

Science, Service, Stewardship

PICES 17th Annual Meeting
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The PICES Metadata Federation: Pacific-wide marine metadata discovery, management and delivery for FUTURE

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NOAA
Research
&
Fisheries

S2-5269—Topic Session 2: Linking biology, chemistry, and physics in our observational systems - present status and FUTURE needs

Links to FUTURE

✧ FUTURE products

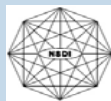
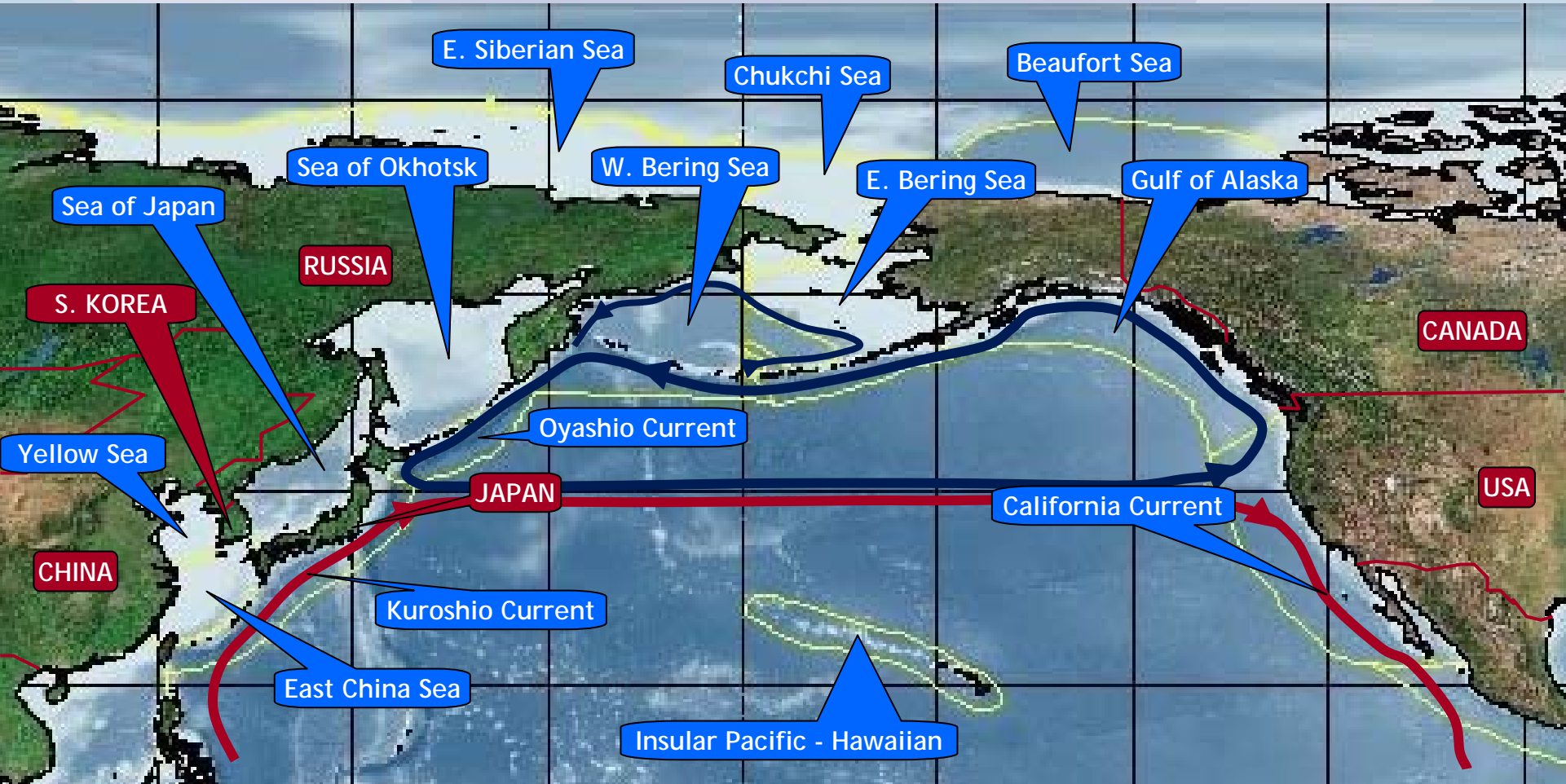
- *Status* - a web-based, updated version of PICES Special Publication 1, *Marine Ecosystems of the North Pacific*.
- *Outlook* - a prediction that can be categorical and based on the best information available, coming from models or expert knowledge.
- *Forecast* - a formal prediction that requires quantification and uncertainty measures.

