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Proceedings of the 47th IAMS LIC Annual Conference

19th EURASLIC Regional Meeting

12-14 October 2021
Galway, Ireland (Virtual)

Libraries Supporting Our Ocean

Sustaining and Preserving our Shared Ocean
For our Shared Future

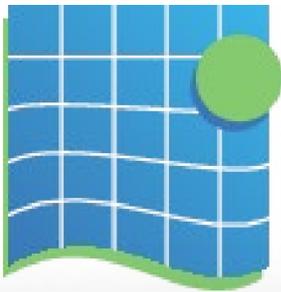


Editor: Dorothy Barr

47th IAMSLIC Annual Conference and 19th EURASLIC Regional Meeting
12-14 October 2021 | Galway, Ireland (Virtual)
[Libraries Supporting our Ocean](#)

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Introduction

Angela Clark-Hughes

IAMSLIC President 2021-2022

47th IAMSLIC Conference Convenor

The 47th Annual Conference of the International Association of Aquatic and Marine Science Libraries and Information Centers (IAMSLIC) and the 19th European regional group (EURASLIC) conference was held virtually, live from the Marine Institute in Galway, Ireland by our host Stephanie Ronan. Although we were unable to be there in person due to the pandemic, Stephanie did an outstanding job conducting virtual tours of her campus, and infusing the conference schedule with the music, the culture, and the research from Ireland, making us all feel as though we were there.

The theme for this conference was appropriately titled, *Libraries Supporting Our Ocean: sustain and preserving our shared ocean for our shared future*. A theme which resonated with our members since 2021 marked the start of the UN Decade of Ocean Science for Sustainable Development. There was a total of 97 attendees, which includes 16 presenters and invited speakers, 80 IAMSLIC members, and 1 Non-member. Thanks to a generous donation from the Marine Institute in Galway, and the perennial support of Inter-Research, the registration fee was waived for all IAMSLIC members.

The conference started with a welcome from Michael Gillooly, Interim Chief Executive Officer at the Marine Institute, and was followed by Keynote Speaker, Lynn Silipigni Connaway, the Director of Library Trends and User Research for OCLC Research. Both of them set the tone and tenor of the conference to an enthusiastically high level that our wonderful and knowledgeable speakers reverberated: from microplastic pollution in the library at University of Charleston to supporting open science in Croatia; from community engagement and citizen science in Gainesville, Florida to Projekt DEAL in Germany; from profiling academic journals in the Philippines to the online information systems of Benin. We also had updates on EURASLIC's history through the years, the International Ocean Data Exchange (IODE), the AquaDocs repository, the SEAFDEC/AQD Institutional Repository (SAIR), the Aquatic News Index (ANI), and the CECAF-PESCAO project to improve regional governance of marine resources. Our local and invited speakers were equally engaging; Brian Lavoie also from OCLC, Dr. Fabio Sacchetti, Adam Leadbetter, Cushia Dromgool-Regan, Debbi Pedreschi, and Dave Reid from the Marine Institute, Barbara Lison, President of the *International Federation of Library Associations, and Institutions (IFLA)*, and Mirjam Cuper from the National Library of the Netherlands. Thank you to all the invited guests, speakers, and presenters for your time and contributions.

In lieu of the traditional conference fieldtrip, we were virtually transported at the end of Day 1 and 2 to *Ireland's Deep Atlantic*, with a two-part documentary from underwater cameraman Ken O'Sullivan produced by Sea Fever Productions. This was an unforgettable voyage into the North Atlantic to see the amazing underwater views of our host country.

I want to take this opportunity to thank our virtual host, the Marine Institute in Galway, Ireland for a spectacular three-day conference, and for their considerable donation to the IAMSLIC Organization. I would also like to thank our virtual hostess, Stephanie Ronan who single-handedly operated everything on campus, stumped us with trivia, while simultaneously feeding our social media platforms with clips and pictures.

I would also like to thank the 2021 IAMSLIC Conference Planning Committee who, despite the various time zones, showed up to the meetings, talked and walked through the logistics of planning and implementing a three-day virtual conference to be streamed in real “Irish” time.

I would also like to thank Inter-Research for their continued sponsorship, which enables us to offer more IAMSLIC membership grants to residents in low-income countries.

Finally, I would like to thank the IAMSLIC members for their support and consistency to this organization. Although we are all eager to resume our in-person conferences, we do not forsake the assembling of ourselves together, even if that is virtually for now.

Researching Pandemics Through Time: A Covid-19 Inspired Data-Driven Approach to Explore Historical Newspapers

Mirjam Cuper, KB

National Library of the Netherlands

Abstract

Heritage institutions are exploring new ways to open up their digital collections, in addition to the often-used standard search interface. In this context, the KB, national library of the Netherlands, has built a data-driven demonstration website based on historical newspapers. This website focusses on a currently relevant topic due to the Covid-19 crisis: pandemics. The website also provides a Toolbox, with Notebooks and a sample dataset, to support students and starting researchers with their first steps in text analyses with Python. During my presentation, I will give a short demonstration of the website and its functionalities, as well as explain the reasoning behind the choice of visualizations. Furthermore, I will give a quick overview of the techniques used to extract and pre-process the collection, and which techniques were used for building the website and corresponding Toolbox.

Keywords: Digital, collections, newspapers, website, Netherlands, Covid-19.

About the Effects of the German Projekt DEAL

Olivia Karin Diehr

Leibniz Institute for Baltic Sea Research

Abstract

The Leibniz Institute for Baltic Sea Research supports the German Projekt DEAL. Researchers can access full text to Springer Nature and Wiley journals. As affiliated with an eligible institution, IOW's authors are entitled to publish open access in subscription as well as in open access journals with fees covered by the German DEAL agreement. Transformational agreements have different effects on the process in libraries. We would like to introduce our experiences.

Keywords: Projekt DEAL, Germany, open access.

Online information Systems as Key Sources of Reliable Scientific Resources: The Case of Benin Fishery and Aquatic Scientists

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Abstract

With the growth of information technologies, researcher's ways to access information have undergone significant changes. From traditional physical libraries, almost everyone turns to all the possibilities offered by information technologies to meet their needs such as digital libraries, research engines, databases, etc. In face of this rising situation, an important question dwells and pertains to the quality of data retrieved from those information systems and how users are satisfied with them. This study was conducted with Benin's researchers (students in master, PhD students, lecturers and researchers) in the fields of aquatic and marine sciences through interview or survey. This data collection process enabled to understand the role of online information systems in accessing trustworthy information resources in the field of aquatic and marine sciences in Benin.

Keywords: Online information system, Benin, aquatic and marine science, trustworthy information.

Introduction

Information stands at the forefront in the fulfillment of any project, be it in sciences in general, management or our day-to-day activities. Information production has reached such a breathtaking proportion that one is compelled to use search engines to retrieve what is needed. Search engines question millions of databases and repositories to satisfy a query. In Benin, the need of information in aquatic and related sciences is increasing because fishery and aquatic scientists carried out important research activities. These activities can include the writing of thesis by students, scientific articles production, the provision of data or information for both decisions makers and institutions in charge of weather forecasting and early warning systems, etc. The accomplishment of these tasks assumes the use of trustworthy information, for they affect human beings and their environment.

Through this hypothesis, it is mandatory to know the most frequently information sources used by scientists in fishery and aquatic sciences domain in Benin. Firstly, this article will explore the origin of information used by researchers to progress in their works. That is to say, a clearer emphasis will be laid on all information systems satisfying researchers needs i.e. libraries, documentary centers, online databases, etc. Secondly the article will measure how these information systems can provide users with reliable data. For these objectives to be attained, data will be collected through either an

interview or a survey. The main targets are: students in master, PhD students, lecturers and researchers.

Methodology

Through a google survey form, the following data were collected: interviewees institution of affiliation, their status, their research interests, the libraries or documentation centers they frequently used in Benin for their information needs, the databases their frequently use and level of satisfaction using those information systems. The data collected have been processed and analyzed with the following results.

