

PRIMRE Workshop Breakout Group

# Aggregate Search & Contributing to PRIMRE

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**Hosted by Jonathan Whiting  
(Pacific Northwest National Laboratory)**

Ocean Renewable Energy Conference  
September 24, 2021

# PRIMRE Aggregate Search

Enables users to find data and information from different Knowledge Hubs simultaneously using a single entry-point

**Currently operational for:**



**Expanding to include:**



Telesto

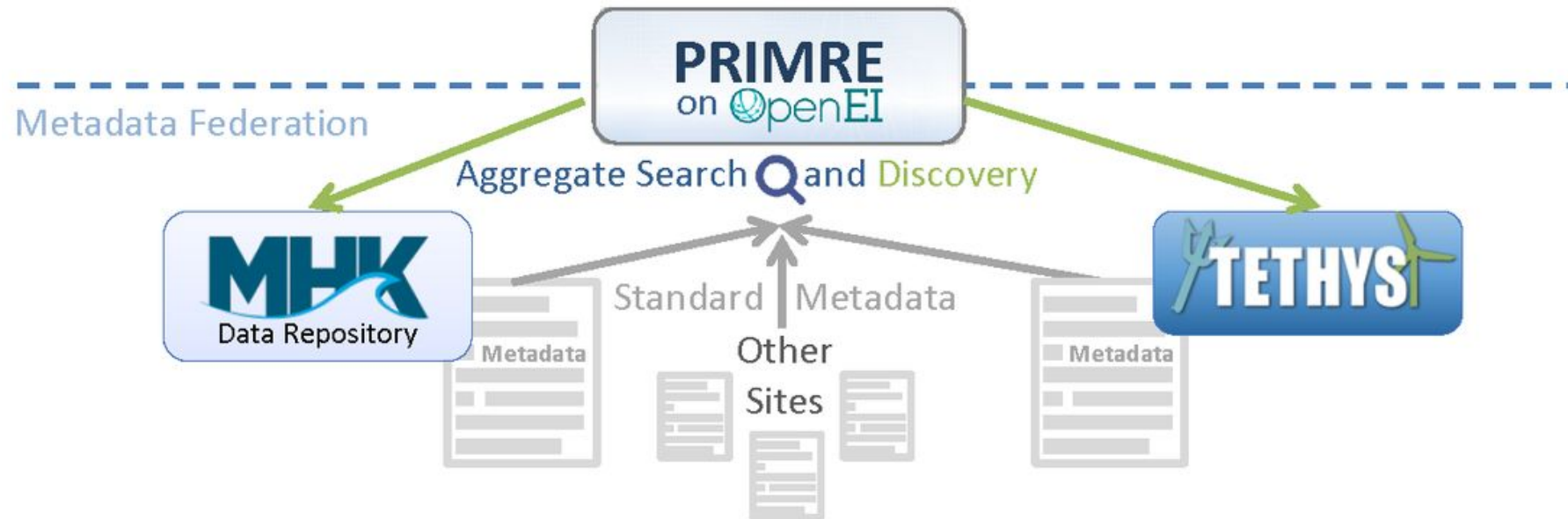


A screenshot of the PRIMRE Search web application. The page has a blue header with the PRIMRE logo and navigation links: About, Knowledge Hubs, Events, MRE Basics, and STEM. Below the header is a search bar with the text "PRIMRE / Search" and a search input field containing "tidal turbine". The main content area shows search results for "tidal turbine". On the left, there is a "Filter Results By:" section with a "Reset all filters" button and a list of technologies with checkboxes and counts: Current (233), Axial Flow Turbine (233), Cross Flow Turbine (140), Oscillating Hydrofoil (24), Tidal Kite (22), Archimedes Screw (17), Wave (1), Attenuator (1), Point Absorber (22), Pressure Differential (9), Oscillating Water Column (189), Overtopping (8), and Surge Converter (1). On the right, there is a "Showing 1 - 25 results of 4420" and a "Show 25 results per page." dropdown. Two search results are visible: "Modeling tidal turbine farm with vertical axis tidal current turbines" and "A Procedure for Predicting Energy From a Tidal Turbine Farm".