✧ Product development requires data and data products (indices, inventories, compilations, model runs, etc.)...

✧ Production tasks

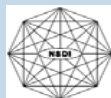
- MONITOR - continue quality observations and develop the necessary observation delivery system.
- TCODE - enhance the timely availability of physical and biological data, support data management needs and recommend data management policies (in close cooperation with National Oceanographic Data Centers and the IOC International Oceanographic Data Exchange program).
- BIO - promote and coordinate biological oceanography and interdisciplinary research.

Shared Ecosystems and PICES Nations



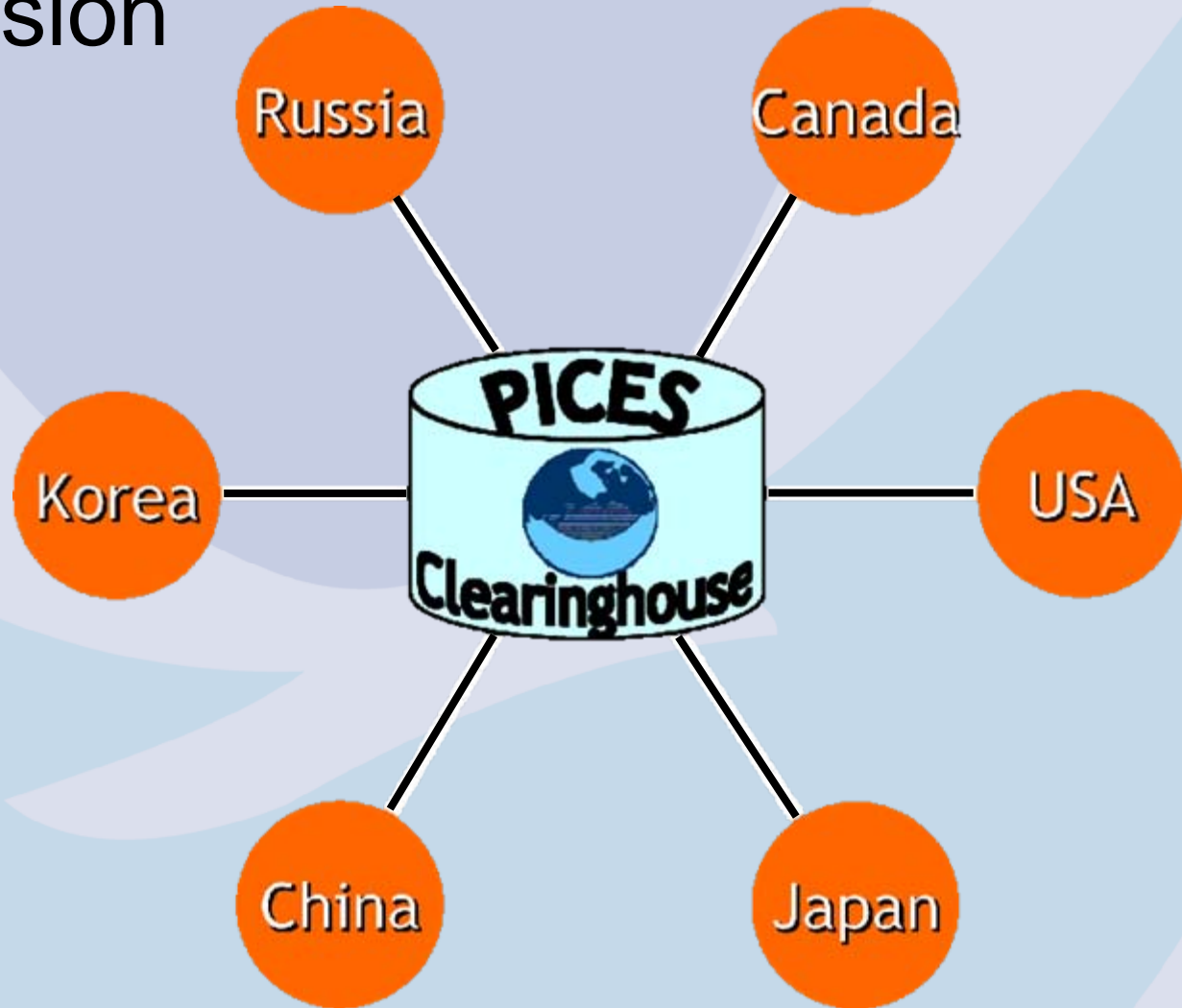
Rationale

- ✧ Shared ecosystems can produce conflict due to national interests and management.
- ✧ Much environmental information is available, but it is not shared or remains unavailable.
- ✧ A method is needed for sharing national information about marine ecosystems, independent of political boundaries.
- ✧ This requires international collaboration using standard tools that foster multi-national sharing of information on marine ecosystems.
- ✧ It is logical that multi-national partnerships include PICES member countries.



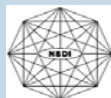
Vision

We envision a one-stop PICES utility for public search, access and delivery of international marine ecosystem data through the Internet.

