PIMRIS NEWSLETTER

Pacific Islands Marine Resources Information System

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Editorial

Welcome to our final issue of 2017 & Bula to all our partners and readers!

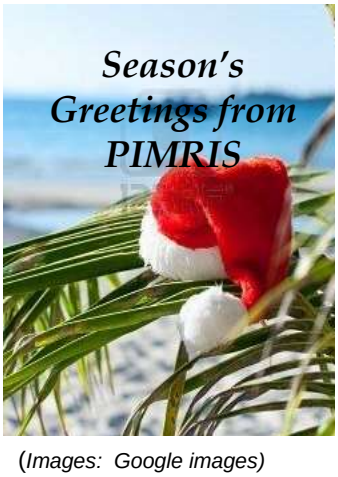
COP23 deliberations and negotiations held in Bonn, Germany in early November ended with several announcements made by countries, cities, states, regions, businesses and civil society on climate action. While the Fijian COP23 Presidency is a remarkable feat by Fiji and our region, advancing the implementation guidelines of the Paris Agreement and preparations for more action in the 'Talanoa Dialogue of 2018' remain the greatest achievements according to Fiji's Prime Minister. One of the many pledges and initiatives announced during the two-week meeting included a new initiative, 'The Ocean Pathway'. This Pathway aims to strengthen action and funding for healthy oceans and livelihoods through the UN Climate Change process and national climate action plans by 2020. Let us hope the outcomes of these decisions and plans will ensure every cent invested and time spent, contribute to beneficial and long-lasting results.

Back at USP Lower Campus and PIMRIS, network activities have been slow in the last 6 months. There were changes within national fisheries ministries and divisions that challenged the workload of our national contacts. We also had three staff changes this year with the Library Assistant rotated in July. All new staff were given training but adjustment to new roles does takes time. Despite challenges, we completed most priorities for the library and network as planned.

Fa'afetai tele lava to our partners and colleagues for all the support and assistance and we look forward to another fruitful year ahead. Have a very Merry Christmas and a successful, safe and prosperous 2018!

Susana Macanawai, *PIMRIS Coordinator*

Contents



(*Images: Google images)*

---Opinions expressed in articles included in the PIMRIS Newsletter do not necessarily represent those of any participants. --

Directory

PIMRIS is a cooperative network of fisheries and marine resources libraries and information centres in the Pacific. Participants include national ministerial libraries and regional agencies listed below.

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New Faces, New Places

Talofa Shirley!


Shirley Devi

Shirley Devi, is the new Librarian, Alafua Campus. Shirley resigned from the main library in Suva early this year, to take up the senior position in Samoa. She is the former Librarian, Pacific Collection and was also actively involved with the UU100 course (library part) in Laucala in the past few years. We wish her well in Apia!


Caroline Nand

Caroline Nand joined the Lower Campus Library (PIMRIS) in July 2017, replacing Sese Cokomata as Library Assistant. She has worked as an LA at the USP Laucala main library for nine years and recently graduated with a Masters in Commerce.

Vinaka Mere & Se!


Mere Vada

Mere Vada joined the team at Lower Campus in February 2017 as Part-time Junior Library Assistant. Her relocation is part of the USP Laucala Library's staff rotation programme. This is Mere's second year in this role and we wish her all the best at her new location in 2018.


Sese Cokomata

Sese Cokomata, the Library Assistant for PIMRIS has relocated to the main library at Upper Laucala Campus. 'Se' as she is known, spent a year and half at Lower Campus Library and has replaced Caroline at the Digitisation section. Her contributions to PIMRIS were acknowledged with a morning tea.

The UNFCCC – Fiji COP23 Presidency Ocean Initiative

The Ocean Pathway Strategy for COP23. *(Image source: https://cop23.com.fj/the-ocean-pathway/)*

The Ocean Pathway Strategy is a COP23 Presidency initiative that embodies the important relationship between the Ocean and Climate Change.