# PRIMRE Aggregate Search

Application Programming Interfaces allows communication between Knowledge Hubs



Adoption of the **PRIMRE metadata standards** allows any online organization to join the PRIMRE universe and display their information within the centralized search



# Contributing to PRIMRE



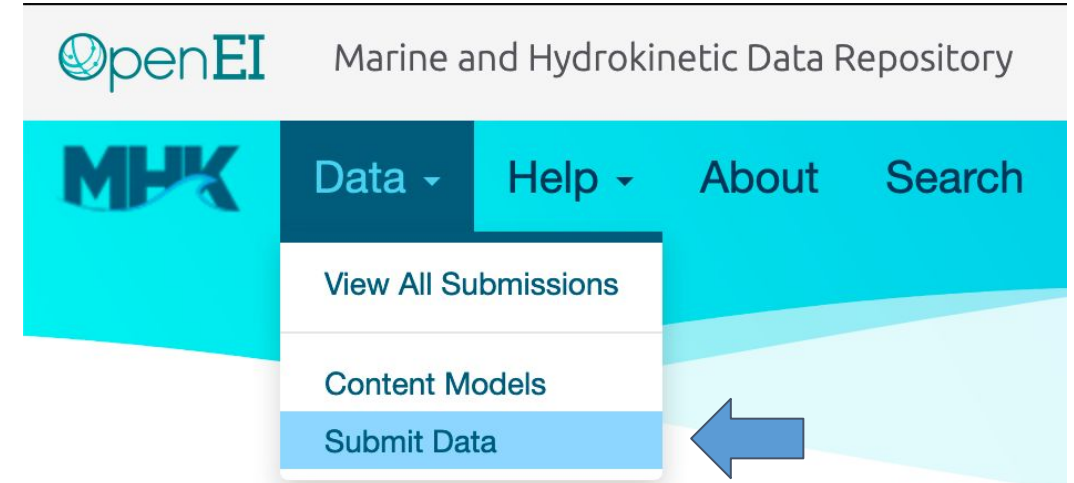
# Contributing to MHK Data Repository

## What should I contribute?

- Data (e.g., raw data, maps, photos, reports, models, schematics, testing, performance, resource data)
  - All data generated from projects funded by the **DOE Water Power Technologies Office** related to marine energy

## How should I contribute?

- <https://mhkdr.openei.org/submit>



# Contributing to MHK Data Repository

- Complete the data submission metadata form
- No limit to file size or number of files
- **Save** as often as you like and return later to complete the submission
- **Submit** when it's all done.
- Currently home to over 2,000 resources and 15 TB of data.

The screenshot shows the 'Submit Data' form on the MHK Data Repository website. The form is titled 'Submit Data' and includes a navigation bar with 'Data', 'Help', 'About', and 'Search' links. A search bar is located in the top right corner. The form is divided into several sections: 'Submission Information', 'Organization & Contact Information', 'Authors', 'DOE Project Information', 'Resources', 'Moratorium', and 'Terms and Conditions'. The 'Submission Information' section is currently active and contains the following fields: 'Data Submission Name' (a text input field), 'Description' (a large text area), and 'Keywords' (a list of tags including 'MHK', 'Marine', 'Hydrokinetic', 'energy', 'power', and 'keywords'). The 'Organization and Contact Information' section is partially visible, showing a 'Contact Name' field. At the bottom of the form, there are 'Close', 'Save', and 'Submit' buttons.

