

***Tethys* Progress Report Q1 FY2013**
Pacific Northwest National Laboratory
December 2012

The *Tethys* knowledge base is intended to serve as a portal for information about the potential environmental impacts of MHK technology, and a focal point for the MHK community's efforts to address these impacts. *Tethys* brings together existing information on the effects of individual and multiple stressors of MHK devices and systems on marine animals and the marine environment. By organizing and linking these data, up to date information about the environmental sustainability of MHK technology can be made more accessible to the full set of stakeholders including environmental researchers, technology and project developers, regulators and the public.

To ensure the *Tethys* knowledge base is providing value to the DOE Office of Wind and Water Power program and fulfilling the needs of its users, the *Tethys* Website Metrics and Goals were developed in 2012. This document highlights nine specific metrics that will be monitored on a quarterly basis and sets goals *Tethys* must meet. The following report summarizes *Tethys* progress during the first quarter of FY2013 by examining the nine metrics developed as part of the *Tethys* Website Metrics and Goal Plan. It should be noted that *Tethys* is a repository for both OSW and MHK information and data. Unless specified, the analysis of the web metrics and goals refers to both MHK and OSW material.

Highlights/Key Findings for Q1 FY13

- The *Tethys* site had more than 340,000 page views during the months of October/November, for an average of approximately 5,650/day. However, it is clear from an inspection of the log files that a significant portion of these were initiated by search engine "bots" - automated software tools used by Google, Bing, and other search engines to explore the content of websites. We will continue to refine our analysis techniques to better filter page impressions from bots from our reporting.
- Users coming to *Tethys* from major search engines (primarily Google) appear to be searching for content that is directly relevant to the *Tethys* collection, which suggests that most traffic to the site are users looking for information about environmental effects of MHK and OSW technologies. Many of the search phrases appear to be very specific terms (e.g., "sea trials of a quarter scale prototype"), suggesting that users are often looking for specific documents, rather than general information.
- The most downloaded document on *Tethys* during the reporting period was "Wave energy utilization: A review of the technologies," a journal article by A.F. de Falaco. (http://mhk.pnnl.gov/wiki/index.php/Wave_Energy_Utilization)

- A significant amount of traffic (more than 1,200 page impressions during October/November) was generated on the user registration page. This reflects a previously observed pattern of spurious user registrations, which typically are carried out by spammers hoping to insert links to illicit web pages to increase their search engine rankings. While other security precautions have discouraged the use of *Tethys* for these purposes, the volume of spurious registrations caused PNNL to implement additional security measures mid-way through Q1, which should lead to a significant reduction in the number of bogus registrations in future months.
- The number of websites that contain links to *Tethys* is an important metric because it helps to drive search engine ranking and is also a proxy for the relevance of our site. Currently Google indicates only three sites that contain links to the *Tethys* home page; this information will be used helps to focus our outreach efforts on creating more in-bound linkages to *Tethys*.

Preliminary Performance Metrics for Q1 FY13

The nine metrics identified in the *Tethys* Website Metrics and Goal Plan are shown in Table 1. Because this is the first quarter these metrics have been evaluated, several of these metrics will serve as provisional baselines for future comparisons. Table 2 present the data collected for each of these metrics during the period October 1-December 5, 2012¹.

¹ In order to meet reporting deadlines at the end of the quarter, we will present preliminary data collected through the last available full week of operation, typically the end of the second or third week of each quarter. Updated data including the full month will be included in the subsequent quarter's report.

