



Meeting Announcement

Improving Data Collection, Storage, Handling, Visualization, and Analyses for Micronesia's Coral Reef Monitoring Programs

Saipan, CNMI

Conference Room TBD

8 - 11 November 2010

Background. Statistically-sound science is required to assess the status of regional and local management efforts ranging from community-based marine protected areas to expansive regional networks defined by the Micronesian Challenge. Despite having common goals of protecting their resources for future generations, jurisdictions throughout Micronesia strongly differ in their approach used to monitor coral reefs, and thus, in the information that is available for managers to act upon.

Over the past 5 years several efforts have begun to spawn positive collaboration between local monitoring programs and regional scientific expertise to ensure that data collection efforts meet pertinent goals defined by local communities and regional management plans alike. The Pacific Marine Resources Institute has been a proud collaborating partner with numerous jurisdictional monitoring programs, and in FY 09, an assessment of existing regional datasets from the FSM and RMI was completed (available at www.pacmares.com).

In culmination, it is being increasingly revealed that many existing datasets, and programs collecting data, often have a limited logistic and personnel capability for data management, visualization, and reporting. This forms the basis for the present workshop that will be hosted by PMRI.

Workshop Goals. Through this workshop PMRI will facilitate a hands-on training guiding participants through a step-by-step data analyses and graphing guidebook. All of the exercises in the guidebook were produced from datasets collected from monitoring programs across Micronesia, pertaining to fish, macroinvertebrates, corals, and benthic substrate. While this workshop will be focused upon the data analyses needs for marine monitoring programs, people interested in improving their comprehension of ecological datasets, visualization, and statistical



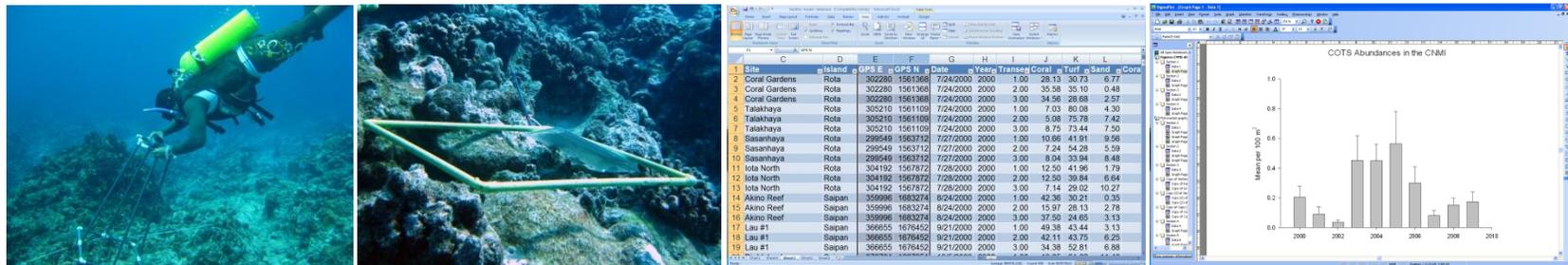
analyses of any ecological system may also be interested. Overall, this workshop aims to bring key users of coral monitoring datasets across Micronesia together to evaluate their data, and learn how to efficiently visualize and, when appropriate, test for significance.

Logistics. PMRI has been awarded a National Fish and Wildlife Foundation grant to host this collaborative and influential workshop. Within PMRI's funding award travel, lodging, and food expenses for (1) individual from each jurisdiction throughout Micronesia that has affinities with NOAA's coral monitoring grant, and the data being collected. Enrollment is open to more than one individual from each jurisdiction, however, please advise if more than two participant from any individual jurisdiction will be attending. Please send the names and email addresses of your designated monitoring program staff that PMRI will be funding as soon as possible.

Requirements. Various software platforms will be introduced to accomplish these goals including MS Excel, SigmaPlot, R, PRIMER, and PERMANOVA. Some of the required software has been awarded through the existing grant and (1) license copy will be provided to each participating jurisdiction. Each participant is expected to provide their own lap-top computer. The guidebook requires a Windows-based operating system and MS Office 2008 or higher. Please inquire if questions exist. A maximum of two people per computer is recommended to ensure the transfer of insight and skills.

Contact. Dr. Peter Houk, Marine Biologist, Pacific Marine Resources Institute, peterhouk@pacmares.com or info@pacmares.com.

IMPROVING DATA COLLECTION, STORAGE, HANDLING, VISUALIZATION, AND ANALYSES FOR MICRONESIA'S CORAL REEF MONITORING PROGRAMS



A guidebook with step-by-step exercises using regional datasets to improve local capacity for data interpretation.

Dr. Peter Houk



www.pacmares.com

Table of Contents

Introduction:	i
Section 1 – Database generation, manipulation, and query investigation.....	1
<i>Exercise 1 – Establishing a database.....</i>	<i>1</i>
<i>Exercise 2 – Manipulating, Managing, Working with, and Visualizing a Database</i>	<i>11</i>
<i>Exercise 3 – Advanced queries into a large, multivariate dataset to understand ecological patterns pertinent for management actions.....</i>	<i>27</i>
<i>Exercise 4 – Beyond examining trends. Reformatting an existing database to understand statistical aspects of the data.....</i>	<i>37</i>
Section 2 - Univariate Statistics and graphing the results	51
<i>Exercise 5 – Simple calculations of statistical power for influential, dependent variables.....</i>	<i>51</i>
<i>Exercise 6.1 – An introduction to creating report-quality graphs and preparing data for univariate statistical analyses</i>	<i>63</i>
<i>Exercise 6.2 – Conducting basic univariate statistical analyses and producing informative, professional quality graphs to show your trends</i>	<i>74</i>
Section 3 – Multivariate statistics and graphing the results.....	91
<i>Exercise 7 – An introduction to multivariate data considerations, PRIMER-E, and PERMANOVA+.....</i>	<i>91</i>
<i>Exercise 8 – A multivariate, statistical examination of Pohnpei’s Marine Protected Areas using PRIMER-E and PERMANOVA+</i>	<i>122</i>