2007 Review of PICES Publication Program

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Executive Summary

Background

The North Pacific Marine Science Organization (PICES) was established in 1992 to promote and coordinate marine scientific research and data sharing challenges in the North Pacific Ocean. To fulfill this mission, a vigorous publications program has grown out of the crucial need for efficient communication with a highly varied audience. PICES publications are a record of the activities and scientific findings of the Organization. The following list describes the kinds of publications and their role(s):

- *Annual Reports* are the official administrative record of the Organization and they describe the various activities of PICES, including its meetings, expenditures, and planning, by calendar year.

- *PICES Press* is a newsletter published twice annually, giving members and those interested in PICES, updates on current projects, new research developments, notices of upcoming events, and listings of new publications.
- The *Scientific Report* series is used primarily to document PICES workshops and to provide a publishing venue for final reports of PICES Working Groups on given topics as well as planning reports as appropriate.
- *Special Publications* and *books* are published irregularly, tending to be of broader interest to a wider audience.
- *Abstract Books* provide brief summaries of presentations and posters at Annual Meetings and other symposia (co-) organized by PICES.
- *Special Issues* are collections of peer-reviewed articles in a variety of primary scientific journals, arising from symposia or topic sessions, occasionally published in collaboration with other organizations, using commercial publishers to extend the reach of PICES-related work.

The PICES Finance and Administration (F&A) Committee directed the Executive Secretary to undertake an external review of its publications program. Publishing is an expensive and time-consuming activity; however, the products generated are important in fulfilling the Organization's mission. PICES relies on a small, dedicated staff and the efforts of individual volunteers and organizational members to accomplish its publishing goals. In 2003, a similar program review was commissioned, so the current review provides an opportunity to consider options for the future with special consideration of electronic publishing and to evaluate the efficacy of the 2003 recommendations.

Objectives

The PICES Executive Secretary asked the International Association of Aquatic and Marine Science Libraries and Information Centers (IAMSLIC) to examine strategies to maintain the vitality of the PICES publications program while being mindful of costs and emerging options for communications. In February 2007, Brian Voss (NOAA Libraries) and Janet Webster (Oregon State University Libraries) met with Drs. Alex Bychkov and Skip McKinnell to plan the review. The following was agreed:

1. Create a matrix of PICES publications that covers the following factors:
    a. Printing and distribution costs (Appendix A)
    b. Options for creating in digital format (Appendix E)
    c. Options for archiving in both digital and print formats (Appendix E)
    d. Current distribution (Section 3. Data provided to Secretariat)
    e. Current coverage in indexing and abstracting services (Section 4)
2. Explore the impact of PICES publications on the scientific and management community.
3. Examine impacts of moving the existing print distribution system to an increased reliance on digital formats and explore mitigation measures to rectify any resulting distribution problems.
4. Examine impacts on Secretariat infrastructure and document archival processes.
5. Discuss impacts of any changes on each of the Contracting Parties.
6. Recommend options and Action Plan to the F&A Committee.

We examined the efficiency of the program primarily in terms of distribution and archiving practices and the degree to which PICES is reaching its intended audience in a timely fashion. We found that recommendations from a 2003 review were largely acted upon, with the major exception of adding dedicated staff to the publications activity: however, it may be too soon to see the full impact of those changes with regard to a more effective and efficient publications program.

Findings

In the course of the review, the variability in effective solutions for each audience or each publication series revealed a complexity that, in some cases, warrants further investigation. To most succinctly summarize our findings according to the preceding objectives, the following questions and answers outline the recommendations in the report and the associated action plan:

- What are the options for transition to electronic publications by series?

  Transition to electronic only versions of the Annual Reports represents the most significant opportunity for transition. With the exception of *PICES Press*, a reduction in print distribution of other series would result in negligible reduction in cost of print production and complete transition to electronic only production is not recommended at this time. Appendix E describes these options in more detail.

- What impacts on the existing distribution system (libraries; commercial distributors, *etc*.) will this transition have?

  We recommend conducting surveys of each distribution list (Individuals, Institutions, and Libraries) that recognize each group's differing function. The surveys will reveal necessary detail about the impacts on recipients of PICES publications as these groups and individuals are the primary "customers". Preferences for using print *versus* electronic versions as well as network infrastructure to support consistent access to electronic publications are crucial aspects of maintaining high satisfaction among PICES publications readers. Appendices C and D offer some suggestions for survey questions and possible actions based on results. In light of the recommendations, the PICES Secretariat has described potential impacts on printers and distributors as negligible.

- What mitigation measures (if any) are needed to rectify distribution problems resulting from this transition?

  We foresee libraries playing a crucial role as depository libraries in mitigating impacts from reduced print distribution. The customer survey is recommended to better identify measures required as a result of the initial stages of the transition and to better identify a timeframe for further opportunities to continue the transition in the future.

- What impacts on Secretariat infrastructure and document archival processes will this transition have?

  Short-term assistance via contractor or intern staffing would address the anticipated temporary increase in workload resulting from completion of the Action Plan. The proposed PICES/IAMSLIC cooperative digital repository pilot project using the existing IAMSLIC repository installation, *Aquatic Commons*, is intended to help test-drive many of the more significant changes that would be associated with additional archiving of electronic publications while having the least impact on the current work flow.

- How will this transition impact each of the Contracting Parties?

  The customer surveys and dialogue with the Secretariat would best identify these impacts as well as identify depository libraries in regions where collected data is lacking.

Across all series, we found that the publications program is effective in supporting the PICES mission in several ways:

- According to citation patterns and website use, all PICES publications are contributing to scientific dialogue, although more consistent and comprehensive indexing in *Fish and Fisheries Worldwide* and

Aquatic Sciences and Fisheries Abstracts (ASFA) would enhance the visibility of PICES publications.

- Continued partnerships with commercial publishers are encouraged, especially if the rights to store digital copies of all articles on the PICES website are negotiated.
- Print versions of PICES publications are currently collected and archived at several key institutions, but distribution practices should be reviewed to focus on those institutions and to ensure that all appropriate institutions are archiving the print publications.
- Access to Special Issues of primary journals is adequate in the United States and Canada, but may be problematic in other PICES member countries.
- PICES publications are more accessible through the revamped PICES website. Usage data suggest that digital copies of existing publications are used and a variety of institutions and organizations link to the PICES website.
- Efforts should be made to convert the remaining publications to searchable PDF format. Additionally, PICES publications should be archived in an open access digital repository, allowing more robust, permanent digital access and archiving.
- The Secretariat manages the current level of publication adequately, reporting only occasional delays in production (Fig. 1). It has no capacity to expand. As PICES activity grows, it is anticipated that publication activity will expand. Increased staff or contractor time devoted to the publications process would ensure that publications are of a consistent quality, timely, well publicized, appropriately distributed, and digitally archived even as the program expands.

Throughout our review, it became apparent that PICES publications have a high value. They provide the primary conduit for basic communication of the science of the North Pacific Ocean by documenting conditions, examining problems, and proposing approaches. The communication of approaches and recommendations will be critical for future research directions as well as possible policy considerations. On a practical level, the PICES publications document the work and history of the organization and they promote international collaboration through the writing and editing process. PICES publications provide a record of the international research on and thinking about key scientific problems of the North Pacific.

1. Introduction

The report that follows describes our approach and clarifies our findings. We recommend options for strengthening the publications program in terms of efficiency and impact within the context of an organizational need to consider more reliance on electronic-only publication as a means to minimize printing and distribution costs. The first section evaluates the Organization's performance with respect to the recommendations from the 2003 Publication Review. The second section provides an overview of citation patterns as one means of assessing usage of PICES publications by the scientific community. The third and fourth sections explain alternatives for collecting, archiving, and indexing of PICES publications, as all are indicators of access. The final section summarizes our recommendations, addressing areas where efficiency may be gained in the production and distribution of print publications and positioning the organization for a smooth transition into a more robust digital production and distribution program. These recommendations focus on workflow changes, branding of the PICES name, and key partnerships with libraries and commercial indexers to help PICES ensure that print and digital archives are thorough, growing, and accessible. In addition, Appendix E contains the detailed characterizations of each published series used to inform the general recommendations, as well as additional recommendations for print and electronic distribution specific to each series.