# Contributing to Tethys

## What should I contribute?

- Documents (e.g., journal articles, conference papers, reports, theses)
  - Relevant to **environmental effects** of wind and/or marine energy
  - Any language (must have an English title and abstract)

## How should I contribute?



Email  
[tethys@pnnl.gov](mailto:tethys@pnnl.gov)



**GET STARTED**  
If you are new to Tethys, start here to learn more.

**KNOWLEDGE BASE**  
Access thousands of publications and more, all in a searchable database.



**Recent Tethys Story**  
The Risk Assessment Program (RAP) for Tidal Stream Energy: Combining hydrodynamics and acoustic tracking data to assess the risk of fish encountering a tidal stream device. Canada is witnessing a surge of interest in tidal stream technology development in the Bay of Fundy, but uncertainty around potential impacts on marine life has left the federal regulator, Fisheries and Oceans Canada (DFO), challenged to adequately assess the risk, particularly to



# Contributing to Tethys Engineering

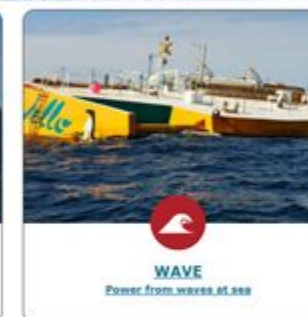
## What should I contribute?

- Documents (e.g., journal articles, conference papers, reports, theses)
  - Relevant to **engineering and technical aspects** of marine energy
- Any language (must have an English title and abstract)

## How should I contribute?



Email  
[tethys@pnnl.gov](mailto:tethys@pnnl.gov)



**Tethys Engineering**  
Tethys Engineering is a knowledge base that collects, curates, and makes publicly available documents on engineering and technologies associated with marine renewable energy. Sponsored by the U.S. Department of Energy, Tethys Engineering is part of the PRIMRE system, and is designed after the

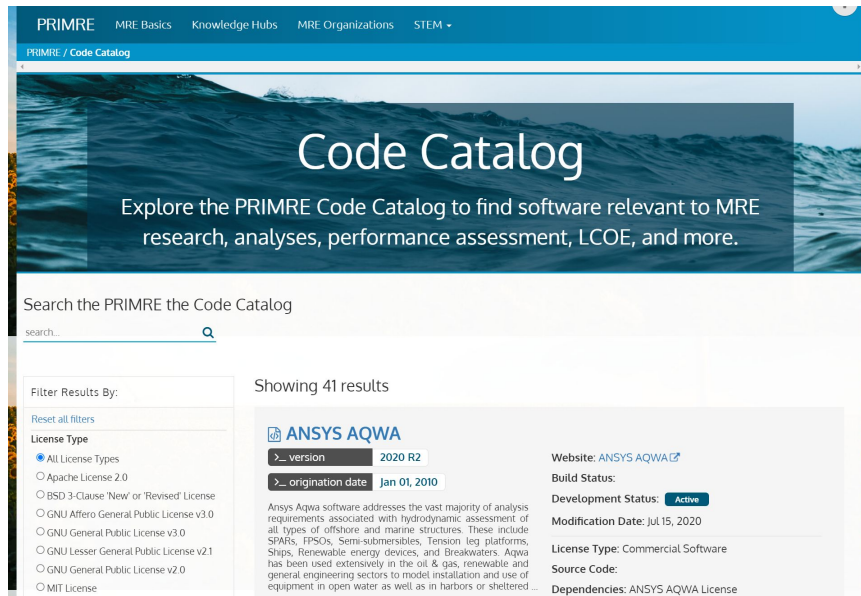




# Contributing to MRE Software

## PRIMRE Code Catalog

- Searchable online software discovery platform with search facets for all MRE relevant software



The screenshot shows the PRIMRE Code Catalog interface. At the top, there's a navigation bar with links for PRIMRE, MRE Basics, Knowledge Hubs, MRE Organizations, and STEM. Below the navigation bar, the page title is "Code Catalog" with a subtitle "Explore the PRIMRE Code Catalog to find software relevant to MRE research, analyses, performance assessment, LCOE, and more." A search bar is present with the text "Search the PRIMRE the Code Catalog" and a search icon. Below the search bar, there are filter options for "Filter Results By:" and "Showing 41 results". The main content area displays a search result for "ANSYS AQWA" with details such as version (2020 R2), origination date (Jan 01, 2010), website (ANSYS AQWA), build status, development status (Active), modification date (Jul 15, 2020), license type (Commercial Software), source code, and dependencies (ANSYS AQWA License).

