam Sonar	1	~0.5 m x 0.5 m	Multibeam sonar equipment will be mounted to vessel for initial site surveys to conduct transects of the channels to inform some of the data analysis.
Acoustic Doppler Current Profiler	2	~ 1m diameter x 0.5 m height	ADCPs will be deployed in two communities for the detailed site surveys to facilitate the collection of ocean/river current data. They will be recovered following the data collection campaign.

## Detail Fuel and Hazardous Material Use

Detail fuel material use:	Fuel Type	Number of containers	Container Capacity	Total Amount	Units	Proposed Use
Diesel	fuel	25	100	2500	Liters	Diesel fuel will be used for the marine vessels throughout the survey. Quantities are estimated based on 25 vessel days over the entire two season program. Vessel selection will take place at a later date and therefore the fuel usage is only an estimate.

## Water Consumption

Daily amount (m3)	Proposed water retrieval methods	Proposed water retrieval location
0		

# Waste

## Waste Management

Project Activity	Type of Waste	Projected Amount Generated	Method of Disposal	Additional treatment procedures
Information is not available				

## Environmental Impacts:

There are no envisioned impacts that will result from the project given that all data will be collected using non-invasive techniques and there will be no permanent equipment installed during project activities.

# **Additional Information**

**SECTION A1: Project Info**

**SECTION A2: Allweather Road**

**SECTION A3: Winter Road**

**SECTION B1: Project Info**

**SECTION B2: Exploration Activity**

**SECTION B3: Geosciences**

**SECTION B4: Drilling**

**SECTION B5: Stripping**

**SECTION B6: Underground Activity**

**SECTION B7: Waste Rock**

**SECTION B8: Stockpiles**

**SECTION B9: Mine Development**

**SECTION B10: Geology**

**SECTION B11: Mine**

**SECTION B12: Mill**

**SECTION C1: Pits**

**SECTION D1: Facility**

**SECTION D2: Facility Construction**

**SECTION D3: Facility Operation**

**SECTION D4: Vessel Use**

**SECTION E1: Offshore Survey**

**SECTION E2: Nearshore Survey**

**SECTION E3: Vessel Use**

## **SECTION F1: Site Cleanup**

## **SECTION G1: Well Authorization**

## **SECTION G2: Onland Exploration**

## **SECTION G3: Offshore Exploration**

## **SECTION G4: Rig**

## **SECTION H1: Vessel Use**

Marine vessels will be used to collect data during the initial site surveys, where they will transit around identified areas to collect data using vessel mounted equipment. For the detailed site surveys, the marine vessels will be used to deploy and recover temporary equipment. There are no impacts or waste associated with these activities.

## **SECTION H2: Disposal At Sea**

There will be no disposal at sea as part of the project.

## **SECTION I1: Municipal Development**

### **Description of Existing Environment: Physical Environment**

### **Description of Existing Environment: Biological Environment**

### **Description of Existing Environment: Socio-economic Environment**

### **Miscellaneous Project Information**

### **Identification of Impacts and Proposed Mitigation Measures**

There are no impacts envisioned as a result of this project. All data will be collected using non-invasive techniques and temporary equipment.

### **Cumulative Effects**

There will be no cumulative impacts (effects) as a result of this project. All data will be collected using non-invasive techniques and temporary equipment.