2. Review of recommendations from 2003 review

In September 2003, W.L. Hobart (NOAA NMFS Scientific Publications Program) and G.J. Duker (Publications Program, NOAA NMFS Alaska Fisheries Science Center) reviewed the PICES publications program at the request of the PICES F&A Committee. Their charge was to examine the costs, methods, and possible efficiency of producing and distributing PICES publications. They made a variety of recommendations, most of which have been implemented (North Pacific Marine Science Organization, 2005). The major recommendations are listed below, describing the situation in 2003 and the actions taken:

1. PICES Secretariat was overloaded and publishing duties contributing to the overload. They recommended the addition of editorial staff or contracting for editorial assistance.
   Action: No editorial staff was added due to budgetary constraints; however, a successful contracting relationship has been in place since 2005. Workload is causing delays in some areas (Fig. 1).

2. PICES lacked a style manual and did not promote related editorial standards.
   Action: This manual has been compiled and is shared with authors and chairs of PICES working groups as appropriate. Secretariat staff uses in-house production guidelines for *PICES Press* and the Scientific Reports. The reports now have a consistent citation format as well as information on all PICES publications as a standard part of the report.

3. Some PICES publications lacked visible corporate identity so the Organization may not have been recognized for its support of the work.
   Action: While the PICES published series maintain a constant visual identity, the special journal issues remain problematic in terms of branding. Some (*Progress in Oceanography*) allow PICES to print the PICES logo on the cover while others do not. In either case, this visual clue does not persist in a digital environment. Additionally, authors' affiliations are associated with their home institution with rare mention of PICES affiliation.

4. PICES was not actively archiving its publications in a digital format.
   Action: Most PICES publications are available as PDF files on the PICES website.

5. The PICES website was out of date, making it difficult to access publications.
   Action: The website was completely revised to offer a clean, accessible venue.

6. PICES staff used Microsoft Word for much of its publication production and could benefit from an upgrade to a more robust, current desktop publishing platform.
   Action: This was not implemented due to the steep learning curve associated with specialized software and an inability to hire additional staff with these skills.

Since the 2003 report, the PICES publications program has continued with current staff providing the editorial guidance. The publications are more accessible through the PICES website as well as major commercial journals. Meanwhile, the information landscape continues to evolve.

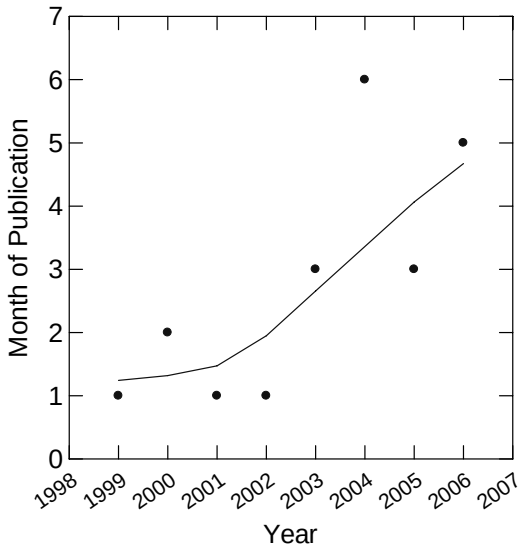

Figure 1 Trend in month of publication of the PICES Annual Report following the close of a fiscal year (month 0).

3. Assessing usage of PICES publications

Usage is a significant justification to continue the PICES publications program. Assessing usage, however, is not trivial and has inherent limitations, especially with grey literature (Webster and Collins, 2005). PICES Scientific Reports undergo varying levels of peer and editorial review, but are not recognized as peer-reviewed journals, and thus do not receive the same level of attention in commercial literature indexes. This limits their exposure and consequent use. With this as an explicit caveat, examining citation patterns can still be a useful indicator of usage by, and impact on, the scientific community. Other PICES publication series generally undergo even less peer review. Therefore, they are less often found in the commercial literature indexes.

Two indexes, *Web of Science* and *Scopus*, feature tools to assess impact by compiling citation rates to individual publications. *Google Scholar* is beginning to do this, but as yet is not very sophisticated. These tools focus on the peer-reviewed journal literature as their core data. Citations to grey literature appear if that literature is cited within the journal literature. For example, a citation to a PICES Scientific Report will appear if an article in one of the indexed journals cited it. However, the publications cited in a PICES Scientific Report will not appear as a matter of standard practice. *Web of Science* and *Scopus* were searched for citations to papers in PICES special journal issues as well as any PICES publications such as the Scientific Reports.

3a. Scientific Reports

Considering the "grey" nature of the report series, it is heartening to report that they are cited quite well (Table 1), especially in comparison to other grey literature report series (Cordes, 2002/2003; McDonald, Cordes and Wells, 2007). Eighteen of the first thirty reports are cited at least once in *Web of Science* while twenty-three are cited according to *Scopus*. *Scopus* claims to include a broader suite of source publications, hence the higher numbers of citations. The three most cited Scientific Reports are Numbers 2, 6, and 10, and all address the Okhotsk Sea. Perhaps this demonstrates a unique role of PICES in

covering a geographic area that was neglected previously in the English language scientific literature. The diminishing number of citations to more recent reports is expected given the lag time for a publication getting into circulation.

Table 1 Number of citations to PICES Scientific Reports in two indexing services

Scientific Report	Web of Science	Scopus
no.1	4	10
no.2	13	61
no.4	1	2
no.5	1	3
no.6	6	36
no.8	–	1
no.10	11	37
no.12	7	28
no.14	3	7
no.15	13	14
no.16	4	6
no.17	2	1
no.18	3	9
no.19	–	1
no.20	3	5
no.22	1	1
no.23	–	2
no.24	–	2
no.25	2	2
no.26	1	1
no.27	–	1
no.28	3	3
no.30	2	2
Total	80	235

3b. PICES special issues of primary journals

Citation rates of the special journal issues provide strong validation of the value of publishing in peer-reviewed, commercially published journals. Table 2 shows the total number of articles in each issue as well as the number of citations in both *Web of Science* and *Scopus*. Given that most scientific papers are not cited (some say up to 90% (Meho, 2007)), these numbers indicate that many PICES-sponsored articles are read and used.

Table 2 Citations to PICES Special Issue articles

Special Issue	# of Articles	# of citations in *Web of Science*	# of citations in *Scopus*
Progress in Oceanography v.43 n.2-4 (1999)	11	227	364
Progress in Oceanography v.47 n.2-4 (2000)	13	75	654
Progress in Oceanography v.49 n.1-4 (2001)	33	340	495
Journal of Oceanography v.58 n.5 (2002)	12	55	98
Progress in Oceanography v.55 n.1-2 (2002)	17	123	202
Canadian J. Fish. Aquat. Sci. v.59 n.12 (2002)	15	120	159
Deep Sea Research Part II v.49 n.24-25 (2002)	28	221	423
Journal of Oceanography v.59 n.4 (2003)	10	78	99
Progress in Oceanography v.57 n.3-4 (2003)	13	102	N/A
Marine Environmental Research v.57 n.1-2 (2004)	10	28	50
Journal of Oceanography v. 60 n.1 (2004)	13	85	74
Progress in Oceanography v.61 n.2-4 (2004)	10	21	28
ICES J. of Marine Science v.61 n.4 (2004)	28	108	125
Journal of Marine Systems v.50 n.1-2 (2004)	7	33	41
ICES J. of Marine Science v.62 n.3 (2005)	40	108	246
Deep Sea Research Part II v.52 n.5-6 (2005)	10	97	31
Progress in Oceanography v.64 n.2-4 (2005)	14	29	81
Deep Sea Research Part II v.53 n.3-4 (2006)	13	3	6
Progress in Oceanography v.68 n.2-4 (2006)	12	15	29
Deep-Sea Research Part II v.53 n.20-22 (2006)	25	0	1
Ecological Modelling v.202 n.1-2 (2007)	18	70	70
Total number of articles	352		
Total number of citations		1938	3276

Of course, some articles have more impact than others. Table 3 shows the most heavily cited in each of the special journal issues with older articles having more time to generate additional citations. Most articles have a classic citation pattern as illustrated by Figure 2 using citations to Minobe's 2000 article.