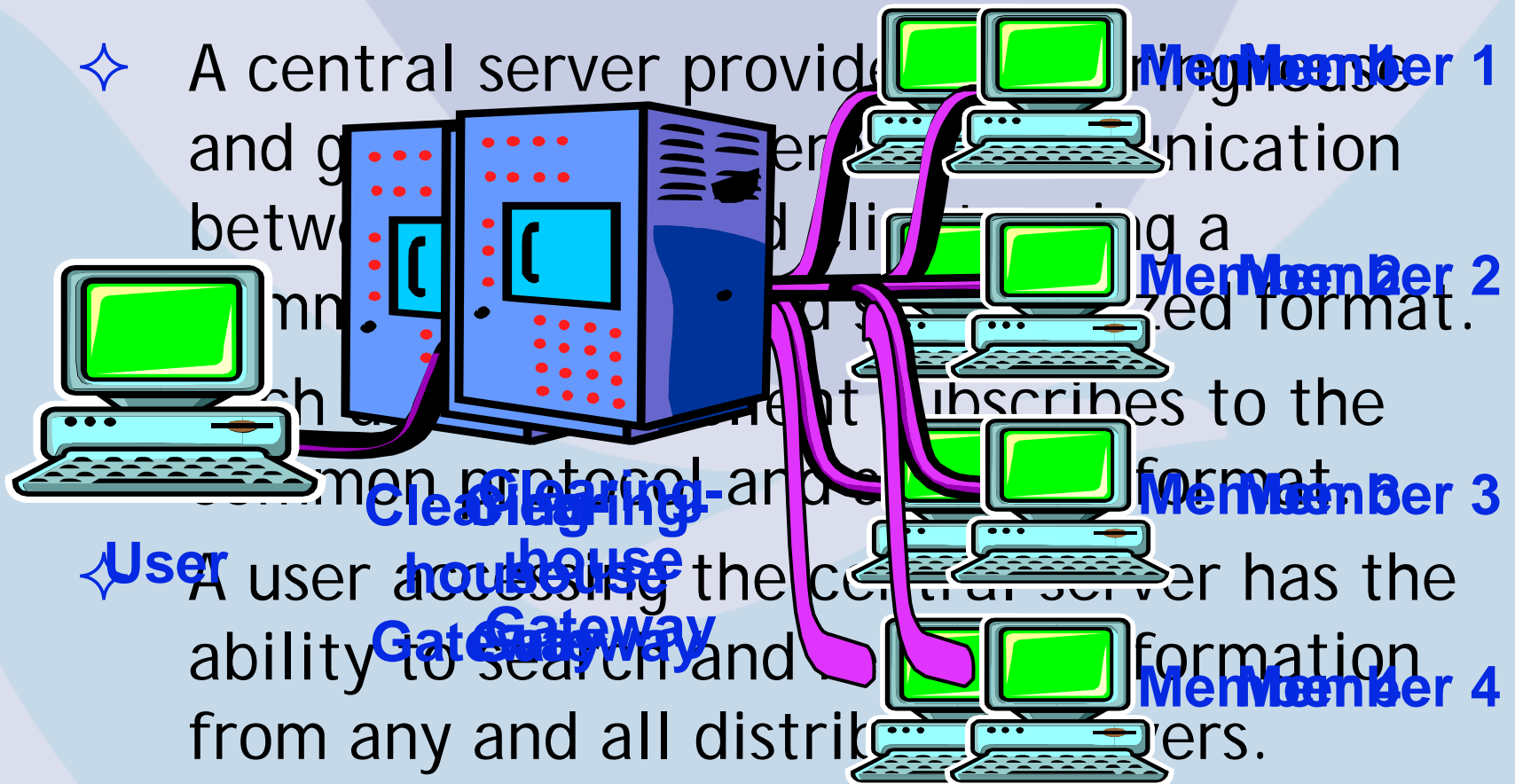


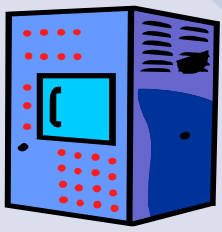
PICES Metadata Federation

- ✧ *Definition:* Federate - join together in a league or association
- ✧ Enables fast and easy metadata access, search and delivery from participants of all PICES member nations
- ✧ Offers a browsable and searchable on-line inventory of data and other information
- ✧ Location of metadata is transparent to users.



How a Metadata Federation Works



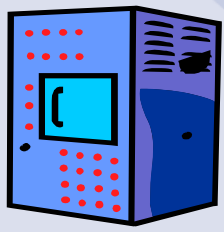


The Clearinghouse Gateway

Clearinghouse
Gateway

- ✧ The clearinghouse presently in use by the PICES Metadata Federation is the National Spatial Data Infrastructure (NSDI) GeoNetwork Clearinghouse coordinated by the Federal Geographic Data Committee (FGDC), U.S. Department of the Interior.

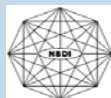


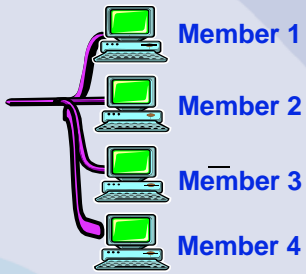


The Clearinghouse Gateway (cont.)

Clearinghouse
Gateway

- ✧ GeoNetwork is an open-source software obtained from the United Nations. It employs the Z39.50 Internet communication protocol and requires that metadata be encoded using the FGDC standard.
- ✧ NSDI and PICES will change to the ISO 19115 metadata standard when it is completely developed.





Member Clients

How to become a registered clearinghouse member :

- ✦ Provide geospatial data and metadata complying to the FGDC metadata standards.
- ✦ Acquire a server and establish communication with the clearinghouse.
- ✦ Upload FGDC-compliant metadata to the server.
- ✦ Open a port on the server.
- ✦ Index XML metadata records.
- ✦ Register.