Survey Results

Table 1 : Aquatic and marine sciences related institutions in Benin

Research Institutions	Academic institutions
Institut de Recherches Halieutique et Oceanologique du Bénin (IRHOB)	Faculté des Sciences Agronomiques du Bénin (FSA)
Institut National des Recherches Agricoles du Bénin (INRAB)	Ecole d'aquaculture, université d'Agriculture
Direction de la Production Halieutique	International Chair in Mathematical Physics and Applications (ICMPA)
Laboratoire de Recherche en Aquaculture et Ecotoxicologie Aquatique, Faculté d'Agronomie Université de Parakou.	

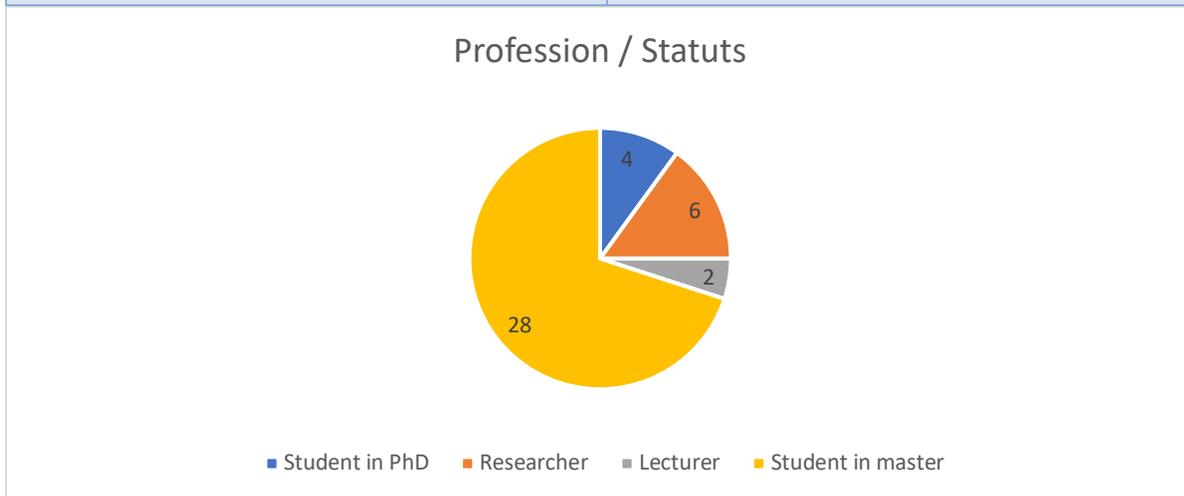


Figure 1 : Interviewees status

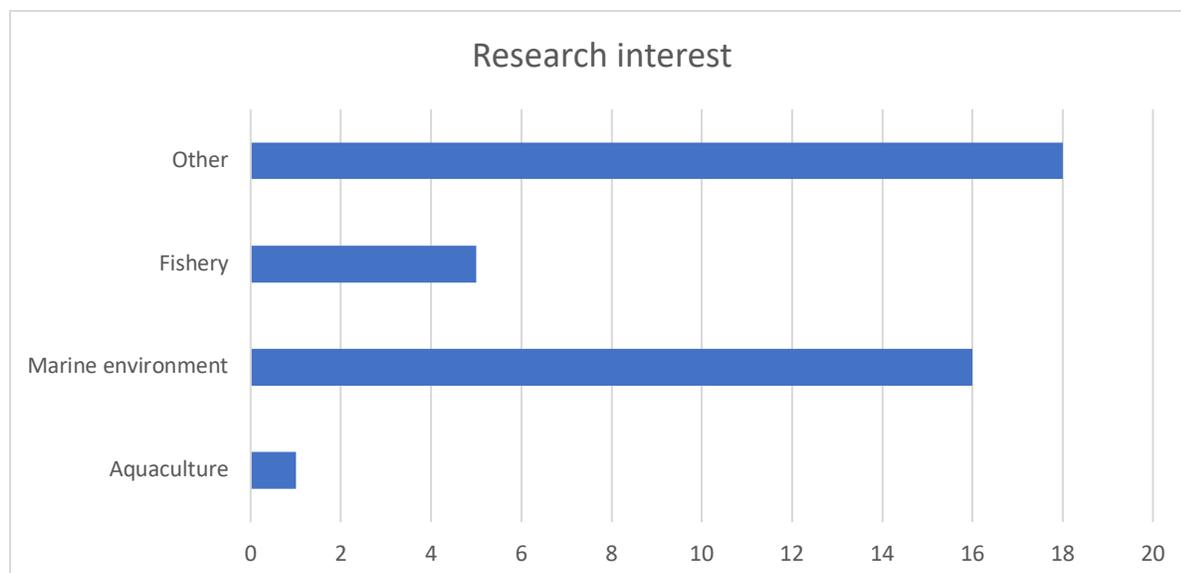


Figure 2 : Research interests of interviewees

Table 2 : Frequently used Databases.

Marine Sciences	Academia
Research Gate.net	SCI-ub
Journal of Geophysical Research Oceans	Genesis
Earth's future	Cds.climate.copernicus.eu
Ocean dynamics	Earth System Dynamics
Regional Studies in Marine Science	Quarterly Journal of the Royal Meteorological Society
Google scholar	Journal of Climate
arXiv	www.fishbase.se
Journal of Physical Oceanography	African Journal of Marine Science
Regional Studies in Marine Science	Fishbase-FAO
IUCbase-Fish	Semantic aerieenne database
Elsevier database	Research4life
Pubmed	Scifinder
FAO database	AJOL

Table 3 : Frequently used libraries.

ICMPA library	Central library of Abomey – Calavi University
Resources center of Faculté des Sciences Agronomique	IRHOB Library
Benin Excellence Library	Library of Fonds National pour l'Environnement et le Climat
IAJP library	French Institute Library
Library of Agence Béninois pour l'Environnement	



Figure 3 : Satisfaction level using library collections.

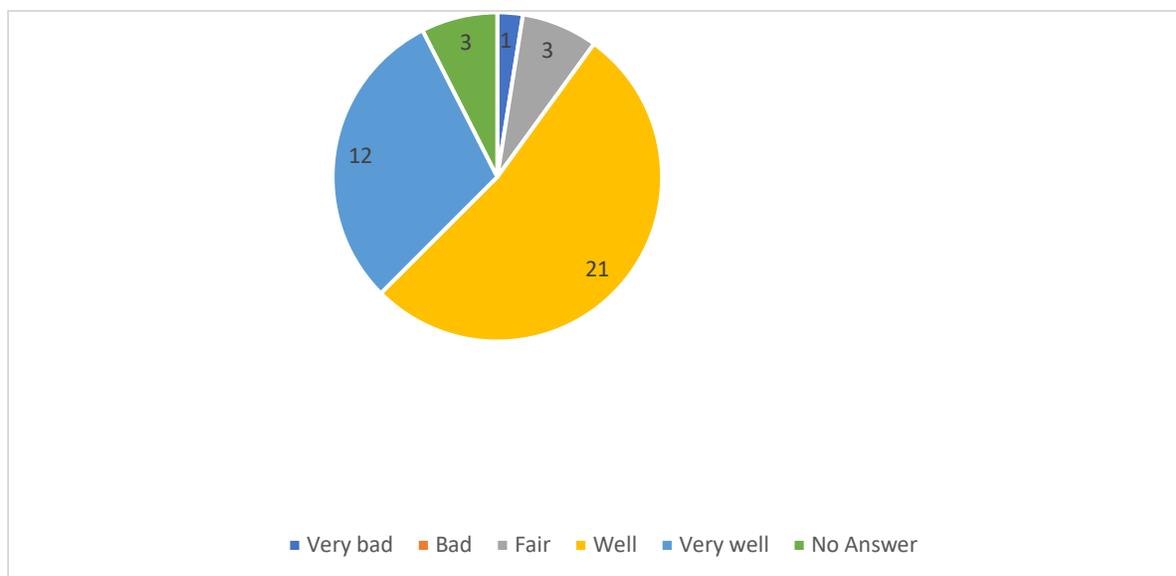


Figure 4 : Level of Satisfaction using Online databases.

Discussion

Over 100 individuals were sent the link for the data collection. Only 40 of them reacted. To the question to know their status, 28 respondents are students in master, 4 are PhD students from various academic institutions, 4 are researchers and 2 are lecturers (see fig 1). Of the 40 respondents, a large majority work in oceanography and marine environment. A few of them are in fishery and none in aquaculture (see fig 2).