Table 3 Most cited PICES journal articles

Article cited	# of citations in *Web of Science*	# of citations in *Scopus*
Prog. Oceanogr. 43 (1999) Harrison	83	96
Prog. Oceanogr. 47 (2000) Minobe	54	69
Prog. Oceanogr. 49 (2001) Hollowed	52	50
J. Oceanogr. 58 (2002) Whitney	27	29
DSR 49 (2002) Honda	34	50
Prog. Oceanogr. 55 (2002) Hunt	24	26
J. Oceanogr. 59 (2003) Yasuda	24	28
Prog. Oceanogr. 57 (2003) Denman	20	N/A
ICES 61 (2004) Heath	12	16
Prog. Oceanogr. 61 (2004) Yamada	9	8
ICES 62 (2005) Rice	20	22
DSR 52 (2005) Whitney	11	9
Prog. Oceanogr. 64 (2005) Tsuda	7	16
Prog. Oceanogr. 68 (2006) Demaster	7	7

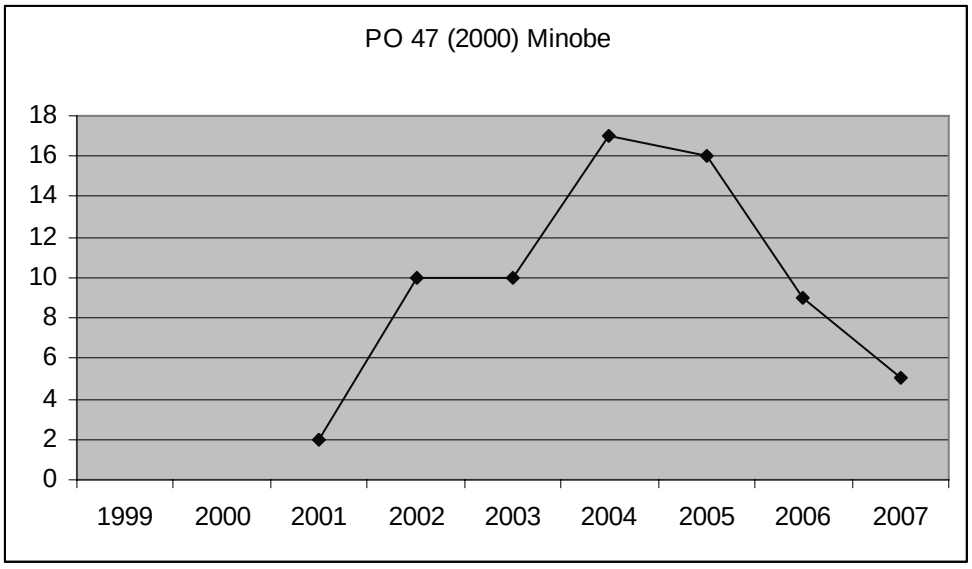

Figure 2 ***Web of Science*** **Citations to Minobe 2000**

Website usage statistics are another means of assessing usage of publications. While they have a unique set of limitations, they can still provide an indication of the effectiveness of the current digital distribution mechanism. Statistics gathered and provided by Julia Yazvenko, PICES Database and Web Administrator, indicated that over the past three years, PICES Special Publication No.1 (*Marine Ecosystems of the North Pacific*) and Scientific Report No. 23 (*Harmful Algal Blooms in the PICES Region of the North Pacific*) were the most frequently accessed publications on the website. Other frequently accessed publications were Scientific Report No. 22 (*PICES Science: the first ten years and a look to the future*), and Scientific Report No. 16 (*Environmental Assessment of Vancouver Harbour; Data Report for the PICES Practical Workshop*) following No. 23 in popularity. Other notably popular publications were the Abstract Book from the 13th annual meeting (Honolulu) and *Shark abundance increases in the Gulf of Alaska* in *PICES Press* (July 2000). Each publication series resides in its own directory on the PICES web server, so by comparing website usage statistics for each directory, it seems that series popularity can be ranked from highest to lowest as follows: Scientific Reports, *PICES Press*, Special Publications, Annual Reports, Brochures, and Abstract Books. Primary journal special issues are not included in this list because the articles are not available on the PICES website.

Overall, PICES publications contribute to the scientific dialogue. While the Special Issues of primary journals appear to have more impact on the scientific community, the Scientific Reports are serving an important role as well. Additionally, the PICES book, *Dynamics of the Bering Sea*, has been cited 128 times according to the *Web of Science*, demonstrating its value. Even articles in *PICES Press* have been cited, as have some annual meeting abstracts. A more thorough analysis of citation patterns is required to ascertain who is using the PICES publications. This may assist with questions of distribution of publications as well as marketing. Also, the data could be used to investigate patterns of international collaboration, another element of the PICES mission. At this point, we can safely say that many PICES publications are used and add value to the science of the North Pacific Ecosystem.

4. Current indexing of PICES publications

People use information they can find easily. If PICES publications are not well indexed or cataloged, they are not as accessible and their impact on the scientific community will be limited. PICES publications are discovered through word-of-mouth, and by searching tools such as library catalogs, web search engines, and specialized literature databases.

We examined some finding tools that are important in the marine science field. We looked at how well PICES publications were indexed in these resources as a reflection of how easily a person could identify PICES materials. Our search strategy focused on PICES or North Pacific Marine Science Organization as a publisher or corporate author. This allowed us to see if the tools acknowledged PICES as a corporate author, publisher, or sponsor of publications. These results would not include the journal special issues unless PICES is included as an author or publisher.

Excluding the 411 Special Issue articles, we found 514 items listed as PICES publications, including many articles that were published within the Scientific Reports. Table 4 indicates the variability in level of indexing of PICES published material. The difference between the Total Hits and Relevant Hits reveals the problem of precision with searching PICES as an author or publisher. Five of these tools are commercial indexes with the sixth, WAVES, being the library catalog for the Canadian Department of Fisheries and Oceans Libraries. Typically, we would expect fewer records in a library catalog than the commercial indexes as the catalog rarely covers materials to the article level.

Table 4 Indexing of PICES publications excluding journal articles

Index/Database searched	Total hits	Relevant hits
Aquatic Sciences and Fisheries Abstracts (ASFA)	258	159
BIOSIS	6	4
Fish and Fisheries Worldwide	399	360
WAVES (Catalog of DFO libraries)	80	64
Web of Science	21	20
Zoological Record (CSA)	77	39

There is little overlap among the various indexing tools, which suggests differing policies toward indexing, differing awareness of PICES publications, or both (Appendix B). The two major tools, *Aquatic Sciences and Fisheries Abstracts* (ASFA) and *Fish and Fisheries Worldwide*, share only 22 records, for instance. This is partly a distribution issue, and steps could be taken to ensure that these indexing entities receive copies of PICES publications. More importantly, in an effort to improve coverage the discrepancy may reflect a particular format bias of certain indexes (*e.g., Zoological Record* and *Web of Science*) or a priority given to the reports by others (*e.g., ASFA*).

