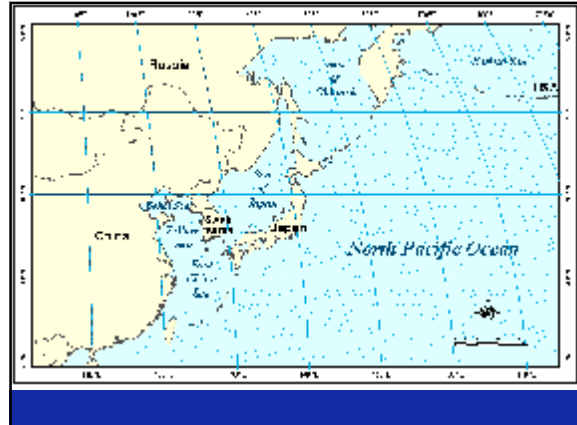


Federated Metadata of PICES Member Nations: Information Sharing Across International Borders

Kimberly Bahl, Hee Dong Jeong,
Kyu Kui Jung, Hae Seok Kang,
S. Allen Macklin, Bernard A. Megrey



Ecosystems Span National Boundaries and EEZ's

- | | |
|---|---|
| <p>Bering Sea</p> <ul style="list-style-type: none"> • Russia • USA <p>Sea of Okhotsk</p> <ul style="list-style-type: none"> • Japan • Russia <p>Sea of Japan/East Sea</p> <ul style="list-style-type: none"> • Japan • China • Russia • Korea | <p>Bohai Sea/Yellow Sea</p> <ul style="list-style-type: none"> • China • Korea • Japan <p>East China Sea</p> <ul style="list-style-type: none"> • China • Korea • Japan |
|---|---|

Introduction


- 2 Shared ecosystems are a source of conflict due to national interests and management.
- 2 Despite a great deal of effort put forth to collecting and analyzing environmental information, much of this information is not easily available and disseminated to the public.
- 2 A method of sharing national information about marine ecosystems, independent of political boundaries, is required.

Introduction

- 2 Need international collaboration that will provide tools to foster multi-national sharing of information on marine ecosystems, so that true ecosystem management among interested parties can take place.
- 2 Multi-national partnerships should include all member countries of the North Pacific Marine Science Organization who will share with the world the wealth of marine ecosystem information available from eastern Asia and western North America.

PICES Metadata Federation

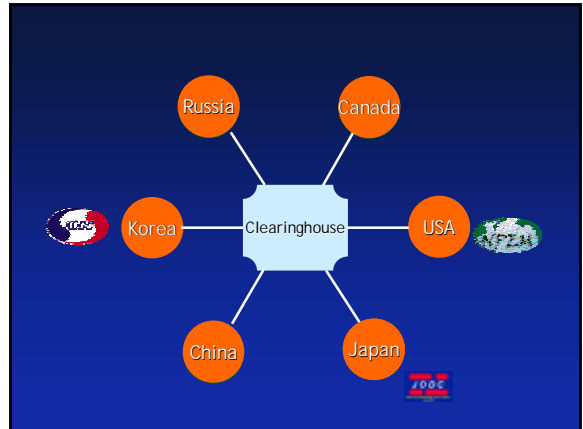
- 2 Federate - join together in a league or association
- 2 Fast and easy metadata search and access of all PICES member nations
- 2 Browsible and searchable on-line inventory of data and other info
- 2 Transparent to user



Federated Search


Starting last year, the metadata project began developing "federated search collaboration".

Federated searches enable users to search within the NPEM and, at the same time, search other data centers, as well. NPEM personnel are working with KODC to be the first federated partner.




3 Steps towards Federation Strategy

- 2 Metadata Standard
- 2 Communication Protocol
- 2 Register with Clearinghouse




Strategy 1 - Metadata Standard

- 2 FGDC, DIF, Dublin Core, EML, etc.
- 2 FGDC: A standard for geographic metadata developed by the Federal Geographic Data Committee.
- 2 Not limited to spatial data. FGDC enables customization of the standard to suit a particular application while staying within the framework of the standard.
- 2 FGDC is easily translated to and from other metadata standards.