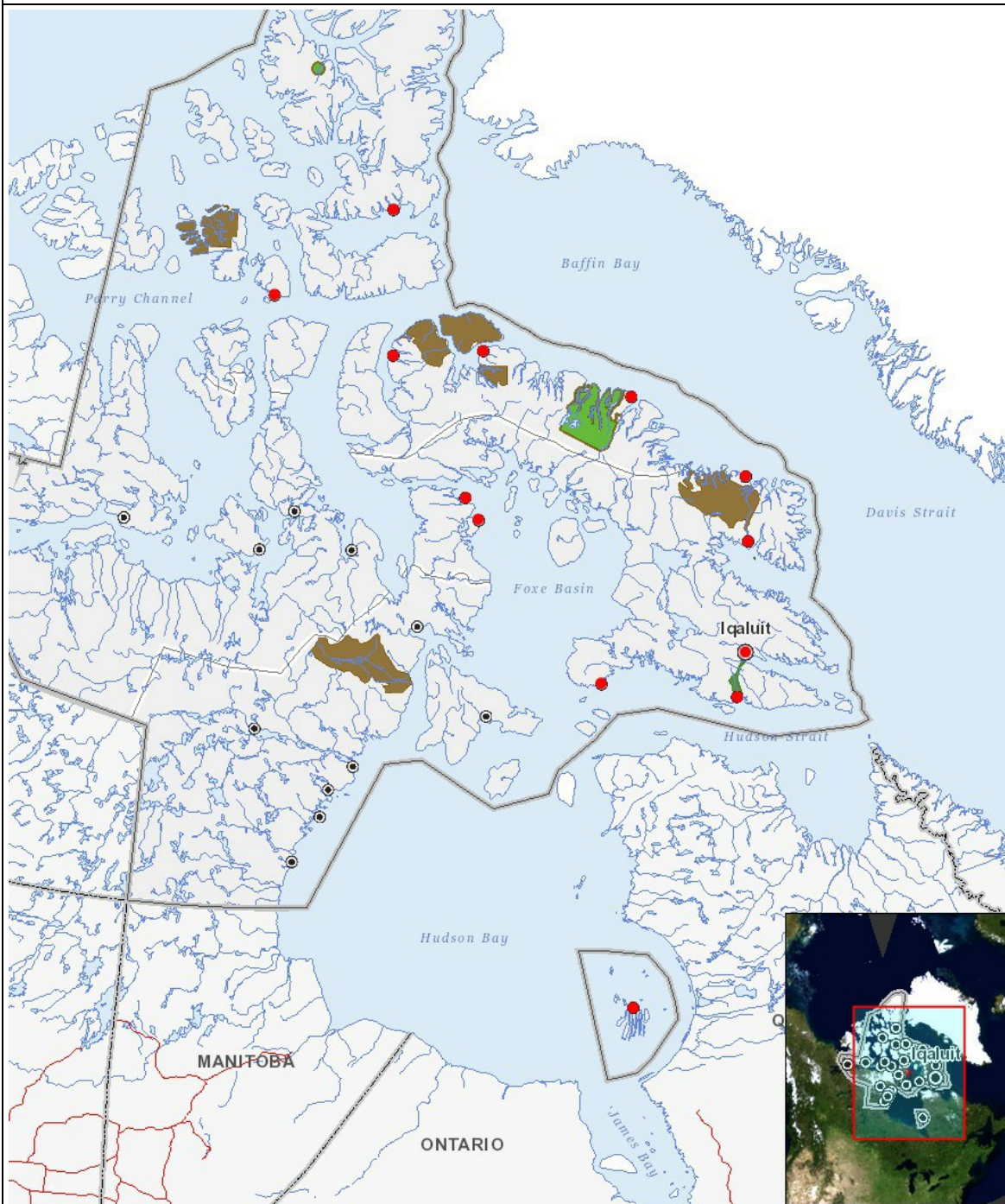
# Impacts

## Identification of Environmental Impacts

		PHYSICAL	Designated environmental areas	Ground stability	Permafrost	Hydrology / Limnology	Water quality	Climate conditions	Eskers and other unique or fragile landscapes	Surface and bedrock geology	Sediment and soil quality	Tidal processes and bathymetry	Air quality	Noise levels	BIOLOGICAL	Vegetation	Wildlife, including habitat and migration patterns	Birds, including habitat and migration patterns	Aquatic species, incl. habitat and migration/spawning	Wildlife protected areas	SOCIO-ECONOMIC	Archaeological and cultural historic sites	Employment	Community wellness	Community infrastructure	Human health
<b>Construction</b>																										
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<b>Operation</b>																										
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<b>Decommissioning</b>																										
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(P = Positive, N = Negative and non-mitigatable, M = Negative and mitigatable, U = Unknown)

## Project Location



## List of Project Geometries

1	point	Rivers/Near Shore Ocean Areas Near Kimmirut
2	point	Rivers/Near Shore Ocean Areas Near Iqaluit
3	point	Rivers/Near Shore Ocean Areas Near Cape Dorset
4	point	Rivers/Near Shore Ocean Areas Near Pangnirtung
5	point	Rivers/Near Shore Ocean Areas Near Qikiqtarjuaq
6	point	Rivers/Near Shore Ocean Areas Near Clyde River
7	point	Rivers/Near Shore Ocean Areas Near Pond Inlet
8	point	Rivers/Near Shore Ocean Areas Near Grise Fiord
9	point	Rivers/Near Shore Ocean Areas Near Resolute Bay
10	point	Rivers/Near Shore Ocean Areas Near Arctic Bay
11	point	Rivers/Near Shore Ocean Areas Near Igloolik
12	point	Rivers/Near Shore Ocean Areas Near Hall Beach