An additional issue with indexing is the level of granularity (resolution). For example, many of the Scientific Reports include papers by various authors, yet few of the Scientific Reports are indexed at the resolution of the individual article, making those papers invisible. Table 5 summarizes the coverage of the Scientific Reports and their multiple articles by the indices. It reinforces the evidence for gaps in distribution, and the inconsistency of coverage within an index. It was interesting to note the variability in indexing of articles within a given Scientific Report. *ASFA* and *Fish and Fisheries Worldwide* have higher numbers than the others. However, neither index resolved all Scientific Reports to the article level, nor indexed the same ones. In general, *Fish and Fisheries Worldwide* covered more reports and with more depth than the other indices. It also indexes *PICES Press* more thoroughly at the article level.

Table 5 Indexing of Scientific Reports

Index or Catalog (Vendor)	Reports indexed as individual titles	# Reports indexed in some form (t=32)	# Report articles indexed (t≈302)
Aquatic Sciences and Fisheries Abstracts (CSA)	1-10	10	98
BIOSIS (Ovid)	0	0	0
Fish and Fisheries Worldwide (NISC)	1,8,9,11,13-16, 19-21, 25, 27-30	22	196
WAVES (DFO)	32	32	0
Zoological Record (CSA)	19, 30, 32	3	10
Web of Science (WOS)	0	0	0

Our examination of the current level of indexing of PICES publications reveals some significant areas of concern. Visibility and hence usage of PICES publications, in part, relies on consistent and thorough coverage in the major tools used by marine scientists. While libraries appear to collect the publications, access through commercial indexes is problematic. Scientists have to use multiple tools to identify PICES materials, and still would not find all items published under the auspices of PICES. Our concerns include consistency of coverage of the Scientific Reports at the report level as well as the depth of indexing at the article level. Underused publications caused by lack of granular access via commercial indexes may subsequently affect collection development decisions in the libraries as well.

5. Current collecting and archiving of PICES publications

5a. Printed publications

We gathered and examined data on archiving practices of libraries as a method of assessing access to print versions of PICES publications. Some libraries may link to digital copies in their catalog records, however, we wanted to ascertain the stability of print archives before introducing the concept of digital archives. Selected libraries provide satisfactory access to print and digital versions of PICES publications via their local catalogs. These are shared through the international, cooperative library catalog, WorldCat, provided by the Online Computer Library Center (OCLC). This provides exposure of the publications to the broader library community. People can use the OCLC database through its web interface that is freely available from http://www.worldcat.org. This tool provides good, open access to PICES material.

We used OCLC WorldCat as our primary data source, but we also reviewed the IAMSLIC membership to help identify additional collections not found in OCLC WorldCat, but likely to be in archives of member libraries located outside of North America. These two resources provide the means for libraries to enhance their services by sharing records to build their local catalogs, and supporting the lending and borrowing of items. Libraries voluntarily maintain memberships with these groups and can freely determine their level of participation. WorldCat data reveals a bias toward more active participation on the part of North American libraries. Together, these cooperative catalogs provide an efficient and somewhat effective method to obtain a picture of print archiving and access.

Table 6 suggests that PICES publications in print are adequately collected, and hence accessible to readers in North America. The exceptions are the Annual Meeting abstracts that are inconsistently collected by libraries, probably due to the distribution process. Access to publications via libraries located outside of North America is unclear. In part, this is a limitation of the OCLC WorldCat and indicates the need for more data on the collection policies of PICES Contracting Parties in Korea, China,

Japan, and Russia. In Appendix C, we address the issues and limitations in the form of suggested survey questions for PICES Contracting Parties. In Appendix D, based on geographic data collected on PICES distribution to libraries, identifiable holdings in OCLC WorldCat, and IAMSLIC affiliation, the organizations are characterized and selected as examples for various actions. The practices and preferences found via survey of PICES membership in these regions would have significant impacts on PICES' ability to migrate from print based publication toward greater reliance on electronic distribution.

Table 6 Number of libraries holding PICES publications displayed in WorldCat

Publication	# OCLC libraries
Annual Report Series	20
Scientific Reports Series	19
no.1	8
no.2	10
no.3	9
no.4	12
no.5	13
no.6	13
no.7	12
no.8	13
no.9	16
no.10	11
no.11	13
no.12	12
no.13	15
no.14	15
no.15	13
no.16	14
no.17	14
no.18	15
no.19	8
no.20	11
no.21	11
no.22	12
no.23	13
no.24	11
no.25	15
no.26	13
no.27	16
no.28	15
no.29	12
no.30	11
no.31	N/A
no.32	5
no.33	6
Special Publication Series	2
no.1	23
no.2	14

Publication	# OCLC libraries
Brochure(s)	6
PICES Press	16
Books	
Dynamics of the Bering Sea	60
Historical Atlas of the North Pacific Ocean	252
The Journey to PICES	39
Annual Meeting Abstracts	
1997	8
Primary Journal Literature	
Progress in Oceanography	611
Journal of Oceanography	87
Canadian Journal of Fisheries and Aquatic Sciences	609
Deep Sea Research Part II	214
Marine Environmental Research	192
ICES Journal of Marine Science	176
Journal of Marine Systems	88
Ecological Modelling	281

Access to print PICES publications appears somewhat robust; however, access is strongly dependent on where a user is geographically located and with which organization he/she is affiliated. For those not affiliated with PICES or an institution supporting a library with a PICES print collection, alternative means of acquiring copies are required. Resource sharing (interlibrary loan) is the primary means by which libraries augment their collections, and association memberships provide the means to make borrowing requests. So, we examined the PICES distribution system in terms of library affiliation, as this could be an indicator of access through resource sharing as well as local collections. Currently, there are 63 libraries on the PICES libraries distribution list and 69 on the PICES institution distribution list. There appear to be 14 PICES institutions on the current distribution list that have libraries affiliated with their Organization, but those libraries are not on the PICES library distribution list. Half of those 14 libraries have IAMSLIC affiliations. Half of the 63 libraries that receive PICES distribution and whose parent institutions receive PICES distribution as well have IAMSLIC affiliations. While geographic distribution and need for print distribution requires further examination, there is an opportunity for IAMSLIC and its network to not only help balance geographic distribution of PICES publications where needed, but also to help fill the gap as needed through resource sharing.

Collecting patterns in WorldCat demonstrate a strong commitment to print archiving among certain libraries. Approximately 35 of the 63 libraries receiving PICES distribution have some form of OCLC affiliation. Twenty-one of those libraries also have IAMSLIC affiliation. Those libraries are also included in the approximately 80 OCLC Libraries that hold at least one PICES publication and display those holdings on WorldCat. This reinforces the concept that IAMSLIC member libraries are committed to collecting and archiving PICES publications.

Several libraries are cataloging digital copies of PICES Scientific Reports in conjunction with the print copies, facilitating access through library catalogs. Our collection and archiving concerns include not only the robustness of the PICES digital archive and the current format of PICES digital documents, but also open access to journal articles and issues sponsored by PICES but hosted on commercial publishing websites.

While collection of, and access to, PICES published items appears adequate, challenges arise when considering the commercially published journal issues. Collecting these major commercial journals is expensive and many smaller institutions cannot afford the subscription cost for either print or electronic copies. Access is controlled by subscription, either institutional or personal. Furthermore, copyright issues generally prevent libraries from lending or copying an entire issue of a given journal. Consequently, this significant component of the PICES publication program may not be adequately accessible to all PICES members or other interested parties. Solutions exist, including negotiation with publishers for the right to archive articles in an open digital repository, or publishing in a non-commercial venue without copyright restrictions, such as the PICES special publications series. The Creative Commons (http://creativecommons.org/) and Scholarly Publishing and Academic Research Coalition (http://www.arl.org/sparc/) provide examples of ways to work with copyright agreements so authors' rights are respected and publishers' work acknowledged yet access is more open. The degree to which publishers pursue adherence to copyright restrictions is often determined by the publisher's need to maintain profitability. PICES, as a publisher, may choose to take a less restrictive stance on copyright as a means to increase accessibility to its publications.