## MRE Code Hub

- Repository for open-source MRE software, includes a landing page with search functionality

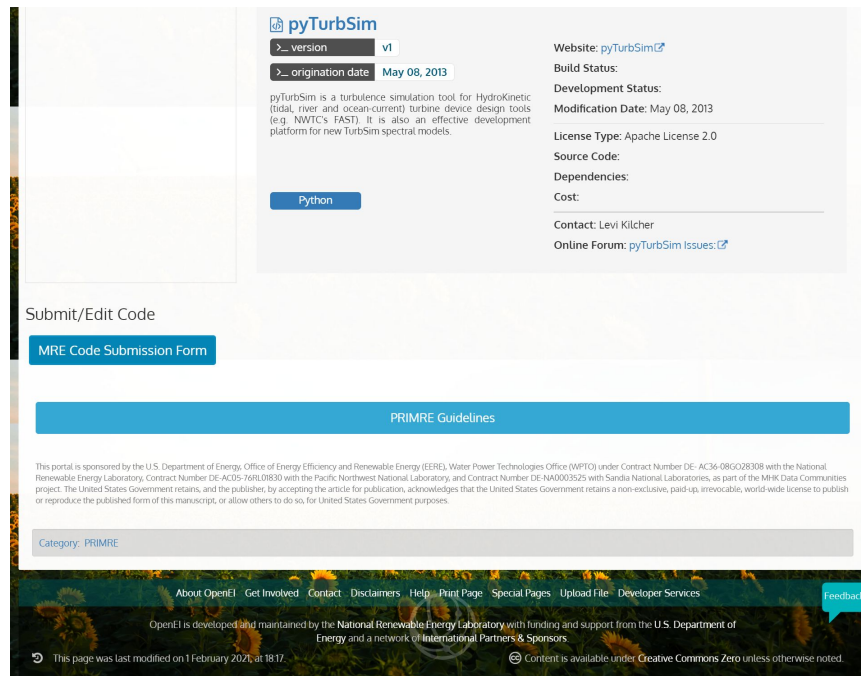


The screenshot shows the MRE Code Hub landing page. At the top, there's a navigation bar with the MRE Code Hub logo and the U.S. Department of Energy logo. Below the navigation bar, the page title is "MRE Code Hub" with a subtitle "A collection of open-source software for the marine renewable energy (MRE) community". A search bar is present with the text "Search the MRE Code Hub". Below the search bar, there are three main sections: "Browse MRE Code Hub Repositories", "Search MRE Code Hub Source Code", and "Register Your Software". The "Browse MRE Code Hub Repositories" section includes a sub-section "Need help finding the right software tools for your MRE-related tasks?" with a link to the "PRIMRE Code Catalog". The "Search MRE Code Hub Source Code" section includes a sub-section "Looking for other MRE resources?" with a link to "PRIMRE". The "Register Your Software" section includes a sub-section "Looking for other MRE resources?" with a link to "PRIMRE".