As for the satisfaction of the interviewees using libraries collections and the online information systems, it has been found out that most respondents felt their query satisfied using both information the above-mentioned sources, i.e. library collections and the online information systems. As they are asked to rate their satisfaction level using libraries collections, the majority of the respondents chose the option “well” (see fig 3) and for the online systems, 12 persons chose the option “very well” with 21 choosing the option “well” (see fig 4).

In light of the above, one can conclude that online information systems are very well known to aquatic and marine sciences professionals in Benin and hold a preponderant place in their information access. Yet our aim to understand whether those sources of information completely meet their needs is not yet totally reached. In fact, the results didn't show a clear difference between the satisfaction levels in using libraries collections and online databases. In view of that experience, one is tempted to repeat this study with a large number of interviewees.

Also, the survey permits us to find out that people are still attached to physical libraries' collections despite the many innovative possibilities offered by information technologies. It is important to know what is behind that attachment of people to physical library collections. Is it due to a lack of ICT skills? Or is it due to the ignorance of the existence

of databases in their domain? These questions need to be explored through case studies so as to better understand the information behaviors of researchers and envisage effective solutions for a better information access.

The Development of Aquatic News Index (ANI)

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Abstract

The Aquatic News Index (ANI) is an online newspaper indexing database developed to contain aquatic science-related newspaper articles appearing in various Philippine newspapers available at the Southeast Asian Fisheries Development Center/ Aquaculture Department (SEAFDEC/AQD) Library. It aims to index, improve accessibility, and easy retrieval of current and historical news articles on aquatic science. Important topics such as aquaculture, fish kills, red tide, dolomite, Manila Bay, West Philippine Sea, South China Sea, Boracay, among others are included. “Ani” is a Filipino word that means harvest, yield, or product. It also means said by. ANI was launched during SEAFDEC/AQD’s 27th Book Launching and 45th SEAFDEC/AQD Anniversary on 12 July 2018. ANI Indexing begins in 1974 to the present. Entries are grouped according to the newspaper source. To ensure the accuracy and consistency of the index entries, subject descriptors were assigned using the Aquatic Sciences and Fisheries Abstracts (ASFA) Thesaurus, while the geographic names were assigned using the Getty Thesaurus of Geographic Names (TGN). Due to copyright restrictions, only the extract or an excerpt is included. A “Request this Article” button was added for users who wish to get a copy of the article. Currently, it includes only print copies of the news clippings and is scanned by demand only. The library plans to include online news. Getting licenses from various newspapers to grant permission to upload the full text of the articles is a challenge. ANI currently has 11,101 newspaper articles archived from 33 different newspapers. It has 837,388 item views, 1,094,354 searches performed, and 10,126 visits from 8,813 unique visitors. ANI is maintained by SEAFDEC/AQD Library staff and can be accessed through ani.seafdec.org.ph.

Keywords: Philippines, Aquatic News Index, newspaper indexing databases.

EURASLIC: Connecting Libraries Through Time and Distance

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Abstract:

The role of the research libraries is to support research activities of their parent institution by providing patrons with relevant information. Furthermore, research libraries are involved in the evaluation process of the institution, LIS projects, activities regarding development of new services, promotion of new trends, and user education as well.

As no library can provide access to all the materials or manage all activities alone, there is a long history of collaboration between libraries. The information society has emphasized the necessity of collaboration, and it is even more important when the research is dedicated to a particular scientific discipline like aquatic and marine science.

Therefore, in the late '80s, European aquatic and marine science libraries and information centres gathered together in Plymouth, where The European Association of Aquatic Sciences Libraries and Information Centres (EURASLIC) was founded as a forum for the exchange of information and ideas relevant to aquatic sciences in Europe. The following activities are among EURASLIC main goals: undertaking joint projects and improvement of the flow, exchange, and dissemination of aquatic information. Valuable collections available at EURASLIC libraries are at disposal to the whole community. Although it seems that everything is available online, interlibrary loan is still one of the most significant activities, enabling libraries to provide requested material free of charge to the patrons. EURASLIC libraries are also involved in depositing records in AquaDocs repository and are very active as input centers by providing data for ASFA, including newly launched system OpenASFA. EURASLIC publishes several publications, among them are Newsletter, Conference Proceedings, and Leaflet that is available in five languages and regularly updated. The regular conferences of the association are held biannually at different members' institutions and different countries. EURASLIC conferences provide a sense of community, being usually the starting point for sharing ideas. Above all, they connect members through time and distance by forming everlasting friendships. Good cooperation is established with other similar associations and organizations.

Keywords: aquatic sciences, marine sciences, libraries, EURASLIC, collaboration, conferences

CSI information infrastructure - Supporting Open Science in Croatia

Sofija Konjević

Marina Mayer

Ruđer Bošković Institute, Centre for Scientific Information

Abstract

Centre for Scientific Information (CSI) of the Ruđer Bošković Institute (RBI) had eagerly embraced information technology already in the late nineties and started developing projects at the national level, thus paving the way for open information infrastructure in Croatia. Some of the projects are still active today and have been developed continuously. In the last couple of years, the emphasis was put on the further development of CROSBI - Croatian Scientific Bibliography, Šestar - Database of Scientific Instruments, and POIROT - Database of Project Activities in Science and Higher Education in Croatia. CROSBI collects information about scientific output in Croatia, providing bibliographical data but also offering free access to OA articles if available, thus having some of the functionality of an open access repository. Projects' information in CROSBI is retrieved from POIROT, which gathers information about project activities of Croatian higher education and scientific institutions. ŠESTAR provides transparent information about the scientific instrumentation available in the Croatian scientific community, thus increasing its usability and cost-effectiveness. All three databases are developed, maintained and administered by CSI and represent the vital part of the current research information infrastructure in Croatia and will be used as a basis for development of the national Current Research Information System (CRIS), named CroRIS.

Keywords: Croatia, Centre for Scientific Information, bibliography.

Toward a New Model Library: Pandemic Effects & Library Directions

Brian Lavoie

OCLC Research

Abstract

Libraries, like the rest of the world, sailed into uncharted waters as the COVID-19 pandemic took hold last year. While the fundamental library mission remained unchanged, the circumstances under which that mission was carried out shifted dramatically. The COVID experience has re-shaped the library of today, in the form of rapid adjustments to meet the challenges imposed by the pandemic. But it is also re-shaping the library of the future, as these adjustments, as well as trends pre-dating but accelerated by the pandemic, steer us toward a New Model Library. The goal of OCLC's New Model Library Project is to identify the challenges and opportunities brought on by the pandemic, through a series of interviews conducted with library leaders from around the world. This talk will provide a high-level summary of our findings from our conversations with these leaders, as they shared their insight and perspectives on how they responded to the new operational context brought on by the pandemic, and what their visions are for libraries as a result of changing practices and environments.

Keywords: Libraries, OCLC, New Model Library Project.

A Data Management Quality Management Framework at the Marine Institute, Ireland

Adam Leadbetter

Rob Thomas

Ramona Carr

Sarah Flynn

Tara Keena

Marine Institute
Galway, Ireland

Abstract

The International Oceanographic Data and Information Exchange of UNESCO's Intergovernmental Oceanographic Commission (IOC-IODE) released a quality management framework for its National Oceanographic Data Centre (NODC) network in 2013. This document is intended, amongst other goals, to provide a means of assistance for NODCs to establish organisational data management quality. The IOC-IODE's framework also promotes the accreditation of NODCs which have implemented a Data Management Quality Management Framework adhering to the guidelines laid out in the IOC-IODE's framework. In its submission for IOCE-IODE accreditation, Ireland's National Marine Data Centre (hosted by the Marine Institute) included a Data Management Quality Management model; a manual detailing this model and how it is implemented across the scientific and environmental data producing areas of the Marine Institute; and, at a more practical level, an implementation pack consisting of a number of templates to assist in the compilation of the documentation required by the model and the manual.

Keywords: IOC-IODE, National Oceanographic Center, data management, National Marine Data Centre, Marine Institute, Ireland.