This Pathway reaffirms the Call for Action from the UN Ocean Conference, promoting the possibility of a UNFCCC agenda item and a work programme by 2019 and ensures the insertion of the ocean into Nationally Determined Contributions (NDCs).

Furthermore, the pathway aims to enhance the opportunity to support ocean health and maintain critical ocean ecosystems from current and emerging climate change funding under the UNFCCC.

It also supports existing priorities that affect and are impacted by the ocean and climate including sustainable transport, population displacement and migration etc.

The Call for Action leading to this strategy was made at the first UN Ocean Conference in June 2017 co-chaired by Sweden and Fiji.

The impacts of rising sea levels, acidification and intense storms threaten the survival, economic, cultural and social well-being of vulnerable countries and therefore, a healthy ocean is critical.

On November 14 in Bonn, the Ocean Pathway Partnership was launched at the Fiji Pavilion, to promote the adhesion of the Parties and stakeholders to a collective effort to bring Ocean into the UNFCCC processes and sustain action.

This partnership aims to strengthen action and funding that links climate change action, healthy oceans and livelihoods including through the United Nations Climate Change process and via national climate action plans by 2020.

The Ocean Pathway Partnership is one of many initiatives and action pledges made during COP23, to achieve the objectives of the Paris Climate Change Agreement and ultimately the 2030 Agenda Sustainable Development Goals.

(More on: https://cop23.com.fj/the-ocean-pathway/)

Western and Central Pacific Fisheries Commission's 2017 Big-eye tuna stock assessment report released

Big-eye tuna on ice. *(Image: NOAA)*

The latest Western and Central Pacific Fisheries Commission's 2017 Big-eye tuna stock assessment report is out and initial findings and analysis by the authors, seemed more positive than in recent years.

While there is yet an official announcement or any decisions from the latest WCPFC meeting relating to this report, some stakeholders like the Parties to the Nauru Agreement (PNA) and the International Seafood Sustainability Foundation (ISSF) are acknowledging the encouraging findings but called for active management measures to ensure bigeye, yellowfin and skipjack tuna fishing mortality is maintained at sustainable levels.

One main concern raised from this report however is the amount of uncertainty in the stock results for the 2017 assessment which is higher than the 2014 assessment.

The higher stock result according to the report is due to the inclusion of new information on bigeye growth and regional structures.

The PNA Chief Executive Officer, Mr Ludwig Kumoru welcomed the positive indications from the report and reiterated the need to continue with the implementation of many measures to manage FAD fishing and conserve the bigeye tuna.

A media statement by PNA stated that the organization has led the region's tuna conservation initiatives in their joint 14.8 million km2 Exclusive Economic Zone (EEZ) with many world firsts including 100% observer coverage, satellite tracking of purse seiners, in-port transshipment with monitoring, vessel registry and mandatory log books.

Mr Kumoru added, 'this is a good start and PNA looks forward to evidence of continued improvements, especially in the bigeye stock status in the next stock assessment in 2020. PNA will continue to work towards seeing the entire PNA ocean ecosystem including a sustainable managed FAD fishery, being fully MSC certified within the coming 5 years.'

The bigeye tuna in the western and central Pacific Ocean are managed at the international level by the WCPFC. The WCPFC has an agreement with the SPC to undertake regular assessments of target tuna and tuna-like species which enables the regular monitoring of stocks and their status.

Recently, six longline fisheries operating on the high seas within the Convention Area for the years 2014-2017 were given catch limits for bigeye tuna. These are the United States, China, Indonesia, Japan, Korea and Taiwan.

(Sources:
WCPFC bigeye tuna stock assessment 2017 report: https://www.wcpfc.int/system/files/SC13-SA-WP-05%20%5Bbet-assessment%5D%20REV1.pdf
www.pnatuna.com, iss-foundation.org)

New study predicts worldwide change in shallow reef ecosystems as waters warm

A new study based on the first global survey of marine life by scuba divers has provided fresh insights into how climate change is affecting the distribution of marine life.