Table 1. *Tethys* Website Metrics

Metric	Definition	Goal
Total user sessions	The number of unique users (defined by number of requests from a single IP address) who visited a web site during a certain period of time.	10% increase on annual basis, based on first year of operation, to be tracked on revolving quarterly basis.
Total page impressions	Number of pages viewed.	10% increase on annual basis, based on first year of operation, to be tracked on revolving quarterly basis.
Average page impressions per user session	Average number of pages viewed per site visitor.	30% increase over the baseline (October 2012) average page impression per user session.
Number of documents indexed	The number of documents within the Tethys database.	Increase by 40 documents per quarter, through FY12-FY13
Number of websites linked from <i>Tethys</i>	The number of external websites accessible through Tethys.	Increase by 10 links to external websites per quarter, through FY12-FY13
Number of external websites linked to <i>Tethys</i>	The number of other websites that provide linkages to Tethys	N/A
Percentage of valid links in the <i>Tethys</i> knowledge base	Percentage of links within Tethys that work.	90% of all links working at any time
Increased functionality and usefulness of site	Based on the Tethys userbase and community, how functional is Tethys and does it met their needs?	Continued improvements annually.
Availability of information useful to users	Based on the Tethys userbase and community, how useful is Tethys and in the information it provides?	Majority of site users are satisfied with the information they retrieved from <i>Tethys</i>

Table 2. *Tethys* Website Metrics Collected during Q1 FY2013

Metric	Goal	Q1 Progress
Total user sessions	10% increase on annual basis, based on first year of operation, to be tracked on revolving quarterly basis.	Tethys had a total of 383,229 unique user sessions during Q1 of FY 2013.
Total page impressions	10% increase on annual basis, based on first year of operation, to be tracked on revolving quarterly basis.	A total of 446,600 pages were accessed during Q1 of FY 2013.
Average page impressions per user session	30% increase over the baseline (October 2012) average page impression per user session.	The average page impression per user session during Q1 of FY 2013 was 1.17 .
Number of documents indexed	Increase by 40 documents per quarter, through FY12-FY13	The Tethys team added 48 MHK documents and 40 OSW documents in Q1 of FY 2013.
Number of websites linked from Tethys	Increase by 10 links to external websites per quarter, through FY12-FY13	A total of 152 external websites are linked from <i>Tethys</i>
Number of external websites linked to Tethys		At the moment, a total number of 3 external websites are linked to Tethys.
Percentage of valid links in the Tethys knowledge base	90% of all links working at any time	Out of 152 links, 25 are problematic*.
Increased functionality and usefulness of site	Continued improvements annually.	This metric has yet to be evaluated.
Availability of information useful to users	Majority of site users are satisfied with the information they retrieved from Tethys	This metric has yet to be evaluated.

*- The 25 links listed as problematic may not be broken, but cannot be accessed outside of the PNNL network. This issue is being further investigated.

A Note on Data Used for this Report

Several of the metrics reported in our quarterly reports are derived from analysis of the *Tethys* web logs, collected by the *Tethys* production server. These logs provide a record of each information transaction (in technical jargon, a record of each http request) and in normal operation can provide a great deal of insight regarding the amount of traffic, navigation and use patterns, popular documents, etc.

Unfortunately, some of the web log files collected for *Tethys* during Q1 were affected by technical difficulties stemming from the Laboratory’s cybersecurity practices, and provide only incomplete information about traffic on the *Tethys* site. Specifically, security measures used by the laboratory to protect web servers from certain types of hacking exploits prevented the following information from being collected for much of the reporting period:

- **Referring URL.** This is the URL of the web site that the user last visited before coming to *Tethys*. This information is often used to determine which sites link to *Tethys*.

- **User IP address.** This information is used to delineate between individual users, and is essential to the ability to track several key performance metrics including total user sessions, average duration of visit, etc.
- **Search parameters.** In conventional log analysis, the search terms that a user used when locating a web site are passed along to the server, allowing the site owner to determine whether users are finding the site based on relevant searches.

Because these data were missing from the log files for significant portions of the reporting period, the data presented here should be taken as incomplete, and any conclusions drawn should be treated as provisional. Likewise, their value as baseline data is limited due to the partial nature of the data. The technical issues resulting in the incomplete data have been resolved, and we do not anticipate any further problems in collecting or reporting such data in the future.

For more information on the *Tethys* webmetrics and recently added documents, please visit the *Tethys* site at: <http://mhk.pnnl.gov/wiki/index.php/Deliverables>