A Data Management Quality Management Framework at the Marine Institute, Ireland

Adam Leadbetter

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Marine Institute
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Abstract

The International Oceanographic Data and Information Exchange of UNESCO's Intergovernmental Oceanographic Commission (IOC-IODE) released a quality management framework for its National Oceanographic Data Centre (NODC) network in 2013. This document is intended, amongst other goals, to provide a means of assistance for NODCs to establish organisational data management quality. The IOC-IODE's framework also promotes the accreditation of NODCs which have implemented a Data Management Quality Management Framework adhering to the guidelines laid out in the IOC-IODE's framework. In its submission for IOCE-IODE accreditation, Ireland's National Marine Data Centre (hosted by the Marine Institute) included a Data Management Quality Management model; a manual detailing this model and how it is implemented across the scientific and environmental data producing areas of the Marine Institute; and, at a more practical level, an implementation pack consisting of a number of templates to assist in the compilation of the documentation required by the model and the manual.

Keywords: IOC-IODE, National Oceanographic Center, data management, National Marine Data Centre, Marine Institute, Ireland.

Community Engagement, Citizen Science and the Promotion of Water in Library Exhibits

Michelle Leonard

University of Florida

Abstract

It takes a community to save the vast Florida aquifer systems. This presentation will highlight how science librarians can create library exhibits to showcase the importance of water. An example is the "Save our Springs" exhibit at the University of Florida Marston Science Library. This exhibit highlights multidisciplinary research from the libraries' collections, videos and images from cave diving explorations from around the world that demonstrate how the community at large can help policy makers, scientists, farmers, citizens, and developers understand how and where our water flows.

Keywords: Florida, aquifer systems, water, library exhibits.

Request for a Copy Button and Ten Years of SEAFDEC/AQD Institutional Repository (SAIR)

Elvi S. Nemiz

Stephen B. Alayon

Daryl L. Superio

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Mary Grace H. Oliveros

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Abstract

The Southeast Asian Fisheries Development Center (SEAFDEC), Aquaculture Department (AQD) Institutional Repository (SAIR), the official digital repository of scholarly and research information of the department, was developed in March 2011. The aim is to provide a reliable means to store, preserve, share, and increase the visibility and citations of SEAFDEC/AQD publications. Ten (10) years after its implementation, this paper will report the progress since its inception. SAIR uses DSpace. It started from version 1.7 XMLUI theme up to 6.3 XMLUI Mirage 2 theme customization. Currently, it has the request a copy button, Facebook chat plugin, social media sharing, export metadata from items, and search results to any Citation Style. The paper will discuss other customizations done.

The library staff and repository team started the document delivery of articles through the “Request for a Copy” button. This button enables readers to access restricted content because of copyright restrictions. Aside from contributing to the widening of the access to research done in our institution, we also have a glimpse of our user’s demographics. The request for a copy function was included in the DSpace code since version 4.0. Still, the source code was customized to include additional input fields to gather more information from users such as their user category, institution or affiliation, institution’s type, address, and their purpose or reason for accessing the restricted publications. The default feature of DSpace when responding to article requests is that the publication will be sent to the requestor via an email attachment. Instead, we developed a system (outside of DSpace) where the publication can be downloaded via a link that would expire after seven days or downloaded five times, whichever comes first. The purpose is to avoid reaching our email address

space quota. The paper will report the performance of the repository in terms of the number of searches performed views, downloads, and visits. SOLR and Legacy statics will also be presented. It will also discuss the problems and challenges encountered. The experiences shared could be of use to other institutions embarking on similar projects. SAIR can be accessed through repository.seafdec.org.ph.

Keywords: Libraries, digital repositories, Dspace, SEAFDEC, Philippines.

The INFOMAR Seabed Mapping Program and Its Impact on Ocean Knowledge

Dr. Fabio Sacchetti

Marine Institute
Galway, Ireland

Abstract

Ireland's seabed mapping efforts initially began with the aim of developing a marine baseline dataset to underpin national security as well as future economic, environmental, infrastructural and policy decisions. With over twenty years of seabed mapping undertaken to date, this endeavour is being steadily achieved with over 700,000 km² of the seafloor within the Irish marine territory mapped to date in high resolution and the final goal of completing the baseline mapping of Ireland's seabed by the end of 2026. By then, Ireland will be the first country in the world to have completely mapped its marine territory in high resolution. As the program reaches its final data acquisition stage, the development of value added components is now becoming very important. One of such elements is the development of an integrated education strategy that inspires and inform the next generation of marine scientist from a young age to university. In this presentation, we will summarise the overall INFOMAR program, key milestones achieved and will focus on the multi-faceted educational approach we have developed with the ultimate aim to create a solid foundation capable to underpin future discovery and further understanding of Ireland's incredible marine resources.

Keywords: Ireland, seabed mapping, databases, INFOMAR, marine resources.

**Profiling Academic Journals in the Philippines
Publishing Aquatic Science Research:
An Assessment of their Characteristics, Quality, Impact, and Coverage by
International A&I Databases**

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Abstract

In the academic and research community, publishing in an academic journal has been equated with prestige. Peer-reviewed scholarly journal publication has been widely used as one of the primary criteria for tenure and promotion. However, publishing to international academic journals is not a walk in the park, rather a tedious, complex, and time-consuming process. Academicians, scientists, and researchers, especially in developing countries, find it challenging to publish. Thus, to meet the publication requirement, some would resort to publishing their research as grey literature or, worst, publish them in predatory journals.

In the Philippines, some higher education institutions (HEIs) have established their in-house journals to provide their faculty, students, and researchers a platform to publish their research results. The aim is also to satisfy one of the criteria of government and accrediting agencies for HEIs. Likewise, some government agencies, private institutions, and societies have established journals. However, most of these journals are of limited distribution, available only in print, and with irregular issues. Some remain hidden to the scientific community, limiting the research's impact on development.

Hence, it is imperative that the results of these research papers published in these local journals be communicated to maximize their valuable contribution to the research community. To successfully achieve this, the creation of a comprehensive list of journals published in the Philippines is necessary. Initially, the inventory will focus on aquatic sciences journals. The publishers, editorial board members, peer review processes, open access policies, and submission systems of the journals will be characterized. Journals' quality and impact will be evaluated using the journal impact factor, citations, and other metrics. Journal visibility will be determined by their coverage in international abstracting and indexing (A&I) databases such as Scopus, Web of Science, DOAJ, Google

Scholar, and Aquatic Sciences and Fisheries Abstracts (ASFA). Results of the research will serve as a reference tool for aquatic sciences researchers when searching for academic journals to publish their research results. Likewise, the inventory will be used as a basis to increase the coverage of AquaDocs and ASFA of journals published in the Philippines, which in return will increase the visibility of these publications.

Keywords: Philippines, aquatic sciences, academic journals, AFSA.

AquaDocs Underway: An Update and Tour of the New Joint Repository

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Abstract

AquaDocs is underway! The new joint repository of the UNESCO/IOC International Oceanographic Data and Information Exchange (IODE) and the International Association of Aquatic and Marine Science Libraries and Information Centers (IAMSLIC) with support from the FAO Aquatic Sciences and Fisheries Abstracts (ASFA) launched on August 17, 2021. Built by merging content from two complementary repositories, AquaDocs provides open access to marine and aquatic information, and offers a platform to organizations and individuals without their own repositories. Join us on a virtual tour of AquaDocs to understand the structure and workflows of the repository, and explore new features, including the multilingual interface, user export of metadata, sharing items through social media, usage statistics and Altmetrics, and author profile pages. You'll also meet the team that operates AquaDocs, ensures quality control of deposits, and offers training and support to depositors.

Keywords: AquaDocs, UNESCO/IOC. IAMSLIC, ASFA, aquatic and marine science, repositories.

Microplastic Pollution in the Library!

A Collaborative Investigation into the Curious Case of a Crumbling Waterproof Field Guide

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Abstract

Synthetic paper is waterproof and durable, but the discovery of the crumbling synthetic paper pages of a 37-year-old waterproof library monograph raised concern both about its longevity and its potential to contribute to environmental pollution. The page substrate was identified as polypropylene, a polymer known to deteriorate over time and still widely used today. I alerted and surveyed libraries holding waterproof copies of the field guide and determined that over 50% of library copies have deteriorated, but at different rates. Statistically, the number of circulations is not a significant factor in predicting the extent of deterioration, suggesting that ambient environmental conditions and chemical transformations of the polymer are the leading initiators of the deterioration observed. While the specific phenomenon observed with this one book may be a relatively rare occurrence, the collection management implications of plastic materials found within library collections are also discussed.