GET META TOOLS

FGDC METADATA PREPARATION

FGDC PORT ON METADATA

FGDC METADATA

PICES TECHNICAL REPORT No. 1 2007

Metadata Federation of PICES Member Countries

PICES Clearinghouse

Russia, Canada, USA, Japan, China, Korea

ISBN 0-000000-00-0
ISSN 0000-000X

NORTH PACIFIC MARINE SCIENCE ORGANIZATION

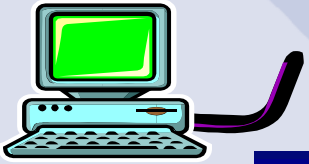
PICES

b Site

LINK TO CLEARINGHOUSE INTERFACE

REGISTER OUR SERVER





User

User Interface

Text search

Spatial search



Server selection

National Spatial Data Infrastructure

Clearinghouse Search Form

Home | Last results | Contact us English

1 - PICES - NPEM - ADHOST (North Pacific Ecosystem Metadatabase)

[Default view](#)
[Advanced view](#)
[XML view](#)

::Identification Information

::Citation Information

Title Sea Ice and Polar Climate in the NCAR CSM
[catid] urn:5656-SRV001:a747e795-40c0-3a65-9fe5-1ef6ac19c602

::Time Period of Content

Beginning Date 19971015.000000
Ending Date unknown

::Status

::Bounding Coordinates

West Bounding Coordinate 178.000000
East Bounding Coordinate -168.000000
North Bounding Coordinate 67.500000
South Bounding Coordinate 52.000000

The **Federal Geographic Data Committee** is an interagency committee that promotes the coordinated development, use, and dissemination of geospatial data on a national basis.

Search Interfaces

- [Simple Search Interface](#)
- [Advanced Search Interface](#)
- [Legacy Search Interface](#)