# PRIMRE Code Catalog Submission

## Launch MRE Code Submission Form

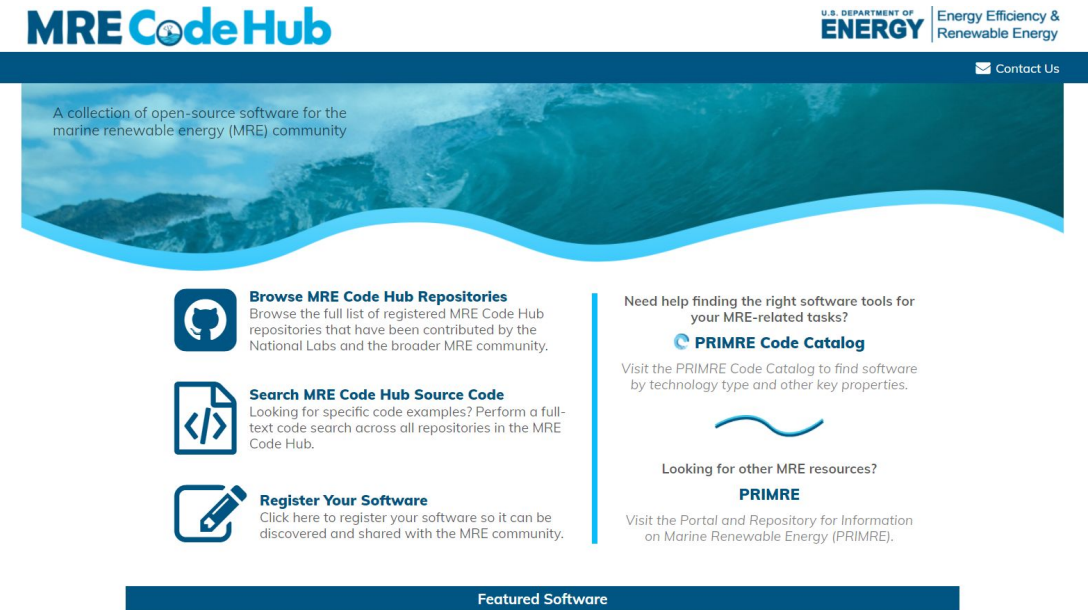
- Click MRE Code Submission Form button at the bottom of Code Catalog list



The screenshot shows a code entry for 'pyTurbSim'. It includes fields for version (v1) and origination date (May 08, 2013). A description states: 'pyTurbSim is a turbulence simulation tool for Hydrokinetic (tidal, river and ocean-current) turbine device design tools (e.g. NWTIC's FAST). It is also an effective development platform for new TurbSim spectral models.' A 'Python' tag is visible. On the right, there are links for Website, Build Status, Development Status, Modification Date, License Type, Source Code, Dependencies, Cost, Contact, and Online Forum. Below the code entry, there is a 'Submit/Edit Code' section with a prominent 'MRE Code Submission Form' button. At the bottom of the page, there is a 'PRIMRE Guidelines' button and a footer with navigation links and copyright information.

## Launch MRE Code Submission Form

- Click Register Your Software link

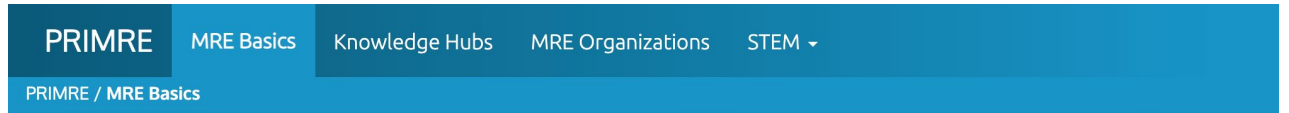


The screenshot shows the MRE Code Hub homepage. The header includes the 'MRE Code Hub' logo and the U.S. Department of Energy logo. A navigation bar contains a 'Contact Us' link. The main content area features three primary navigation options: 'Browse MRE Code Hub Repositories', 'Search MRE Code Hub Source Code', and 'Register Your Software'. A sidebar on the right provides additional resources like 'PRIMRE Code Catalog' and 'PRIMRE'. The footer includes a 'Featured Software' section with the 'MHKIT' logo.

# Contributing to the PRIMRE Wiki


Several of PRIMRE's Knowledge Hubs and other content pages exist in the PRIMRE wiki:

- **Marine Energy Projects Database**
- **Events**
- **MRE Basics**
- **Other pages**



## Marine Renewable Energy (MRE)


The movement of water in the world's oceans creates a vast store of kinetic energy. **Marine Renewable Energy (MRE)**, also known as Marine Hydrokinetics (MHK), can be harnessed to generate electricity to power homes, transport and industries. MRE encompasses wave power — power from the movement of surface waves, tidal power — power from the kinetic energy of large bodies of moving water, ocean current power — power from the kinetic energy of ocean current, and ocean thermal energy conversion (OTEC) — power from the heat differential of different thermal layers within a body of water.