Keywords: Synthetic paper; waterproof paper; polypropylene; plastic deterioration; microplastic pollution; library materials management

Introduction

It was a day like any other day during routine collection management at the Marine Resources Library, but I observed a curious phenomenon in the stacks. While moving a book upon the bottom shelf, a fine dust became airborne and fell to the carpet along with some larger flakes of material; moments later, I detected a potent plastic odor. After a closer inspection of the item I had moved, it became clear that the fragments had come from an adjacent monograph. Upon retrieval, the origin of the fragments and plastic odor became clear.

I held a copy of the waterproof edition of John E. Randall's *Underwater Guide to Hawaiian Reef Fishes* co-published in 1981 by Harwood Books, Newtown Square, PA and Treasures of Nature, Kaneohe, HI. Boasting 204 full-color plates over 72 pages, the guide is filled with bold, bright images of reef fishes and is intended for use in the field. In fact, the introduction to the book states, "This book is printed on plastic so it can be handled with wet hands, exposed to rain or salt spray, or even taken underwater by a

diver. If wet with sea water, it should first be washed in fresh water before drying. When not in use, store out of direct sunlight.” A further note advises, “Rinse and towel-dry after use; store away from sunlight.” The back cover states, “This book is printed on plastic with special ink...”

While the book cover appeared intact, the pages within had deteriorated resulting in fragmented material. Around the edges of the pages, extending inward up to an inch, the ink of the plates was crumbling and flaking from the page. Where the ink had disappeared, a thin white opaque material – the plastic page substrate – was revealed. Turning the pages caused more ink to crumble, demonstrating their precarious condition. Furthermore, in the middle third of the book the edges of the plastic pages within two inches of the binding were, themselves, crumbling. An investigation of circulation activity demonstrated that this book had circulated just once in 1987.



*Figure 1. Deteriorating ink and pages in the waterproof field guide.
Photo credit: Geoffrey P. Timms*

Synthetic Paper

The need for waterproof writing and printing materials has long been recognized due to the poor durability of paper in wet conditions (“Waterproof Writing Ink and Paper,” 1886). Chemical innovations of the twentieth century heralded a new era for the written word: polymer-based synthetic paper. Manufacturing methods of synthetic paper included the creation of synthetic fibers for use with existing paper-production equipment, as well as the development of extruded film from thermoplastic polymers. Printing on extruded film synthetic paper required further innovation because inks used on cellulose-based paper do not adhere well to the surface of the film (Lunk & Stange, 1971).

Several strategies have been employed to improve printing upon synthetic paper, involving modifications to both the ink and the paper surface. Specially formulated inks incorporating organic solvents and synthetic resins were developed, while modification of synthetic paper with additives, including calcium carbonate surface coating and clay-based fillers, improved ink adhesion (Hutchinson, 1976; Katz, 2017). An additional

strategy to improve print quality was the modification of extruded film surfaces using corona plasma treatment. The resulting oxidation of the surface of the synthetic material creates a roughened texture to which ink more readily adheres (Lunk & Stange, 1971; Sellin & Campos, 2003; Strobel et al., 1989). Such innovations made widespread use of printed synthetic paper feasible, particularly for labeling and packaging.

Synthetic paper has slowly permeated the publishing and banking industries including the production of waterproof maps, species identification cards, books, and currencies. In April 1986, the first hardcover book was printed on extruded polypropylene synthetic paper (Frank, 1986; Monaghan, 1986). Two years later, Australia launched the world's first synthetic banknote. The plastic substrate was formed as a linear low-density polyethylene and polypropylene co-extruded laminate (Prime & Solomon, 2010). By 2016, over 30 countries had polymer currency in circulation. Polyethylene and polypropylene remain in widespread use today.

Polypropylene, a petrochemical-based product known as a polyolefin, is a very widely used plastic polymer with a competitive manufacturing cost (George & Celina, 2000). The first polypropylene-based synthetic paper, Ucar, was produced by Union Carbide Corporation and Mead Paper Company in the 1960s (Kuypers, 2016). By the 1970s, Dupont was manufacturing a polypropylene-based synthetic paper material called Typar, a building wrap product (Lunk & Stange, 1971). Variants of both products continue to be manufactured.

As a durable, waterproof, and feasible alternative to cellulose-based paper, polypropylene-based synthetic paper may exhibit an Achilles heel: polypropylene has been observed to be temporally unstable. This instability, resulting in increased brittleness, is associated with its oxidative tendency (George & Celina, 2000) and increased density with age (Fiebig et al., 1999). Even so, in one accelerated ageing study Yupo Corporation's Yupo extruded polypropylene synthetic paper actually demonstrated superior durability compared to both cellulose and synthetic fiber paper when artificially aged (Karlovits & Gregor-Svetec, 2012). The incorporation of some additives to the polymers used in synthetic paper – to enhance color, brightness, and ink adhesion, for example – may contribute to faster and less predictable rates of chemical deterioration than with a pure polymer alone (Kuypers, 2016). Recent studies have observed, modeled, and predicted degradation rates of polypropylene art in museum lighting conditions (Manfredi et al., 2017) and polypropylene products exposed to natural environment conditions, with particular interest in temperature, rainfall, humidity, and ultraviolet light exposure (Azuma et al., 2009; Kuypers, 2016; Lv et al., 2017; Ni et al., 2015; Song et al., 2014). Despite its short-term qualities, the long-term viability of polypropylene has presented challenges.

Research into the use of stabilizing additives to mitigate thermal, photo, and oxidative degradation of polypropylene has been ongoing for decades. Polypropylene stability may be improved with additives that screen ultraviolet light or inhibit thermal and photo exposure degradation processes (Matta et al., 2017; Zannucci & Lappin, 1974). A negative consequence of reduced degradation rates is the increased persistence of

plastics in landfills, which has prompted research into viable organic plant-based stabilizers such as lignin (Gregorová et al., 2005; Ye et al., 2016).

Initial motivators in the development of synthetic paper were durability and waterproofing, but more recently environmental stewardship has emerged to further encourage a transition from tree-based paper to a synthetic product. Some of the largest producers of synthetic paper promote their commitment to environmental protection, declaring that production of synthetic paper does not contribute to deforestation and uses as much as five times less water than traditional paper. Additionally, disposal by recycling or incineration is claimed to avoid negative impacts upon the environment (Polyart n.d.; Yupo n.d.). The synthetic paper market continues to grow, with production estimated to increase by over six percent from 2016-2023 (Katz, 2017), while the development of techniques to both waterproof cellulose paper and improve synthetic paper is ongoing. However, environmental activism may ultimately suppress the synthetic paper industry that it helped to build, as demands for reduced consumption of plastic products become increasingly prevalent.

Research Questions

The physical deterioration of Randall's *Underwater Guide to Hawaiian Reef Fishes* raised several questions from which I have established hypotheses:

- 1) What is the deteriorating material on which Randall's book is printed?
 - Hypothesis 1: The material is a polymer still widely used today.
- 2) Is the deterioration unique to this copy of the book, or is it more widely observed with other libraries' copies?
 - Hypothesis 2: Copies held by other libraries do exhibit deterioration.
- 3) If other libraries' copies exhibit deterioration, does deterioration correlate with circulation frequency?
 - Hypothesis 3: The level of deterioration increases with circulation frequency.

Methods

Chemical analysis

Four samples were taken from the book, deposited in clean glass vials, and sent to the College's Department of Chemistry for analysis. The samples consisted of fragments of ink, powdered material found between pages of the book, cut samples from a page with a white background on each side, and cut samples of exposed page substrate. The larger ink fragments exhibited a white side and a black side, having originated as the black backgrounds upon which images of fish were presented. A Fourier-Transform Infrared Spectroscopy analysis was completed upon the cut samples and each side of several ink fragments.

Attempts were then made to dissolve the powder in six organic solvents in preparation for Gas Chromatography–Mass Spectrometry, Matrix Assisted Laser Desorption/Ionization, and Nuclear Magnetic Resonance Spectroscopy analyses. Solvents used included ethanol, acetone tetrahydrofuran, ethyl acetate, methylene

chloride, and xylenes – representing a wide range of polarities and solvating powers. None of the solvents dissolved either the white or black material. Further analysis was not attempted and a report of probable composition for the dark ink and page fragments was returned to the library.