News

FGDC 2007
 Newsletter

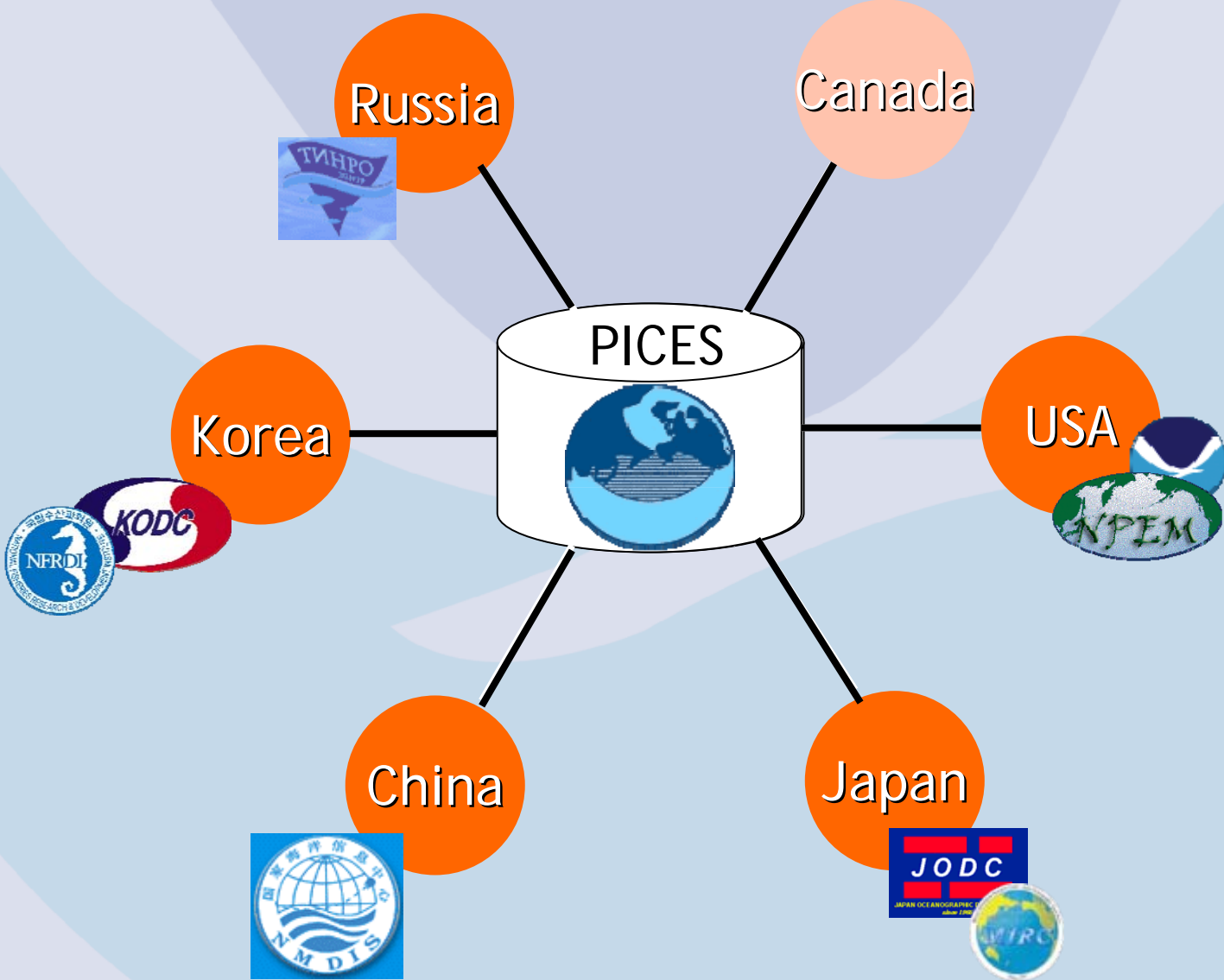


PICES Metadata Federation History

- ✧ In 2003, the PICES North Pacific Ecosystem Metadatabase (NPEM) project sought collaboration through the Technical Committee on Data Exchange (TCODE).
- ✧ The first demonstrated collaboration was in 2005 with South Korea's Oceanographic Data Center (KODC), followed by NFRDI.
- ✧ Far East Russia (TINRO) joined shortly thereafter.
- ✧ In 2006, Japan's Marine Information Research Center (JODC) developed federated capability.
- ✧ In 2008, China's National Marine Data and Information Service (NMDIS) of the State Oceanographic Administration (SOA) came online.



PICES Metadata Federation History



PICES Metadata Clearing- house Nodes

<http://registry.fgdc.gov/serverstatus/>

THE CLEARINGHOUSE REGISTRY

Federal Geographic Data Committee (FGDC)

Hourly Status of International Clearinghouse Nodes

Monday 11th of August 2008

All registered Clearinghouse Nodes are polled periodically (hourly) to determine the status of the Z39.50 processes. A set of pie and bar charts displays the general status of all Clearinghouse Nodes and can be viewed as Hourly, Daily, Weekly or Monthly graphs.

Each individual Clearinghouse Node displays information such as the status, registration information, ping time, individual node graphs, weekly reports and the ability to re-run the weekly report through the Update Node function.