5b. Digital publications

The availability of almost all PICES publications in digital format from the PICES website is positive. This assumes, however, that most people interested in a PICES publication can identify it and then have adequate computer and network capability to download files.

One indicator of access to, and use of, electronic versions of PICES publications is to examine the number and location of organizations linking to the PICES site on the web. We used a Google application to identify websites that linked to the PICES website (Table 7). Only two sites, a Chinese mirror of PICES (mari-biotech.nstl.gov.cn) and the Center for Global Environmental Research (Japan, www-cger.nies.go.jp), have a specific link to the PICES publications page (www.pices.int/publications/). Many more link to the PICES website (www.pices.int). As Google does not index data contained within library catalogs and literature databases, these results do not reflect organizations providing links to PICES publications from within their organizational databases.

Table 7 Websites of organizations linking to the PICES website

International organizations	
Intergovernmental Oceanographic Commission UNESCO	ioc.unesco.org
PICES Technical Committee for Data Exchange	tcode.tinro.ru/
UNEP Regional Seas Programme	www.unep.org/regionalseas/
NOWPAP (Northwest Pacific Action Plan)	www.nowpap.org
International Pacific Halibut Commission	www.iphc.washington.edu
International Commission for the Conservation of Atlantic Tunas	www.iccat.es
Climate Variability and Predictability (CLIVAR) of the World Climate Research Programme	www.clivar.org/
United Nations Atlas of the Oceans	www.oceansatlas.com
International Whaling Commission	www.iwcoffice.org
North Pacific Research Board	www.nprb.org/
Canada	
Department of Fisheries and Oceans Canada	
Scientific Committee on Problems in the Environment (University of Victoria)	web.uvic.ca/ceor/scope
Watershed Watch Salmon Society (British Columbia)	www.watershed-watch.org

2WE Marine and Coastal Environmental Consultants (Canada)	www.2weassociates.com
Institute for Social Ecological Studies (University of Victoria)	web.uvic.ca/ceor/ises/
Japan	
Agriculture, Forestry and Fisheries Research Council of Japan	kokushi.job.affrc.go.jp
Biophilia Journal	www.biophilia.jp
Japan Agency for Marine-Earth Science and Technology	www.jamstec.go.jp
Fisheries Oceanography Division, TNFRI	cse.fra.affrc.go.jp
Ocean Research Institute of the University of Tokyo	cod.ori.u-tokyo.ac.jp
Fisheries Agency of Japan	www.jfa.maff.go.jp
Environmental Information and Communication Network	www.invasivespeciesinfo.gov
United States	
US National Oceanic atmospheric Administration Pacific Marine Environmental Lab	www.pmel.noaa.gov
US National Oceanic atmospheric Administration Alaska Fisheries Science Center	www.afsc.noaa.gov
US National Invasive Species Information	www.invasivespeciesinfo.gov
Interenvironment (California Institute of Public Affairs)	www.interenvironment.org
Joint Global Ocean Flux Study	ijgofs.whoi.edu

This breadth of linking suggests the importance of a well organized, current website that encourages usage and stimulates interest. However, the lack of links to the PICES website from Korean, Chinese, and Russian institutions is troublesome. There may be institutional barriers to linking. This is another issue that the PICES membership may be able to address.

6. Recommendations

We used the recommendations of the 2003 Review as background because some of the concerns remain in 2007 and it is important to reiterate them in light of the current information climate. We also reflect on the importance of positioning PICES to respond to the changes in scientific communication in the near- and long-term future. We framed the recommendations around general issues and suggested actions to address them:

A. Managing the publication workflow
B. Increasing recognition of PICES as a publisher
C. Enhancing access through library and indexer cooperation
D. Improving distribution efficiency
E. Increasing visibility and ensuring perpetuity through a digital repository

A. Managing the publication workflow

Duties from editing to layout are shared among Secretariat staff and contractors. This work demands a significant time commitment from key staff. The 2003 Review recommended hiring a full-time editor and part time webmaster. We also recognize the need for additional staffing either through added contracts or incorporation of current contractors into the PICES staff.

Recommendation A1: Establish a new position to consolidate and manage the whole workflow from the call for papers to archiving.

Recommendation A2: Post the PICES Style Manual to the PICES website highlighting the Instructions to Authors and Editors sections. As contact information changes and procedures change, time spent

answering questions will be minimized if contributing authors can find current procedures online including clear instructions to authors/editors. Print publications should also include instructions to authors or references to instructions on the website as appropriate.

Recommendation A3: As part of the workflow, continue to convert publications to text- searchable PDFs. This is the current standard used by PICES as it allows comprehensive searchability and accessibility to the blind community.

Financial Implications: Recommendation A1 requires discussion of financial consequences, as there are several options. Currently, $20,000 in funds is used to contract for publishing assistance, which covers part of the publishing activity. Additional staff time is currently dedicated to the endeavor, although this is difficult to quantify. Contractual help is cost effective in this situation, but funds would need to be secured to ensure an ongoing contract and increase that contract as needed. One option may be a short-term contract that manages and documents the implementation of the other recommendations. Taken individually, the majority of the other recommendations can be carried out with existing staff, but collectively represent a significant amount of staff time in the short term. Done successfully, this may allow staff and contractors to return to existing levels and work with greater efficiency and effectiveness in the long term. While contract staff continue to play a large role in the publications process, documented procedures are crucial in retaining institutional knowledge in the event of staff turnover. Recommendations A2 and A3 have little financial impact and can be accomplished with existing staff.

B. Increasing recognition of PICES as a publisher

It is important to have PICES listed as the publishing or sponsoring body on all of its publications. This increases awareness of PICES in the scientific community. To accomplish this, PICES should be listed on each publication in a way that it will be entered as a searchable name in literature databases and library catalogs. This will not only increase the visibility of the PICES name within resources used by the scientific community, but will also make an easier task of tracking distribution and archiving.

Recommendation B1: Include a recommended format for the item citation in every publication. As previously recognized, this has been done in the Scientific Report and Special Publication series, but may also be of value in the remaining publications.

Recommendation B2: Include the summary of publications currently appearing on the Scientific Reports, in the remaining series. If a back cover summary is not appropriate, perhaps an additional summary could be added to the "About PICES" section in other publications.

Recommendation B3: Investigate the possibility of branding PICES at the article level in the Special Issues. Options to consider include a logo on the article page, inclusion of PICES as a sponsor or corporate author, or an acknowledgment of PICES sponsorship. Such branding will make PICES more recognizable in the online environment. This element is also of concern when considering a digital repository implementation as discussed below.

Recommendation B4: Add information on the PICES publications introductory web page for ordering publications as well as more specific contact information for publications.

Financial Implications: Recommendations B1, B2 have little financial impact and can be accomplished with existing staff. Recommendation B3 could be investigated by existing staff and would have little financial impact in terms of staffing. Commercial publishing agreements may require additional fees for specialized publishing needs. Recommendation B4 has little negative financial impact in terms as it can be accomplished with existing staff. It may have a positive financial impact if it is determined that selling publications is an appropriate and feasible source of revenue.

Additional note: We considered a recommendation to explore a PICES journal as a means of controlling branding, image, and content. While intriguing, especially in the digital environment, it requires significant further investigation on the part of the PICES Secretariat, with both commercial and non-profit publishers, as to the organizational needs to viably market and support a regularly published journal. The PICES Secretariat has also indicated some investigation of this option in the past. Rather, we recommend continuing to work with selected journals to incrementally achieve greater visibility.