Efforts to contact the publisher to learn about the materials used in production of the monograph were unsuccessful.

Survey of holding libraries

A brief survey was developed on Google Forms and distributed by email. Brevity was a priority in the survey design to maximize the number of responses. Two multiple-choice questions sought information about the worst levels of deterioration observed for both ink and pages, with descriptions and photographs of our own copy provided as a guide for consistent rating (see Appendix 1). Circulation counts were solicited for each item and respondents were encouraged to communicate further information in a free-text field.

To identify potential survey recipients, I searched WorldCat to determine library holdings of the waterproof edition of the monograph. For the 76 libraries listed, library websites were accessed both to search library catalogs for the item and to identify contacts to whom the survey could be sent. One library website was unavailable, while searches of 14 library catalogs returned no holdings of the item. Contact information for collection managers, or the closest relevant position, was gathered. Several small library websites provided only a generic library email address, while others provided online forms as a way to contact individuals or departments. One recipient for each library was chosen where possible, and generic library or department email addresses or forms were used where necessary.

In early January 2019, I distributed the survey to 61 libraries by email or contact form with an introduction designed to alert recipients to a potential condition problem for an item held by their library. Photographs demonstrating the condition of our own copy were included in the email message to increase recipient engagement. The survey link was provided, along with a link to the library's own catalog record for the item. Recipients were asked to complete the survey once for each copy of the monograph held by their library.

Findings

Chemical analysis

The Fourier-Transform Infrared Spectroscopy analysis was reported to reveal a spectrum from the white side of ink fragments approximating that of polypropylene, a material popularly used in synthetic paper. The dark side of fragments resulted in a spectrum representing carbon black, a common pigment in dark inks. The spectra for the white page cuttings and the exposed substrate cuttings also indicated a close match for polypropylene. The lack of solubility of the white and black powder in the six solvents was reported as consistent with the materials being predominantly polypropylene and carbon black respectively. The analysis identified no conclusive evidence of a surface

coating on the polypropylene substrate, suggesting that the declaration of the use of “special ink” on the book’s back cover represents the printer’s solution to the challenge of ink adhesion upon polypropylene.

Survey of holding libraries

Fifty-three form submissions were received and representatives of three additional libraries sent emails stating that their copies of the monograph, while listed in their catalogs, could not be located. One form submission acknowledged that the 1981 waterproof edition was missing but that a 1985 paperback edition appeared to have been substituted without correcting the catalog record. This response was excluded from the results. The Marine Resources Library’s own copy was evaluated and added to the results.

Of the 53 valid responses, 37 (69.8%) reported no deterioration in ink. Based upon the form narrative section, however, four responses were adjusted to reflect “discoloration” and the five-point rating scale was adjusted to account for this sixth category. Similarly, 31 (58.5%) reported no deterioration in pages. Of these, four were adjusted to reflect “very slight damage including rippling” based upon the descriptions provided and a sixth category was added to the rating scale. Some level of deterioration in ink or pages was observed in 28 copies (52.8%).

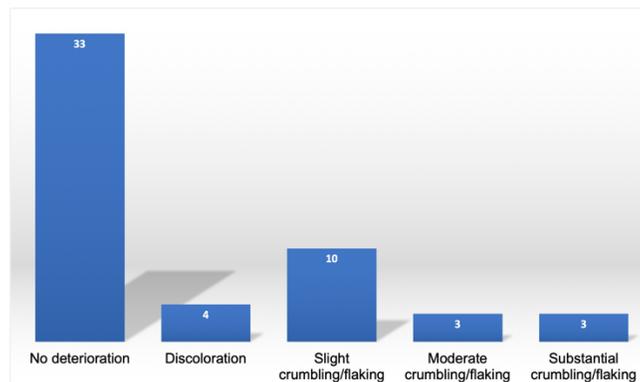


Figure 2. Observed ink deterioration by category (n=53).

The “slight crumbling” category was the most reported level of deterioration in both ink and pages, at 10 copies (18.9%) respectively (Figures 2 and 3). “Slight crumbling” represents crumbling or flaking of ink in areas of up to one square inch or crumbling of page edges up to one quarter of an inch into the page. No catastrophic crumbling of ink was reported, but one incidence of catastrophic page damage was described.

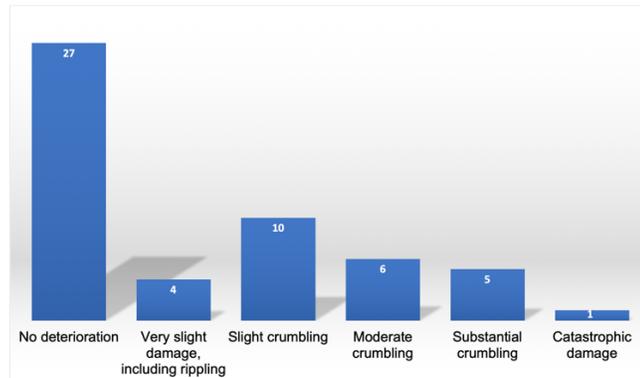


Figure 3. Observed page deterioration by category (n=53).

Circulation rates were reported on 49 survey responses. Of these, six circulation counts were acknowledged to be partial, i.e., complete circulation data had not been preserved during one or more library system migrations. These six responses were excluded from further analysis. Using the 43 remaining circulation rates, a mode of zero and a median of one demonstrate a frequently very low circulation rate for this title (Table 1). Copies with either zero or one circulation account for 23 (53.5%) of the responses. The mean circulation rate of 5.74 is strongly influenced by four particularly high values ranging from 18 to 57. With these outliers removed, a mean circulation rate of 2.67 is observed.

Statistical Test for Correlation

To determine if correlation exists between page or ink condition and circulation count, the data were first evaluated for central tendency. The data were not normally distributed, demonstrating positive skewedness (Figures 3 & 4). Spearman's correlation tests were used to evaluate the correlation between ink condition and circulation count ranks, and page condition and circulation count ranks. The ordinal condition ratings and the circulation data were ranked for the 43 circulation rates not reported as incomplete and Spearman's correlations were executed.

Table 1. Frequency of observed circulation rates.

Circulation Rate	Frequency
0	13
1	10
3	3
4	2
5	2
6	3
7	2
8	2
9	1
10	1
18	1
20	1
48	1
57	1
Total	43

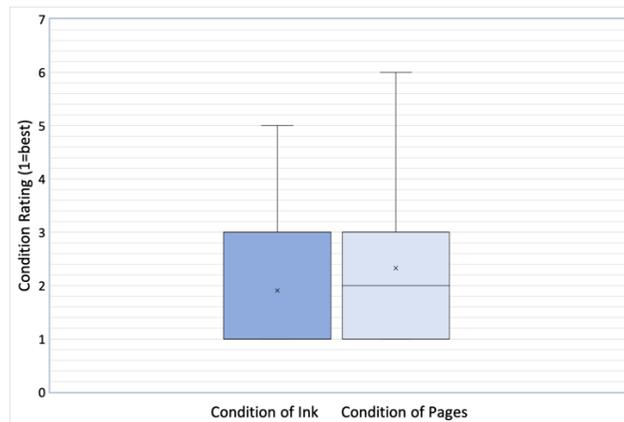


Figure 4. Distributions of ink and page condition ratings.

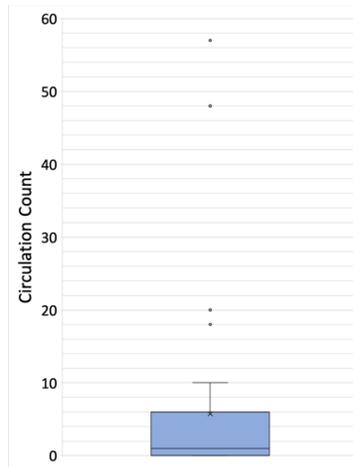


Figure 5. Distribution of circulation count.