For more information, please use our [online help](#) by clicking on the question mark icon above.

Nodes Responding to zping - 436 Total

■	Up (223)	51.1%
■	Down (93)	21.3%
■	Timed Out (120)	27.5%

Choose Graph : Hourly View

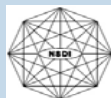
Test Results

Starting in the the upper left quadrant and moving clockwise the quadrants represent the status of the zping, title search, spatial, and full text searches. Simply move your mouse over the pie charts for more information.

Status	Node Name	Node Info	View Website	Ping Time (seconds)	Last Test Run	Daily Graph	Weekly Graph	Monthly Graph	Current Status	Update Node
	PICES - KODC (Korea Oceanographic Data Center)			N/A	3:22 PM					
	PICES - MIRC Metadatabase for Oceanography			0.332	3:22 PM					
	PICES - NFRDI KODC (Korea Oceanographic Data Center)			N/A	3:22 PM					
	PICES - NOAA NPEM (North Pacific Ecosystem Metadatabase)			N/A	3:20 PM					
	PICES - NPEM - ADHOST (North Pacific Ecosystem Metadatabase)			0.245	3:24 PM					
	PICES-NMDIS-ADHOST(National Marine Data and Information Service)			0.246	3:28 PM					
	PICES-TINRO Metadata Node			0.952	3:16 PM					
	PICES-TINRO-ADHOST Metadata Node			0.22	3:24 PM					

Future Work

- ✧ Bring other PICES countries and their various marine data agencies into the federation.
- ✧ Change from FGDC to ISO 19115 metadata standard.
- ✧ Change NSDI Clearinghouse to PICES Clearinghouse using GeoNetwork open-source application.
- ✧ Join PICES Clearinghouse to World Clearinghouse.