C. Enhancing access through library and indexer cooperation

As shown above, identifying PICES publications and obtaining copies are not optimal due to inconsistent indexing and collecting. The primary searchable sources for literature related to the subject content covered by PICES publications are *Fish and Fisheries Worldwide*, and *Aquatic Sciences and Fisheries Abstracts (ASFA)*, OCLC WorldCat (cooperative library catalog) and IAMSLIC Libraries. So, PICES should focus on these entities to strengthen coverage of PICES publications.

Recommendation C1: Enhance existing OCLC catalog records with links to current digital versions of PICES publications. This is quite simple if working with a willing cataloger.

Recommendation C2: Establish agreements with select libraries for ongoing, dedicated print archiving. These libraries should be selected through consultation with PICES national partners as well as recognition of historic collection commitments.

Recommendation C3: Ensure indexing of all PICES publications to the article level. Options of this include becoming an ASFA partner, contracting with a library to do the indexing for inclusion in ASFA, or negotiating with NISC for ongoing indexing for *Fish and Fisheries Worldwide.*

Recommendation C4: Add all publications to a searchable digital repository. While PICES posts the Scientific Reports and *PICES Press* in multiple parts, it is worthwhile to have other digital copies available both for improved access and greater security.

Financial Implications: Recommendation C1 would have little financial impact and can be accomplished through agreement(s) with an IAMSLIC member(s). Recommendation C2 would have little financial impact and can be accomplished through partnerships among the PICES Secretariat, IAMSLIC, and PICES national partners. Recommendation C3 would likely require some financial commitment to become an ASFA partner or to establish a long-term commitment with library staff to do the indexing. Recommendation C4 requires discussion of financial consequences, as there are several options. At minimum, a partnership with IAMSLIC to use their digital repository, *Aquatic Commons*, may require some funding for contract services. An in-house repository would require equipment, staffing, and some training. More detail would be available regarding financial impact following the pilot project discussed in Recommendation E1.

D. Improving distribution efficiencies

A related element to improved visibility is more efficient distribution of both print and electronic publications. While mailing is used for print distribution, alerting technology is useful for electronic distribution.

Recommendation D1: Review the three distribution lists to identify duplicate addresses. Add email addresses, distribution preferences, and library affiliation to member records as a basis for upcoming surveys as well as to facilitate future electronic distribution.

Recommendation D2: Review distribution of PICES publications to look for areas to reduce costs while enhancing geographic coverage and archival commitment. Survey Contracting Parties, libraries, individuals and institutional representatives with specific questions and requests. The chart in Appendix D, based on data collected on PICES library and organizational members, their geographic location and their identifiable holdings in OCLC WorldCat, suggests a possible approach to this survey.

Recommendation D3: Add Really Simple Syndication (RSS) feed capability to the PICES website. This is a means to instantly notify the user of new content on a website or in a repository and can contain summary information and links to the new content at the site. This may help convince some to drop print distribution. RSS feeds are XML (Extensible Markup Language) files created automatically by blog or repository software, which are regularly checked by a user's RSS reader.

Recommendation D4: When adding new names to any distribution list, identify affiliations to existing recipients, willingness to receive email alerts, RSS feeds, and electronic versions of new publications. Give existing members an opportunity to use an electronic alerting and delivery option. Consider fees for print option.

Financial Implications: Recommendation D1 has little financial impact and can be accomplished with existing staff. Recommendation D2 has little financial impact. Existing staff could accomplish the initial review, but short-term intern or contract staff, along with IAMSLIC assistance, is recommended to manage a survey. Recommendations D3 and D4 have little financial impact and can be accomplished with existing staff.

E. Increasing visibility and ensuring perpetuity through a digital repository

The revision of the PICES website following the 2003 Publication Review was a major step toward increased electronic accessibility to PICES publications. Given recent developments in digital archive practice, we suggest serious consideration of participation in a digital repository, an online service to collect, archive and provide access to the electronic information. Repository software provides a permanent handle or item address that makes linking to individual items stable even through server migrations and other potentially disruptive upgrades to technology. Use of a digital repository will increase the accessibility of publications through standard metadata that improves searching. Metadata is data such as the title, author, format, and content that describe a publication. A structured metadata record allows a user to search more effectively and efficiently by using assigned keywords instead of searching an entire full-text database. For example, the user can retrieve only publications that are significantly about phytoplankton instead of retrieving any publication with the word, phytoplankton. A standard metadata format allows different repositories to seamlessly search, harvest, and share records.

While digital repositories are attractive for the number of benefits they provide with regard to archiving, access, and distribution costs must be considered before deciding on an ideal implementation. Hosting a unique instance of a repository provides the most flexibility in terms of presentation and control of content yet, represents the highest cost in equipment, network needs, and staff. Contributing to an existing digital repository negates the need for onsite servers and appropriate software. The cost for this alternative is in staff time to contribute items (*e.g.*, 5 to 15 minutes per entry). PICES editors, authors, and partner libraries could share this effort. Digital repositories are designed to have the lowest possible threshold to author submissions in order to encourage contribution.

Repositories generally employ a standard protocol for harvesting metadata and repository content that builds off a standard metadata format. This standardization makes an institution's publications equally accessible regardless of the repository software used. The IAMSLIC digital repository, *Aquatic Commons*, may be an ideal resource for digital archiving of PICES publications for its pre-existing

technical support and adherence to the standards that optimize access and distribution. Branding of PICES publications should be possible within the repository through development of an introductory page and the addition of a PICES publisher/sponsor field in the metadata on every item.

Recommendation E1: Establish a cooperative pilot project with IAMSLIC to develop a collection of PICES publications in the IAMSLIC *Aquatic Commons*. This could be done on contract with IAMSLIC or in-house with willing staff. Components of such a project would include development of policies for what to include, discussion of workflow, and graphic design that conveys a PICES presence.

Recommendation E2: Retrospectively scan items to complete the collection of digital publications. Retrospective scanning is an important consideration for any digital collection. The sheer number of pages being considered is perhaps the primary consideration when planning a retrospective scanning project. Current office technology can often handle scanning and OCR tasks on a small scale but large collections may require contract work. In either case, the value of a complete collection should not be overlooked.

Recommendation E3: Negotiate with publishers for the right to deposit appropriate versions of journal articles into the repository or on the PICES website. Journal literature written by numerous authors falls under an array of copyright restrictions. If journal literature is to be added to a digital repository, policies and procedures should be in place to insure that copyright is not violated.

Recommendation E4: Develop a copyright agreement between PICES and all authors that grants PICES rights to archive and distribute to digital content. This could be a relatively simple form that authors sign at the Annual Meeting or when submitting a section of a scientific report. Some care should be taken to file completed agreements, although this could be done electronically.

Financial Implications: Recommendation E1 requires discussion about financial consequence as it involves partnership with IAMSLIC on either a contract or joint project basis. Further discussion would also clarify the workload required by either partner. Given the apparently small amount of scanning needed for a complete digital collection, Recommendation E2 has little financial impact and can be accomplished with existing staff. Recommendations E3 and E4 have little financial impact and can be accomplished with existing staff.

7. Summary

The PICES Publication program is critical to the mission of PICES as it promotes the organization, encourages international collaboration, and communicates important science to the world. The possibilities for enhancing PICES publications are many and vary in cost and effort. The above recommendations reflect this and run from the mundane to the complex. IAMSLIC is interested in continuing to work with PICES to ensure better access to PICES publications through stable print archiving, targeted distribution, consistent indexing, and improved use of the electronic environment. We suggest these four cooperative actions as one response to this review that will control costs while improving use of PICES publications.

Proposed cooperative actions between PICES and IAMSLIC:

- Create a PICES collection within the IAMSLIC digital repository, *Aquatic Commons,* beginning with the PICES Scientific Reports.
- Survey those on the PICES libraries distribution list to complete assessment of collection policies.
- Develop memorandum of understanding with selected libraries on establishment of print archives of PICES publications.
- Complete the addition of links to electronic versions of PICES publications in existing WorldCat records.