No statistically significant correlation was observed between ink condition and circulation count ($r_s = 0.19$, $n = 43$, $p > .05$), and no statistically significant correlation was observed between page condition and circulation count ($r_s = -0.07$, $n = 43$, $p > .05$). With the four highest-value outliers removed from the dataset, Spearman's correlation tests also showed no statistically significant correlation between ink condition and circulation rate ($r_s = 0.07$, $n = 39$, $p > .05$) or between page condition and circulation rate ($r_s = -0.18$, $n = 39$, $p > .05$). Thus, in each case we fail to reject the statistical null hypothesis of no association between page or ink condition and circulation rate.

Limitations

While six survey responses acknowledged that their circulation data were not complete, I have assumed that all other circulation data reported represent all circulations of the monograph for the duration of its presence within the reporting library. Any data that do not represent actual circulations reduce the validity of the correlation analysis.

The circulation data simply tell us how often an item was circulated. We have no way of knowing the conditions experienced by copies of the monograph during circulation. Exposure to UV light, high temperatures (such as those observed in parked cars), humidity, and various natural and synthetic products, like seawater and sunscreen, may impact the condition of a polypropylene-based synthetic paper product. There are, therefore, numerous factors that we cannot measure, and which may have contributed to the deterioration observed in copies of this book.

Similarly, it is not possible to account for the ambient temperature, humidity, and UV light exposure experienced in the library stacks over the life of each book. Some copies with moderate to substantial deterioration of pages or ink were reported not to have circulated at all. Any environmental variables affecting the condition of these books must primarily be a function of the library's internal environment.

Discussion

I have confirmed Hypothesis 1, that the substrate of the deteriorating monograph is a widely used polymer, polypropylene, still in use today. Furthermore, I have observed that the ink comprising the plate backgrounds contains carbon black pigment. I have also confirmed Hypothesis 2, that deterioration of this monograph is not unique to our copy, with evidence that some deterioration in the ink or pages has occurred in 52.8% of the 53 copies evaluated. I have rejected Hypothesis 3, that there is a correlation between use and deterioration by a statistical analysis of data for 43 copies. Thus, we are left to consider which factors may have contributed to the deterioration.

It is unfortunate that data are not available about the duration of each circulation of the book. It could be informative to evaluate the relationship between the cumulative circulation time and the level of deterioration, to determine if books circulated for longer periods are more likely to show the deterioration observed in this study. It is possible that conditions experienced during circulation tend to initiate chemical changes in the page substrate, potentially resulting in a significant positive correlation between the number of days the item has circulated and the observed level of damage. The note printed in the book about protecting it from prolonged sunlight exposure suggests that the effect of UV light was an anticipated problem.

Similarly, if exposure to environmental conditions including UV light, high temperatures, and salt water initiate chemical changes that result in deterioration, then the date of initial exposure may influence the impact-per-circulation of future use of the book. Circulations occurring substantially later when fragility is increased are more likely to cause damage than circulations occurring closer to initial circulation dates. Thus, the chronology of circulations may contribute to explaining the level of deterioration manifest in the present day. Such data are not typically preserved by libraries and cannot be investigated.

It is noteworthy that the four highest circulated items in the current study were all reported to be in good condition. If the exposure of these copies to various environmental conditions during circulation has not visibly impacted their physical condition, it is, perhaps, an indicator that the environment in which the book is located for the long term – the stacks – may be a greater determinant of temporal degradation than environmental conditions during circulation.

The presence of polypropylene on the reverse (white) side of black ink fragments suggests that delamination of the page substrate may have occurred. That is, the surface layer of the extruded polypropylene has separated from the remaining substrate. This could also be indicative of a long-term consequence of corona treatment of the surface of the page, particularly due to the documented relationship between oxidation and deterioration in polypropylene (George & Celina, 2000).

Having identified this single occurrence of deteriorating plastic material in the library collection, the question arises of how much other plastic exists in the collection. Plastic may be found within library collections in numerous forms. In addition to synthetic

paper, library materials may be laminated with plastic, spiral or comb bound with transparent plastic covers, or bound using plastic combs. Individual journal issues can be shelved in plastic file cases. Libraries with three-dimensional collections and learning objects may house a variety of plastic materials. Various audiovisual media also incorporate plastic casings, laminates, and films. Plastic, then, is likely to be present in the collections of most libraries.

Walking the stacks is one way to identify and evaluate plastic materials, particularly comb bindings which are easily identified and tested for condition. Comb bindings can become brittle with age and lose their “teeth.” This is easier to address than a book which is crumbling, because a plastic comb can be replaced relatively easily. Identification of plastic materials that are incorporated into covers, cover laminates, pages, or inserts of books are harder to identify without handling each item. Monographs would need to be removed from the shelf and inspected externally and internally, according to several criteria. Such handling would demand substantial time to work through even a small part of a collection and would likely be considered an unfeasible investment of staff time. At the Marine Resources Library, brittle and damaged plastic comb bindings and plastic report covers have been observed in the collection when handling materials and plastic fragments have been found on the floor among the shelf ranges. A 2021 collection shift increased awareness of the extent of plastic comb binding degradation.

If bibliographic records were to consistently identify the use of plastics in synthetic paper, bindings, or covers, then collection managers could selectively evaluate items based upon the results of a catalog search. The inclusion of notes about plastic materials in bibliographic records that are increasingly generated by third parties would demand additional effort, also making this an unrealistic proposal for libraries with limited staff resources. If notation of plastic content were to become a cataloging standard, however, then occasional evaluation of the collection would be better facilitated. Indicators of synthetic material would be particularly helpful for items of historical and cultural importance that become archived for long-term preservation.

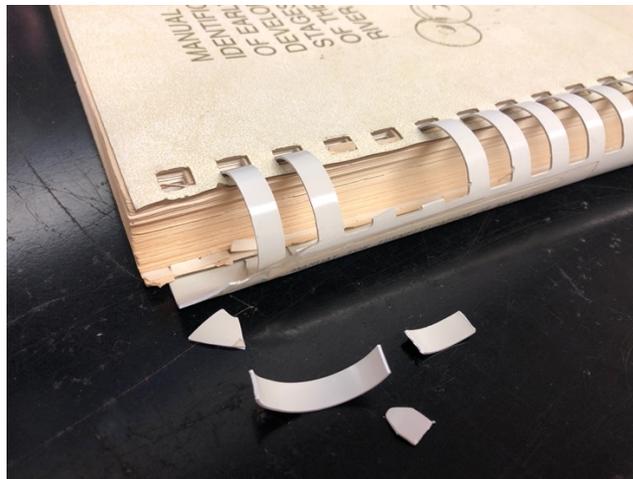


Figure 6. Brittle and fragmenting comb binding.

Library collections themselves are not the only sources of plastic degradation and potential pollution in the library. In the past year at the Marine Resources Library, chair wheels in the study area of the library have been observed to be deteriorating, with a surface layer of soft plastic crumbling into fragments and further fragmenting as the chair wheels run over them. The same chairs in the main campus library exhibit the same problem. Furthermore, plastic sheets stored in plastic boxes for use during impending hurricanes are deteriorating. The sheets are losing flexibility and large fragments detach when the sheets are unfolded for use.



Figure 7. Plastic fragments from library chair wheels.

Lastly, the disposal of degraded plastic, of any size or form, is problematic. If it is vacuumed from floors or deposited in trash cans, it will likely find its way to a landfill where it can potentially be ingested by animals or reach water courses and eventually the ocean. Degraded plastic, however, cannot be recycled with traditional recycling

methods. Chemical recycling, which can process degraded plastic, offers hope but is still in its commercial infancy (Tullo, 2019). Perhaps the best current way to keep deteriorated plastic that originated in a library collection away from marine and aquatic ecosystems is to store it safely until recycling technologies advance such that it can be processed in an environmentally responsible way.

Conclusions

We have observed that the deterioration of a monograph printed on polypropylene synthetic paper has occurred unpredictably, and at different rates and severities. If the use of polymer-based paper increases in the publishing industry, there are implications for the longevity of library materials. While the value of synthetic paper for applications with anticipated short-term lifespans is well established, more research needs to be undertaken to understand the consequences of the use of polymers in both publications and bindings anticipated to be used in the long term. The presence of plastic in today's library collections warrants awareness of plastic degradation as well as mitigation efforts to ensure that the library does not become a pathway to environmental plastic pollution.