The research published in the journal Science Advances predicts that as the oceans warm fish – which appear to be superior predators in warm water – will extend their ranges away from the equator and cause a decline in the diversity of invertebrates such as crabs, lobsters, sea urchins and whelks.

Reef Life Survey (RLS) diver on Indonesian Reef. *(Image: Rick Stuart-Smith)*

Using data collated by the citizen science project Reef Life Survey (RLS), the IMAS-led research team found that total number of fishes and large invertebrates seen underwater changes little from the tropics to polar latitudes.

However, fish numbers are very high in the tropics but decline towards colder latitudes, while large invertebrates balance those patterns in the opposite direction.

Lead author and RLS founder, IMAS Professor Graham Edgar, said this distribution is likely to change as waters become warmer, affecting food webs, ecosystems and fisheries worldwide.

“The effects of climate change on marine life vary greatly between geographic regions,” Professor Edgar said.

RLS diver on Indonesian Reef. *(Image:* Grahan Edgar)

“In South Eastern Australia and Tasmania the ‘tropicalisation’ of marine life is already underway, but similar effects have not yet been detected in New Zealand.

“Previous research suggested that climate change would directly affect the range of species due to rising temperatures.

“Data collected by RLS divers during the world’s first systematic global survey of marine life show this is not the end of the story.

“We found that the local presence and abundance of a species reflect not only its need for particular temperatures and environmental conditions but also its ecological interactions.

“As fish extend their range further from the equator with warming water, their advantage as predators will affect the abundance and diversity of large mobile invertebrates.

“Broad changes will likely spread across the ecosystem, affecting human activities such as fishing.”

Professor Edgar said ongoing monitoring of marine life at both local and regional levels was needed to allow the early detection of such changes.

This would allow adaptive fisheries and conservation management, and help to minimise the social and economic impacts.

“Species monitoring of shallow reef communities at national scales is only possible with the support of citizen scientists, such as the RLS divers who contributed data to our study.

“The RLS data set now includes information on 4000 species in 50 countries, allowing a better understanding of how and why species are distributed, while also providing an early-warning mechanism for climate-induced changes,” Professor Edgar said.

Coral reef. *(Image: Soft light/Fotolia)*

The Reef Life Survey (RLS) according to its website is a team of SCUBA divers all using the same detailed methods to record the abundance of all conspicuous species observed on reefs.

The team includes a collaboration of professional scientists working alongside citizen scientists, with a mission to provide high quality, unbiased and publicly available information that is used to better inform management, policy, and build public knowledge on the status of reefs.

Journal Article Reference:

Graham J. Edgar, Timothy J. Alexander, Jonathan S. Lefcheck, Amanda E. Bates, Stuart J. Kininmonth, Russell J. Thomson, J. Emmett Duffy, Mark J. Costello, Rick D. Stuart-Smith. **Abundance and local-scale processes contribute to multi-phyla gradients in global marine diversity**. *Science Advances*, 2017; 3 (10): e1700419 DOI: 10.1126/sciadv.1700419

(Adapted from: https://www.sciencedaily.com; http://www.imas.utas.edu.au/news, https://reeflifesurvey.com)

SPC, IMO train regional maritime trainers as simulator, ECDIS Instructors

Participants during the simulator training at the Fiji Maritime Academy in Laucala Bay, Suva. *(Image: SPC)*

The Pacific Community (SPC) in collaboration with the International Maritime Organization (IMO) and the Maritime and the Port Authority of Singapore (MPA) last week (30 October to 3 November) convened the regional train the trainer course for simulator instructors, Electronic Chart Display, and Information System (ECDIS) trainers.

The weeklong training course aimed to assist maritime training institutes and their teaching staff who are responsible for the development of simulator exercises and for the training of the officers in charge of a navigational watch in organizing new training courses, in relation to the training on operational use of the electronic chart display and information system.