8. References

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9. Appendices

Appendix A. PICES publications: Information on compiling, printing and distribution costs [1,2]

No.	Type of publication	# Printed	# Mailed	Cost of compiling and design	Cost of printing	Cost of mailing[13]
1	*PICES Press* (32-40 pp)	1600-1700	~1500	1,200-1,700	6,800-8,900	
2	Annual Reports (~300 pp)	400	~400	3,400-4,000	8,000-9,500	
3	Scientific Reports (~50-190 pp)	400[3]	~400	500-5,800[4]	3,800-13,300[4]	
4	Special Publications (~280/50)[5]	600/450	~450	14,500/3,900	40,750/10,250	
5	Brochures (12 pp)[6]	2,000	~1,500	3,500	4,250	
6	AM Announcement (12 pp)[7]	1,600-2000	~1,500	1,250-1,550	3,400-4,200	
7	AM Poster	600-800	~500	500-850[8]	2,400-3,300	
8	AM Book of Abstracts[9]	400-550	None[10]	~600[11]	5,600-9,000	
9	Primary journals[12]	Determined by publisher	50-100	None	None	

[1] Information for 2004-2007 was used to prepare this table.
[2] All costs are in Canadian dollars.
[3] Standard run; in special cases up to 550 copies.
[4] Costs are highly variable depending on total number of pages and color graphics.
[5] Limited experience (PICES has produced only two very different Special Publications).
[6] Limited experience (PICES has produced only one brochure so far).
[7] AM stands for the Annual Meeting.
[8] Includes right to reproduce image(s).
[9] Since 2003, the Abstract Book has been printed by the AM host country, with or without financial support from PICES.
[10] Distributed at the Annual Meeting.
[11] The PICES Database and Web Administrator and the Intern perform the majority of work.
[12] PICES purchases copies and mails them to PICES members with the relevant expertise and to libraries in Russia and China.
[13] A fixed annual sum of $23,500 is paid for postage under the agreement between PICES and *Fisheries and Oceans Canada.*

Appendix B. Overlap of records between various indexing tools (The lack of significant overlap indicates inconsistent coverage.)

Overlap between indices	ASFA	BIOSIS	FFW	WAVES	WOS	ZOO
Aquatic Sciences and Fisheries Abstracts (CSA)	–	1	22	16	1	1
BIOSIS (Ovid)	1	–	1	1	1	2
Fish and Fisheries Worldwide (NISC)	22	1	–	23	2	4
WAVES (DFO)	16	1	23	–	2	8
Web of Science (WOS)	1	1	1	1	–	2
Zoological Record (CSA)	1	2	4	8	2	–

Appendix C. Suggestions for survey of PICES and North Pacific IAMSLIC members on library practices

1. How is a given library using their OCLC/IAMSLIC membership? If their holdings are not fully reflected in WorldCat, are they shown in the local catalog? If they have non-lender status in WorldCat, do they offer lending services through other means? If so, to whom?
2. Member symbols can represent one library system with several physical locations or they can represent individual units. If a symbol represents a system with wide geographic range, more research into actual holdings may be necessary to determine actual archive access.
3. Libraries may catalog a series like the Scientific Report series, as one title (the series title) with several volumes or analytically with a separate record for each report in the series. If a library catalogs in the former manner, more research into actual holdings may be necessary to determine actual archive access.
4. While both OCLC and IAMSLIC are open to international membership, the majority of active participation is centered on the North American continent. What is the culture and practice of cataloging and sharing in organizations or countries with little or no OCLC or IAMSLIC membership?
5. Do some PICES Members use library resources and services from other geographically adjacent organizations?
6. Are PICES Members or individuals regularly contributing their distribution copies to accessible collections for use by others within their community?
7. What are the differences between publications in terms of the need for archive access to PICES member/stakeholder readers versus non-stakeholders or the general public?
8. How are links to outside websites determined for an institutional website? Is this a way to increase access to PICES publications?

Appendix D. Condition of libraries at PICES member sites with recommended actions

Summary of Condition	Recommended action	PICES Member sites
Libraries have no or very few identifiable holdings, but may support work of Contracting Parties.	Further inquiry into archiving and access practices warranted.	• TINRO • KORDI • Hokkaido University • Scripps Institution of Oceanography (duplication of holdings with other West Coast U.S. libraries more actively archiving) • Institute for Oceanology Academia Sinica
Libraries have no or very few identifiable holdings. Unlikely to support work of Contracting Parties or other work in the North Pacific. Other libraries in the region do thorough archiving.	Address the option of eliminating distribution copies to these sites.	• University of British Columbia • University of Alaska Fairbanks • Bedford Institute of Oceanography • National Institute of Water and Atmospheric Research (NIWA)
Reasonable numbers of identifiable library holdings show dedication to archiving and support of PICES research.	Continue print distribution and establish MOU to insure dedication to archiving.	• Oregon State University • University of Washington • NOAA / National Marine Fisheries Service (perhaps a subset of actual library members) • Fisheries and Oceans Canada (DFO) (regional distribution needs may require further inquiry
Libraries have no or very few identifiable holdings, but may support work of Contracting Parties or other work in the North Pacific. Institutional or individual PICES members may be associated with these libraries. Institutions have associated libraries but are not PICES members on the library distribution list. There is generally a regional lack of library holdings.	Address those organizations/libraries to determine their interest in increasing support of PICES research through more active archiving.	• Global Carbon Project/ Earth Observation Centre • Intergovernmental Oceanographic Commission • International Ocean Carbon Coordination Project • Food and Agriculture Organization of UN

Appendix E. Descriptions of and Recommendations for PICES publication series

ANNUAL REPORTS

Recommendations for transition to electronic format

- An electronic copy should also be archived in an open access repository in addition to the copy available on the PICES website.
- Continue distribution online with current digital format, which breaks document into sections for smaller files sizes online and stores as searchable PDF.
- Digital only publication and distribution may save production and mailing costs while having minimal impact on intended audience.
- Offer email alerts, RSS feeds, when new reports are available online.

General description

- Primary audience – Representatives of PICES Members Nations.
- Secondary audience – Interested scientists in PICES or supporting organizations as well as the North Pacific research community and science historians.
- Average length – 300 pages
- Level of citation – Not generally cited in the scientific literature. Not peer reviewed.
- Currency – Initially of immediate use to primary audience, however, quickly becomes administrative record for all audiences. Not included in current alerting services, however, not needed. Digital repository can provide necessary level of alerting.

Distribution, indexing and archiving

- Distribution – Approximately 400 copies are printed and mailed to PICES members and limited institutional distribution list. Also available online.
- Indexing – Inconsistently indexed. Issues after 1998 do not appear in the major indices.
- Library holdings – Twenty libraries report holdings in OCLC including major PICES partners.
- The Secretariat maintains a print archive.

Cost

- Approximately $12,450.00 per run of 400. $31.13 per report and $0.10 per page, with additional mailing costs at a percentage of the annual sum for postage under the PICES-DFO agreement

Other recommendations

- Additional limited print archive in key libraries co-located with members of the primary audience would be desirable.
- Limit print copies given the length and purpose.

SCIENTIFIC REPORTS

Recommendations for transition to electronic format

- An electronic copy should also be archived in an open access repository in addition to the copy available on the PICES website.
- Continue distribution online with current digital format, which breaks document into sections for smaller files sizes online and stores as searchable PDF.
- Offer email alerts, RSS feeds, when new reports are available online.

General description

- Primary audience – Scientific community of North Pacific Ocean researchers.
- Secondary audience – Administrators at funding institutions in the North Pacific scientific community and researchers focusing on other regions.
- Average length – Approximately 120 pages
- Level of citation – These are proceedings of workshops, reports from scientific working groups, data reports and planning reports that undergo some peer review, but not at the level of primary journal literature. Most cited PICES publication outside of special issues in the primary journal literature.
- Currency – Of timely use to primary audience. Portions may eventually become administrative record to all audiences. Not included in current alerting services, but may be of value. Digital repository can provide necessary level of alerting.