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Works Cited

- Anonymous. Waterproof Writing Ink and Paper. (1886). *Scientific American*, 54(13), 193.
- Azuma, Y., Takeda, H., Watanabe, S., & Nakatani, H. (2009). Outdoor and accelerated weathering tests for polypropylene and polypropylene/talc composites: A comparative study of their weathering behavior. *Polymer Degradation and Stability*, 94(12), 2267–2274. <https://doi.org/10.1016/J.POLYMDEGRADSTAB.2009.08.008>
- Fiebig, J., Gahleitner, M., Paulik, C., & Wolfschwenger, J. (1999). Ageing of polypropylene: processes and consequences. *Polymer Testing*, 18(4), 257–266. [https://doi.org/10.1016/S0142-9418\(98\)00023-3](https://doi.org/10.1016/S0142-9418(98)00023-3)
- Frank, J. (1986). First hardcover printed on synthetic paper. *Publishers Weekly*, 229(14), 24–25.
- George, G. A., & Celina, M. (2000). Homogeneous and Heterogeneous Oxidation of Polypropylene. In S. H. Hamid (Ed.), *Handbook of Polymer Degradation* (2nd ed., pp. 277–313). CRC Press.
- Gregorová, A., Cibulková, Z., Košíková, B., & Šimon, P. (2005). Stabilization effect of lignin in polypropylene and recycled polypropylene. *Polymer Degradation and Stability*, 89(3), 553–558. <https://doi.org/10.1016/J.POLYMDEGRADSTAB.2005.02.007>
- Hutchinson, G. H. (1976). Printing inks in the seventies. *Cartographic Journal*, 13(1), 60–67. <https://doi.org/10.1179/caj.1976.13.1.60>
- Karlovits, M., & Gregor-Svetec, D. (2012). Durability of cellulose and synthetic papers exposed to various methods of accelerated ageing. *Acta Polytechnica Hungarica*, 9(6), 81–100.

- Katz, S. (2017). Synthetic Paper. *Label and Narrow Web*, 22(1), 66–72.
https://www.labelandnarrowweb.com/issues/2017-01-01/view_features/synthetic-paper/
- Kuypers, C. (2016). *Preliminary Deterioration Study of Synthetic Papers* [Master's Thesis. University of Melbourne].
https://www.academia.edu/29044110/Preliminary_Deterioration_Study_of_Synthetic_Papers
- Lunk, H., & Stange, K. (1971). Synthetic Paper. *Angewandte Chemie International Edition in English*, 10(5), 287–294. <https://doi.org/10.1002/anie.197102871>
- Lv, Y., Huang, Y., Kong, M., Yang, Q., & Li, G. (2017). Multivariate correlation analysis of outdoor weathering behavior of polypropylene under diverse climate scenarios. *Polymer Testing*, 64, 65–76.
<https://doi.org/10.1016/J.POLYMERTESTING.2017.09.040>
- Manfredi, M., Barberis, E., & Marengo, E. (2017). Prediction and classification of the degradation state of plastic materials used in modern and contemporary art. *Applied Physics A*, 123(1). <https://doi.org/10.1007/s00339-016-0663-x>
- Matta, A., Katada, I., Kawazoe, J., Chammingkwan, P., Terano, M., & Taniike, T. (2017). Stabilization of polypropylene-based materials via molecular retention with hyperbranched polymer. *Polymer Degradation and Stability*, 142, 50–54.
<https://doi.org/10.1016/J.POLYMDEGRADSTAB.2017.05.032>
- Monaghan, C. (1986, April 27). Book Report. *Washington Post*. Retrieved March 29, 2019, from
<https://www.washingtonpost.com/archive/entertainment/books/1986/04/27/book-report/d0f7dacf-a799-4c40-a9de-2977b02e7fc6/>
- Ni, K., Zhu, J., Liao, X., Lv, Y., Wu, L., Zhang, Q., An, Z., Yang, Q., Huang, Y., & Li, G. (2015). Microstructure studies of isotactic polypropylene under natural weathering by positron annihilation lifetime spectroscopy. *Journal of Polymer Research*, 22(6).
<https://doi.org/10.1007/s10965-015-0753-z>
- Polyart. (n.d.). *Sustainable environmental recycle plastic paper*. Retrieved March 29, 2019, from <http://www.polyart.com/en/synthetic-paper/extraordinary-synthetic-paper/environmentally-friendly>
- Prime, E. L., & Solomon, D. H. (2010). Australia's Plastic Banknotes: Fighting Counterfeit Currency. *Angewandte Chemie International Edition*, 49(22), 3726–3736. <https://doi.org/10.1002/anie.200904538>
- Sellin, N., & Campos, J. S. de C. (2003). Surface composition analysis of PP films treated by corona discharge. *Materials Research*, 6(2), 163–166.
<https://doi.org/10.1590/S1516-14392003000200009>
- Song, D., Gao, J., Li, X., & Lu, L. (2014). Evaluation of aging behavior of polypropylene in natural environment by principal component analysis. *Polymer Testing*, 33, 131–137. <https://doi.org/10.1016/J.POLYMERTESTING.2013.11.014>
- Strobel, M., Dunatov, C., Strobel, J. M., Lyons, C. S., Perron, S. J., & Morgen, M. C. (1989). Low-molecular-weight materials on corona-treated polypropylene. *Journal of Adhesion Science and Technology*, 3(1), 321–335.
<https://doi.org/10.1163/156856189X00245>
- Tullo, A. H. (2019). Plastic has a problem; is chemical recycling the solution? *Chemical & Engineering News*, 97(39). Retrieved September 15, 2021, from

<https://cen.acs.org/environment/recycling/Plastic-problem-chemical-recycling-solution/97/i39>

Ye, D., Li, S., Lu, X., Zhang, X., & Rojas, O. J. (2016). Antioxidant and Thermal Stabilization of Polypropylene by Addition of Butylated Lignin at Low Loadings. *ACS Sustainable Chemistry & Engineering*, 4(10), 5248–5257.

<https://doi.org/10.1021/acssuschemeng.6b01241>

Yupo. (n.d.). *Environmental Statement*. Retrieved March 29, 2019, from

<https://yupousa.com/our-company/environmental-statement/>

Zannucci, J. S., & Lappin, G. R. (1974). Mechanism of Stabilization of Some Polypropylene Ultraviolet Stabilizers. *Macromolecules*, 7(3), 393–394.

<https://doi.org/10.1021/ma60039a023>

ASFA - providing a platform for collaboration in the frameworks of CECAF-PESCAO project to enhance dissemination of marine fisheries research output in Western Africa. (Panel Discussion)

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Abstract

The Fishery Committee for the Eastern Central Atlantic (CECAF) seeks to promote the sustainable utilization of the living marine resources across the Eastern Central Atlantic the Congo River through informed development of fisheries management actions. Launched in 2018, the CECAF-PESCAO project seeks to improve regional fisheries governance in Western Africa. ASFA has contributed to Output 1.2 of the CECAF PESCAO project: “Collaboration on data and information sharing procedures and research enhanced between relevant countries, sub-regional and regional organizations to harmonize data and knowledge.” A search methodology was agreed with the CECAF-PESCAO project team to identify research relevant to the project, with searches limited to documents published between 2010 – 2020. The first stage of ASFA’s activities involved searching four online sources with relevant research being recorded on the inventory. In the second stage, ASFA partners in eight Western African countries and Spain were recruited to search physical collections located at fisheries institutions in their country. All relevant results were recorded in the inventory which produced a total of 2,411 unique references. A bibliometric analysis of the inventory was then conducted to identify research trends, strengths and weaknesses across the region. This Panel Session will provide a forum for discussion and evaluation of the patterns of collaboration between ASFA partner institutions in Western Africa and discuss the ways in which project aim of increased visibility and accessibility of marine fisheries research in the region will be achieved.

Keywords: Western Africa, CECAF-PESCAO Project, AFSA, fisheries, marine resources.

International Oceanographic Data and Information Exchange (IODE) Update

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IODE

Abstract

Update on IODE activities that include Ocean InfoHub; ODIS; OBPS and the AIU program as well as an update on the UN Decade of the Ocean. The presentation will present opportunities for those interested to become involved with IODE activities.

Keywords: IODE, UN Decade of the Ocean, oceans.