Wave Energy

Ocean surface waves are generated by wind passing over the ocean surface. The friction between the wind and ocean surface causes energy to be transferred from the faster moving air to the surface layer of the ocean. Wave development depends on the length of ocean, or "fetch," over which the wind blows in a constant direction. Longer fetches with higher wind velocities will produce larger waves. Waves can travel thousands of miles with little energy loss and can combine with waves from storms and other wind-driven events to create very energetic seas. The energy of ocean waves is concentrated at the surface and decays rapidly with depth.

[Learn More >](#)




Current Energy

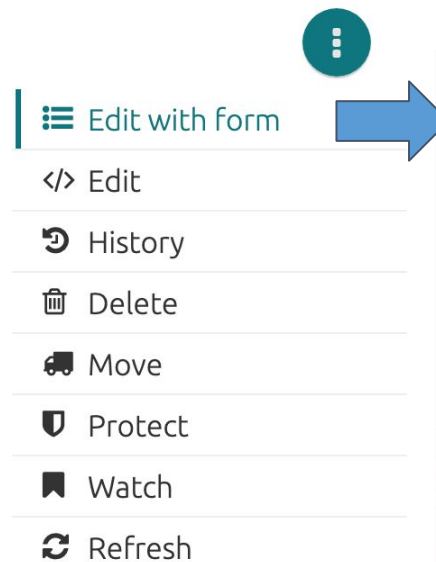
Current energy can be captured from tidal channels, ocean currents, or rivers. Ocean current energy technologies capture the energy from the relatively constant flow of ocean currents, which are driven by several factors, including wind, bathymetry, and the rotation of the Earth, as well as water temperature, density, and salinity. Tidal energy technologies capture the energy from flow induced by the rise and fall of tides, which is driven by gravitational influence of the moon and sun on the earth's oceans. Land or subsea constrictions, such as straits and inlets, can create high velocity currents at specific sites, making them suitable for electricity generation. Riverine energy technologies extract the kinetic energy from flowing water in rivers to generate electricity. Although not technically a marine resource, as part of the natural hydrological cycle, precipitation from drainage basins, groundwater springs, and snow melt feed rivers that flow towards lakes, seas, and