The Fiji Maritime Academy (FMA) hosted the training giving the opportunity for the participants to have practical simulator hands-on and familiarisation of the ECDIS teaching.

At present, there are fourteen national maritime training institutes that provide differing levels of seafarer training in the Pacific Island region.

While some training institutes limit their qualifications to seafarers on domestic coastal and inter-island trade, others train towards achieving qualifications accepted by the international shipping industry.

According to SPC, since 1st Jan 2014 until 31st September 2016, a total of 2,918 seafarers were trained, including those working on international vessels.

The development and use of new technologies in the maritime industry has led to equip ships' bridge with e-navigation systems and require maritime instructors to be qualified to train the students on board electronic systems using simulators in maritime schools.

In his welcome address, SPC Deputy Director Transport, Thierry Nervale recalled that all electronic systems and navigation aids on board ships must be used smartly by deck officers who need to be familiar with their advantages but also their limitations.

"It is therefore essential that seafarers are well prepared during their time at schools on the use of these shipboard electronic systems and trained on simulators."

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In his opening remarks, Captain Khoo Gek Hung of MPA reiterated the importance of instructors in any training courses, particularly using simulators. The effectiveness of IMO Model course 1.27 – Operation use of ECDIS, a generic ECDIS training course, could only be achieved by having good ECDIS instructors.

Participants were encouraged to participate actively in creating simulation exercises in this course.

After this training, all participants are now equipped with tools and methods to teach on simulators and the use of ECDIS that allow certification of seafarers in accordance with international standards.

(Reprinted from: spc.int)

WORLD MARITIME DAY 2017 celebrated in Suva

The World Maritime Day 2017, an official United Nations Day was celebrated at the Pacific Community's (SPC) office in Suva, Fiji on September 28.

The celebration in Suva was joined by representatives from the International Maritime Organisation (IMO), and Pacific Island countries members to highlight the essential role of shipping and ports for the people of the Pacific region.

This year's theme, 'Connecting Ships, Ports and People' provided an opportunity to focus on the many diverse actors involved in the shipping and logistics areas.

According to the IMO senior legal officer, Jan Engel de Boer during the celebrations in Suva, billions of people all over the world rely on maritime transport as it is the most cost-effective and fuel-efficient way to carry goods and shipping which forms the backbone of trade.

"As the role of IMO is to promote safe, secure, environmentally sound, efficient and sustainable shipping, we first develop and adopt a global regulatory regime for shipping that embraces the highest practicable standards of maritime safety and security, efficiency of navigation and prevention and control of pollution from ships," he said.

Mr Jan de Boer further added, "As a United Nations agency, IMO has a strong commitment to help achieve the 17 Sustainable Development Goals. Shipping and ports can play a significant role in helping to create conditions for increased employment, prosperity and stability through promoting maritime trade. The port and maritime sectors can be wealth creators, both on land and at sea".

Pacific Island representatives present during the celebrations shared similar views on the significance of shipping and ports and their contribution to the development of local economies and to inter-island transportation.

(Adapted from: spc.int; Fiji Times online)

‘Grab bags’ help save lives at sea

The emergency ‘Grab bags’, provided under the European Union funded ‘Development of Tuna Fisheries in the Pacific Project’ (DevFish2), has proven to be an invaluable life-saving investment.

Grab bags being distributed. *(Image: SPC)*

Earlier this year, two fishermen at sea in Tuvalu were successfully rescued after they set off the Personal Locator Beacon from their emergency ‘grab bags’.

The fishermen’s fifteen (15) hour ordeal started when their outboard motor broke down during an early morning fishing trip and started drifting away from the islands.

The two fishermen were located by Tuvalu’s Patrol Boat (Te Mataili) about 7.5 miles away from Fuafatu island after the New Zealand authorities sent a message to the Tuvalu Search and Rescue team about the alert beacon.