Strategy 2 - Communications Protocol

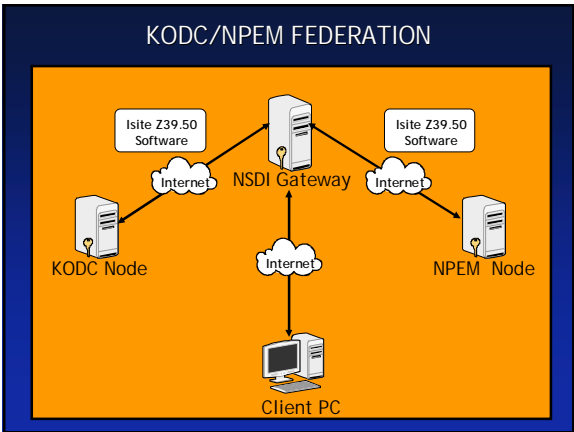
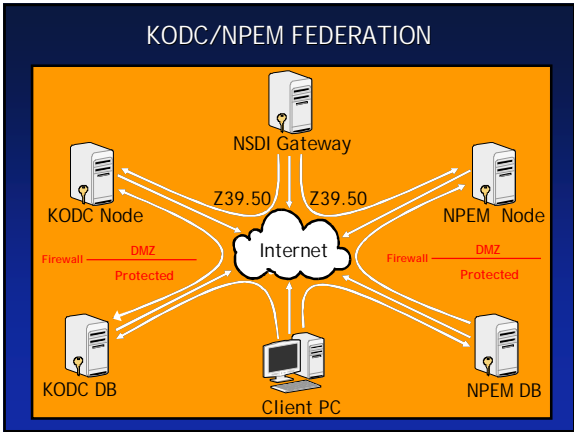
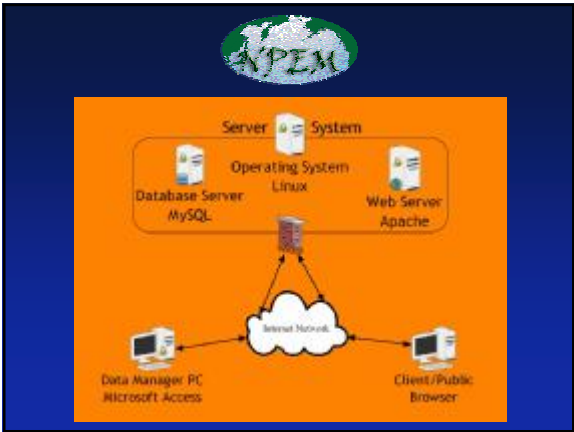
- 2 Wide-spread Internet usage has brought about a resurgence in electronic transfer methodologies (Z39.50, MARC, ISO2709, SGML [XML], etc.).
- 2 Z39.50 provides a standardized and well established way of information retrieval over computer networks across various software and hardware platforms.
- 2 A user in one of the systems on which this protocol has been implemented may search the other systems without learning the other systems' search syntax.
- 2 Z39.50 protocol is proven and used by nearly all integrated library systems.



Strategy 3 - Clearinghouse

- 2 NSDI, GMCD, GSDI, ESRI, TerraServer, etc.
- 2 NSDI: The National Spatial Data Infrastructure's Geospatial Data Clearinghouse is a collection of nearly 400 spatial data servers. These data collections can be searched through a single interface based on their metadata.
- 2 The NSDI Clearinghouse uses the FGDC metadata standard and the Z39.50 communication protocol (Isite).
- 2 The NSDI Clearinghouse provides connectivity and search services to its subscribers.

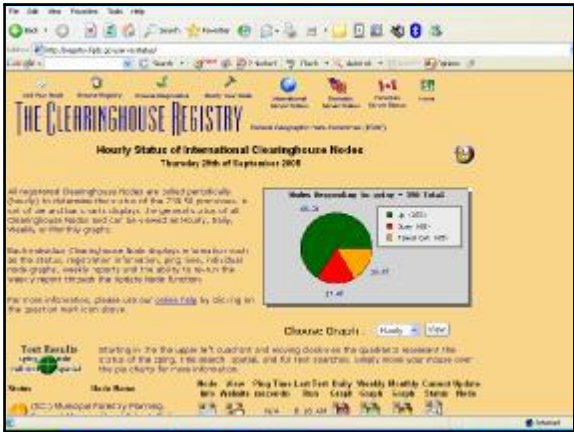




Isite Server Configuration

- Open Source Software
 - RED Hat Linux OS
 - Isite (Z39.50) package and associated software
 - Apache Web Server
 - XML files from every record on database server
- Hardware
 - 2.3 GHz Intel CPU
 - 512 MB RAM
 - 120GB HD

- ### Steps to Create a Clearinghouse Node
- Map existing metadata records to XML using FGDC standard
 - Acquire server
 - Install Isite (Z39.50) and associated software, XML metadata files
 - Open port on server
 - Test
 - Join existing or develop new clearinghouse
 - KODC/NPEN node indexing by NSDI clearinghouse



Search Example



Progress to Date - NPEM/KODC

- Seed Money Identified for Proof of Concept (US\$16K)
 - PICES TCODE support (US\$4K)
 - NPEM and KODC support (US\$6K/each)
- Sasakawa Peace Foundation proposal submitted (NPEM-KODC)
- 1st planning meeting in Seattle, Aug 05
- 2nd planning meeting in Busan, Oct 05



Progress to Date - NPEM/JODC

- US - Japan Foundation proposal (NPEM-JODC)
- Partner with MIRC and JODC
 - MIRC conducts high grade quality control to the oceanic data compiled by JODC, and produces useful data products for users of various fields.



Challenges

- What are the best metadata standard, communications protocol and clearinghouse system for PICES?
- Location of external funds to bring other PICES countries into the federation.
- Translation of metadata records to English