Distribution, indexing and archiving

- Distribution – Approximately 400 copies are printed and mailed to PICES members and limited institutional distribution list. Also available online.
- Indexing – Inconsistently indexed. Nature of grey literature causes these reports to frequently fall between the primary realms of books and journal articles. Lack of authoritative citation format creates difficulty in tracking citations.
- Library holdings – Print archive currently at an average level of 12 OCLC holdings per report including major PICES partners.
- The Secretariat maintains a print archive.

Cost

- Approximately $11,200.00 per run of 400. $28.00 per report and $0.23 per page, with additional mailing costs at a percentage of the annual sum for postage under the PICES-DFO agreement

Other recommendations

- Assess needs for holdings in additional key libraries co-located with members of the primary audience.
- Limit number of print copies given length and interested audience.
- Limiting print distribution to PICES library members may save little in production and mailing costs, but increase efficiency while having minimal impact on intended audience.
- Make additional print copies available from PICES for a fee to help recover costs.

SPECIAL PUBLICATIONS

Recommendations for transition to electronic format

- An electronic copy should also be archived in an open access repository in addition to the copy available on the PICES website.
- Continue distribution online with current digital format, which breaks document into sections for smaller files sizes online and stores as searchable PDF.
- Offer email alerts, RSS feeds, when new publications are available online.

General description

- Primary audience – Administrators at funding institutions in the North Pacific, scientific community and researchers focusing on other regions. Lay audience interested in North Pacific ecosystems.
- Secondary audience – Scientific community of North Pacific Ocean researchers.
- Level of citation – Not generally cited in the scientific literature. Not peer reviewed.

- Currency – Of timely use to primary and secondary audiences. Will continue to provide a solid overview of North Pacific ecosystem and the scientific challenges it presents. Not included in current alerting services. Digital repository can provide necessary level of alerting.
- Average length – Approximately 163 pages (n = 2)

Distribution, indexing and archiving
- Distribution – Approximately 525 copies are printed and 450 mailed to PICES members and limited institutional distribution list. Also available online.
- Indexing – Inconsistently indexed.
- Library holdings – An average of 19 (n = 2) libraries report holdings in OCLC including major PICES partners.
- The Secretariat maintains a print archive.

Cost
- Approximately $34,700.00 per run of 525. $66.10 per report and $0.40 per page, with additional mailing costs at a percentage of the annual sum for postage under the PICES-DFO agreement.

Other recommendations
- Assess needs for holdings in additional key libraries collocated with members of the primary audience as well as geographic coverage for secondary audience would be desirable.
- Continue to use full-color. Though expensive, it remains an effective marketing tool.
- Print distribution should include all stakeholder parties as well as additional libraries and organizations where marketing may be effective.
- Make additional print copies available from PICES for a fee to help recover costs.

BOOKS

Recommendations for transition to electronic format
- Investigate feasibility of hosting full-text on PICES website and offering access for a fee to recoup costs.
- If some form of electronic full-text access is considered desirable, distribute online with current digital format, which breaks document into sections for smaller files sizes online and stores as searchable PDF.
- Offer email alerts, RSS feeds, when new books are available.

General description
- Primary audience – Scientific community of North Pacific Ocean researchers.
- Secondary audience – Administrators at funding institutions in the North Pacific scientific community and researchers focusing on other regions.
- Level of citation – Infrequently cited in the scientific literature when compared to journal special issues, though level of peer review and quality is equal.
- Currency – Of timely use to primary audience and secondary audiences. Will continue to provide solid scientific background of North Pacific ecosystem and the scientific challenges it presents. Not included in current alerting services. Digital repository can provide necessary level of alerting.

Distribution, indexing and archiving

- Distribution – Variable numbers of copies are printed and mailed to PICES members and limited institutional distribution list. Available for purchase through commercial venues. Portions available online but not complete text.
- Indexing – Inconsistently indexed due to policies of commercial indexes that focus on journal literature.
- Library holdings – An average of 156 (n = 2) libraries report holdings in OCLC including major PICES partners.
- The Secretariat maintains a print archive.

Cost

- Production costs vary and additional mailing costs are a percentage of the annual sum for postage under the PICES-DFO agreement.

Other recommendations

- Additional limited print archive in key libraries collocated with members of the primary audience would be desirable.
- Length makes limited print copies desirable.
- Print distribution remains limited to paying customers. Price should be set to recover costs of production and mailing at minimum.

PICES PRESS

Recommendations for transition to electronic format

- An electronic copy should also be archived in an open access repository in addition to the copy available on the PICES website.
- Continue distribution online with current digital format, which breaks document into sections for smaller files sizes online and stores as searchable PDF.
- Offer email alerts, RSS feeds, when new issues are available online.

General description

- Primary audience – Planning members of the PICES organization and supporting organizations, scientific community of North Pacific Ocean researchers, lay audience, and researchers focusing on other regions.
- Secondary audience – N/A.
- Level of citation – Not generally cited in the scientific literature. Not peer reviewed.
- Currency – Of timely use to entire audience as it serves a current update and marketing function. Not included in current alerting services, however may not be needed. Digital repository and/or email distribution can provide necessary level of alerting.
- Average length – Approximately 36 pages.

Distribution, indexing and archiving

- Distribution – Approximately 1650 copies are printed and 1500 mailed to PICES members and limited institutional distribution list. Also available online.
- Indexing – Inconsistently indexed.
- Library holdings – Sixteen libraries report holdings in OCLC including major PICES partners.
- The Secretariat maintains a print archive.

Cost

- Approximately $9,300 per run of 1650. $5.64 per report and $0.16 per page, with additional mailing costs at a percentage of the annual sum for postage under the PICES-DFO agreement.

Other recommendations

- Additional limited print archive in key libraries collocated with members of the primary audience would be desirable.
- Continue to publish in print as needed as length makes this feasible at relatively low cost. Numbers needed may diminish if members elect electronic distribution.
- At 1650 copies, the print run of PICES Press is the only series for which a reduction, but not elimination, of the print run will provide any significant cost savings.
- Additional print copies or subscriptions available from PICES free of charge may help increase the effectiveness of the marketing aspect of this publication.

PRIMARY JOURNALS

Recommendations for transition to electronic format

- Include PICES acknowledgement and branding at the article level where possible.
- Following negotiations with publishers, an electronic copy of copyright compliant articles should be archived in an open access repository in addition to the PICES website.

General description

- Primary audience – Scientific community of North Pacific Ocean researchers.
- Secondary audience – Administrators at funding institutions in the North Pacific scientific community and researchers focusing on other regions.
- Level of citation – Peer reviewed primary scientific journal literature. Cited regularly in a standard format used by literature indexing services.
- Currency – Of timely use to primary and secondary audience. Science will continue to be valid and useful into the future. Included in current alerting services, but digital repository can provide addition level of alerting. Twenty-one special issues over eight years.
- Average length – N/A

Distribution, indexing and archiving

- Distribution – Not automatically distributed to PICES distribution lists though small number mailed by PICES per request. Also available online through institutional licenses to commercial publisher websites.
- Indexing – Thorough indexing in all of the appropriate commercial index services.
- Library holdings – 24 PICES member libraries also in OCLC hold an average of 3.375 of the 8 journal titles publishing special issues.
- The Secretariat maintains a print archive. Journals generally well distributed to and archived by libraries in a wide geographic range.

Cost

- No production cost. 50 to 100 issues mailed at a percentage of the annual sum for postage under the PICES-DFO agreement.

Other recommendations

- Continue to publish PICES special issues as they are of interest to a wide audience and are an efficient alternative to introduction of a PICES journal to the market.