PICES GeoNetwork Server

Home | Contact us | Links | About | Help

English | Русский | Français | Español | 中文

Username Password Login

FIND INTERACTIVE MAPS, GIS DATASETS, SATELLITE IMAGERY AND RELATED APPLICATIONS

What?

Where?

GEONETWORK'S PURPOSE IS:

- ▶ To improve access to and integrated use of spatial data and information
- ▶ To support decision making
- ▶ To promote multidisciplinary approaches to sustainable development
- ▶ To enhance understanding of the benefits of geographic information

Geonetwork opensource allows to easily share geographically referenced thematic information between different organizations. For more information please contact [geonetwork@pices.org](#)

Featured map

- ▶ **COASTLINES OF THE BERING SEA, SEA OF OKHOTSK, JAPAN / EAST SEA**

No preview available

Shape files that contain a layer of coastlines of the Bering Sea, Sea of Okhotsk, Japan / East Sea (up to 180 degree).

Reset Advanced Options

S2-5040

CATEGORIES

- ▶ Applications
- ▶ Audio/Video
- ▶ Catalogue metadata
- ▶ Conference proceedings
- ▶ Datasets
- ▶ Directories
- ▶ Interactive resources
- ▶ Maps & graphics
- ▶ Other information resources
- ▶ Photo
- ▶ PICES digital document library

RECENT CHANGES **GeoRSS**

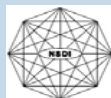
- ▶ Ice in Japan/East sea
- ▶ Инструментальные гидрологические наблюдения (нис Кагановский)
- ▶ Coastlines of the Bering Sea, Sea of Okhotsk, Japan / East Sea
- ▶ Карта Береговая линия Дальневосточных морей

For more about the development and capabilities of the PICES GeoNetwork Clearinghouse look for the e-poster tonight:

From metadata federation to geospatial portal
Igor Burago, Georgiy Moiseenko, Olga Vasik, and Igor Shevchenko

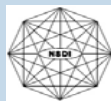
Challenges

- ✧ Obtain funds to bring other PICES countries into the federation (minimum 2 workshops required)
- ✧ Cross talk between metadata standards other than FGDC; communication protocols other than Z39.50
- ✧ Translation of metadata records to English
- ✧ Geographic name conflicts
- ✧ Security



Summary

- ✧ The PICES Metadata Federation supports FUTURE by streamlining the discovery and acquisition of marine ecosystem data for use in status assessments, outlooks and forecasts.
- ✧ With this resource, a user of any one metadata inventory has the ability to search for data cataloged by any and all other participants with a single search request.
- ✧ Using modern data management techniques to cross-search separate metadatabases provides the advantages of shared metadata without compromising national ownership, data integrity, or security of national metadata products.



Participants



❖ North Pacific Ecosystem Metadatabase (NPEM, <http://www.pmel.noaa.gov/np/mdb>)



❖ Korea Oceanographic Data Center (KODC, http://www.nfrda.re.kr/kodc/index_e.html)



❖ National Fisheries Research & Development Institute (NFRDI, <http://www.nfrdi.re.kr/>)



❖ Pacific Research Fisheries Center (TINRO, <http://www.tinro.ru/>)



❖ Marine Information Research Center (MIRC, <http://www.mirc.jha.or.jp/en/>)



❖ Japan Oceanographic Data Center (JODC, <http://www.jodc.go.jp>)



❖ National Marine Data and Information Service (NMDIS, <http://www.nmdis.gov.cn/>)



❖ National Spatial Data Infrastructure (NSDI, <http://www.fgdc.gov/nsdi/nsdi.html>)



❖ U.S. Geological Survey (USGS, <http://www.usgs.gov/>)



❖ North Pacific Marine Science Organization (PICES, <http://www.pices.int/>)



❖ National Oceanic and Atmospheric Administration (NOAA, <http://www.noaa.gov>)

谢谢