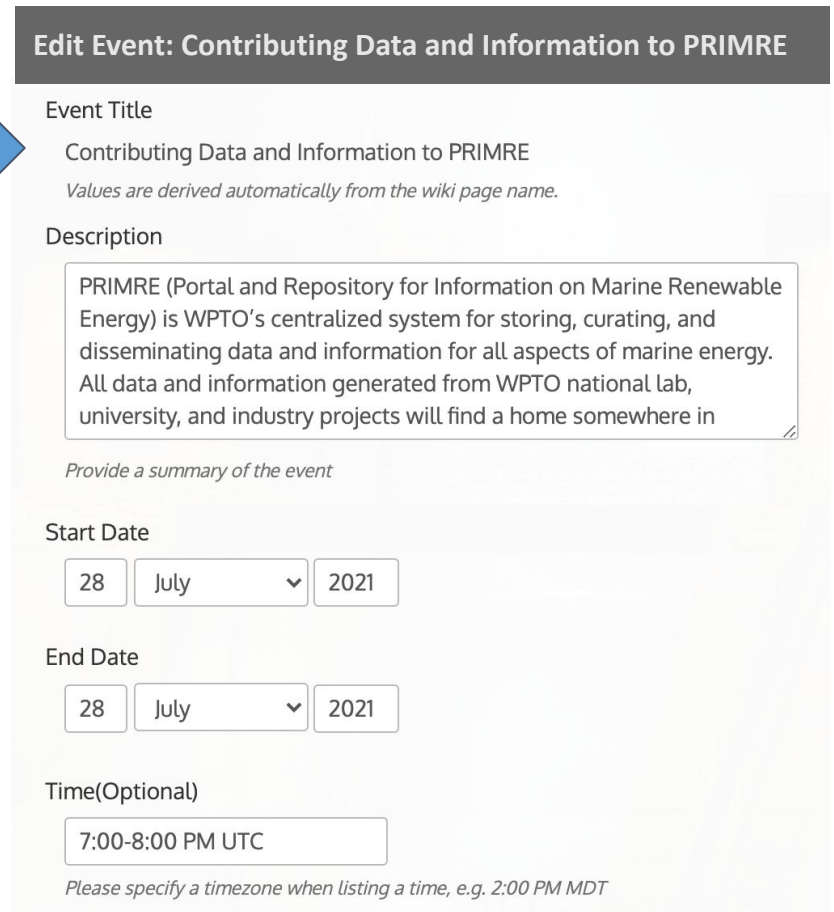
# Contributing to the PRIMRE Wiki

## To contribute:

- find a specific “add” link
  - e.g. [add an upcoming event](#) on Events
- click the  in the upper right corner of the page.
  - **Edit with Form**
    - Complete a convenient web form
  - **Edit**
    - Use wiki syntax to add or edit content
    - More information on wiki editing via [“Help”](#) at the bottom of each page.
- add an edit history note and click **Save page**.



-  Edit with Form
-  Edit
-  History
-  Delete
-  Move
-  Protect
-  Watch
-  Refresh



### Edit Event: Contributing Data and Information to PRIMRE

Event Title  
Contributing Data and Information to PRIMRE  
*Values are derived automatically from the wiki page name.*

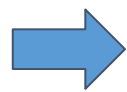
Description  
PRIMRE (Portal and Repository for Information on Marine Renewable Energy) is WPTO's centralized system for storing, curating, and disseminating data and information for all aspects of marine energy. All data and information generated from WPTO national lab, university, and industry projects will find a home somewhere in

*Provide a summary of the event*

Start Date  
28 July 2021

End Date  
28 July 2021

Time(Optional)  
7:00-8:00 PM UTC  
*Please specify a timezone when listing a time, e.g. 2:00 PM MDT*



Edit history:

This is a minor edit  Watch this page

| [Editing help](#) (opens in a new window)

# Contributing to PRIMRE





There are a lot of different ways to contribute to PRIMRE.  
Not sure? Go to <https://primre.org/Contribute> and select “Help Me Choose”



## How to Contribute to PRIMRE? [edit]

Submissions to PRIMRE from researchers, academics, and developers involved in the Marine Energy (ME) industry are highly encouraged. The table below helps identify the appropriate knowledge hub for each type of content. Any questions or requests for guidance on how to contribute content to PRIMRE can be directed to the [PRIMRE Help email address](#).

[Help me choose.](#)

 <b>MHK Data Repository</b> The Marine Hydrokinetic Data Repository (MHKDR) is the repository for data collected using funds from the Water Power Technologies Office of the U.S. Department of Energy (DOE). It contains data on MHK devices, testing, resource and environmental impact assessments, cost analyses, and more. <a href="#">View MHKDR</a>	 <b>Tethys</b> Tethys facilitates the exchange of information and data on the environmental effects of wind and marine renewable energy technologies and serves as a commons for wind and marine renewable energy practitioners and therefore enhance the connectedness of the renewable energy community. <a href="#">View Tethys</a>	 <b>Tethys Engineering</b> Tethys Engineering stores documents from around the world about the technical and engineering aspects of marine renewable energy. <a href="#">View Tethys Engineering</a>	 <b>Telesto</b> Telesto is home to open source Wikis and Databases which provide a comprehensive explanation of and guidance for MRE testing, measurement, and data processing based on experience, lessons learned from prior laboratory and field testing, industry standards, and best practices. <a href="#">Visit Telesto</a>	<b>MRE Software</b> A collection of MRE relevant software, including the code hub and code catalog. The code hub is a collection of open source MRE software for simulating devices, and processing and analyzing data. The code catalog is a searchable online software discovery platform with a faceted search to identify software tools, codes and other software products. <a href="#">View MRE Software</a>
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# Contributing to PRIMRE

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## What should I **not** contribute?

- **Personally Identifiable Information (PII)**
  - Social security numbers
  - Bank account numbers
  - Home phone numbers and personal addresses of individuals not involved directly in the authoring of the data
  - *“Any piece of information or combination of pieces that could be used to compromise the identity of an individual”*
- **Data not suitable for (eventual) public release**

