

Tethys Progress Report for FY 2011

I. Purpose

The marine and hydrokinetic (MHK) Environmental Impacts Knowledge Management System, dubbed “Tethys”, after [the mythical Greek titaness of the seas](#), is being developed by the Pacific Northwest National Laboratory ([PNNL](#)) to support [DOE’s Water Power Program](#). This effort is part of an overall program of research and development – together with complementary efforts of other national laboratories, National Marine Renewable Centers, universities and industry - focused on addressing and unraveling the complexity of environmental issues associated with MHK technologies.

The primary function of Tethys is to facilitate the creation, annotation, and exchange of information regarding the environmental effects of MHK technology. This report provides a summary of progress made in developing and deploying the Tethys knowledge management system in FY11.

II. Highlights for FY11

Site Development and Deployment Most of the activity on Tethys in FY11 focused on development of the Tethys tool itself. The Tethys site is built upon an existing framework called the [Knowledge Encapsulation Framework](#), or KEF, so development of the site focused on customizing KEF for the specific user requirements identified in FY10’s Use Case Scenarios document, and identifying and populating the site with data and documents relevant to the MHK community. We also adapted the site’s layout and architecture to allow easier integration of the IEA Annex IV data and Offshore Wind data which were not part of the original Tethys design, but promise to greatly enhance the value of Tethys as we move forward.

Following initial development, the site was beta-launched in March 2011, open to the public but minimally promoted beyond the key stakeholder community. This allowed us to spend some time collecting information from users about “what works/what doesn’t” which has been incorporated into the site prior to its formal launch in early FY12 (at this writing, the site is expected to be ready for a wider launch at the end of FY11, subject to DOE review of the content). Working in collaboration with the MHK community and the University of Oregon’s Guin Library, we have identified more than 200 documents relevant to the MHK subject area and loaded Tethys with the abstracts, and in many cases, the full documents. Where appropriate, we have “tagged” these documents to specific locations and are in the ongoing process of adding additional semantic tags to help link the documents to specific species, MHK technologies, and sites. We initiated an informal partnership with FERC during FY11 by working with them to replicate some of the content of their regulatory docket on the Tethys site, creating

a small database of pending MHK project sites. The database includes the geospatial boundary coordinates for 88 of the 123 sites in the FERC database, which has attracted the interest of other agencies who wish to make that data available. The site database has become a key part of the navigation of Tethys.

During FY11 we also identifies some opportunities to improve our content management process, including the creation of an editorial board for Tethys, the development of a more formalized data collection plan, and a more aggressive effort to cultivate partnerships with third party data providers and publishers. These have been written into the FY12 AOP and are part of our expected path forward during the FY.

Partnerships

A key part of our strategy for insuring a flow of content to Tethys is to develop partnerships with external agencies, universities and other stakeholders both for review of editorial content, and for identifying key information and data resources that ought to be housed in Tethys. During FY11 we focused on the following partnerships:

- [Federal Energy Regulatory Commission](#) (FERC). As the primary federal regulatory authority over most MHK installations, FERC is an important source of information about pending or current MHK projects. We initiated an informal partnership with FERC during FY11 by working with them to develop a small database of pending MHK project sites for inclusion in Tethys, including the collection of geospatial project boundary coordinates. This resource is a primary way of navigating Tethys and we expect to continue to develop it in FY12 and beyond. A key challenge will be the formalization of the partnership with FERC to allow more efficient updates of the dataset.
- [Multipurpose Marine Cadastre](#) (BOEMRE/NOAA). The MMC is a valuable tool and geospatial data resource developed by BOEMRE and NOAA. After a preliminary meeting with BOEMRE staff in April 2011, we mutually identified two key areas for collaboration: (1) exchange of data developed by Tethys staff (for example, the FERC MHK Permitting database) between Tethys and MMC, to allow the data to be more widely available and increase traffic to Tethys; and (2) incorporation of the MMC map viewer into Tethys to enhance our ability to display geospatial data. During FY11, we held several follow-up conference calls with the BOEMRE staff and their contractors with the goal of developing an implementation strategy to accomplish both goals in FY12.
- University of Oregon [Guin Library](#)/Hatfield Marine Science Center. During FY12 we worked with the staff at the Guin Library to enhance the Tethys document collection, and to refine our collection plan. We received very valuable support from Janet Webster (head librarian at the Guin Library) and her staff, including a collection of key documents which are publicly accessible and have been indexed into the Tethys collection.

Outreach An important activity during FY11 was outreach for Tethys, conducted via a variety of venues including webinars, in-person conference presentations, and small group presentations to key stakeholders in government, the MHK industry, and the environmental community. Outreach presentations focused on presenting the vision of Tethys along with demonstrations of the tool, and were used as an important means of collecting feedback on the tool.

During FY11, we made several presentations of Tethys, including at the following venues:

- Copping AE, and RS Butner. 2010. "Managing Data for Environmental Effects of Marine and Hydrokinetic Energy Development - a Knowledge Management System." Presented by Andrea Copping (Invited Speaker) at Renewable Ocean Energy and the Marine Environment, Palm Beach Gardens, FL on November 4, 2010. PNNL-SA-76004.
- "Evaluating Environmental Risks and Managing Data for Marine and Hydrokinetic Energy Development." Presented by Andrea Copping, Scott Butner (Invited Speaker) at Workshop with Federal Agencies, Washington, DC on April 26, 2011. PNNL-SA-79450. (presentation repeated for environmental groups, BOEMRE, and FERC)
- Copping AE, and RS Butner. 2011. "Evaluating Environmental Risks and Managing Data for Marine and Hydrokinetic Energy Development." Presented by Andrea Copping, Scott Butner (Invited Speaker) at DOE Waterpower Environmental Webinar Series 2011, online, Seattle and Richland, WA on July 27, 2011. PNNL-SA-81659.