According to a report by the Pacific Community (SPC), each grab bag is fully kitted with a personal locator beacon (PLB), strobe light, compact medical kit, a signaling mirror and whistle, a rescue laser and sea rescue streamer, a marine handheld VHF radio, a sea anchor, three manual inflatable lifejackets, a directional compass and two emergency thermal blankets.

In 2015, the DevFish2 project (implemented regionally by SPC and the Pacific Islands Forum Fisheries Agency) supplied 30 grab bags to Funafuti fishers, including the one used by the two rescued fishermen.

The DevFish2 project also conducted training on the proper use and maintenance of the equipment during the initial distribution of grab bags.

In addition, and following the earlier distribution of bags, the United Nations Development Programme (UNDP) through the NAPA 2 project and the New Zealand government through a post-cyclone Pam recovery project, provided a further 128 grab bags to Funafuti and outer islands fishermen.

Dr Colin Tukuitonga, the Pacific Community’s (SPC) Director-General commented on the value of the assistance saying, ‘The price of one fully-equipped emergency bag is around USD 1,200 but its value is priceless in comparison with the cost of mobilizing an air search and rescue and indeed in its ability to save a life which is what has been demonstrated here’.

He further added, ‘Small-scale fisheries are a lifeline for many Pacific Island communities and it is vital that safety at sea is observed. With the committed support of the European Union and other donors, SPC has been able to meet the practical needs of fishers to safeguard lives and livelihoods.’

(Adapted from: SPC news, Tuvalu Fisheries online news)

News from around the region

Solomon Islands' Ministry of Fisheries implements e-monitoring on longline fishing vessels

A device for the e-monitoring project being installed on one of the fishing vessels. *(Image: Solomon Islands Ministry of Fisheries and Marine Resources)*

The Solomon Islands' Ministry of Fisheries and Marine Resources (MFMR) has introduced electronic monitoring on locally-based longline fishing vessels.

According to reports from the ministry's website, eight boats will be fitted with the technology that will enable officials to monitor fishing activities without the use of human observers.

This initiative is necessary due to the inability of longline fishing vessels to accommodate a fisheries observer onboard due to restricted living conditions.

The e-monitoring project is part of the World Bank's Pacific Islands Regional Oceanscape Programme, which aims at strengthening the shared management of ocean and coastal fisheries and the critical habitats upon which they depend for selected Pacific Island countries (worldbank.org).

The MFMR reported that the first eight (8) units for this project have been provided by The Nature Conservancy (TNC) with the first set of equipment (cameras and recording hard-drives) installed on two of the vessels in August.

The first two vessels fitted with the system were from the Global Fisheries Limited and Solong Seafood Limited.

Technicians from the Satlink company (from Fiji and Spain) installed the first two units, with cameras positioned in three locations for capturing all activities onboard the fishing boats.

The rest of the devices were fitted onto the remaining fishing boats in October.

Electronic monitoring has been implemented to counter challenges faced by human observers on longline fishing vessels, and will collect data relevant to the management of the tuna fishery.

The Solomon Islands Ministry of Fisheries and Marine Resources currently covers around five percent (5%) of the monitoring work using staff placed on vessels but this new system will change and increase coverage significantly.

Electronic monitoring was recommended by the Western Central Pacific Tuna Fisheries Commission for improved data management.

Data collected by the system are analysed by the MFMR fisheries technicians when vessels return for transshipment.

This new electronic monitoring project has also been well supported by the New Zealand funded 'Makem Strong Solomon Islands Fisheries' (MSSIF) Programme, through accommodating the related offshore infrastructure.

The MFMR Fisheries Director, Mr Edward Honiwala highlighted the importance of this project in ensuring fishing boats comply with the conditions of their license.

The same project will enforce and ensure all fishing boats comply with measures governing the illegal, unreported and unregulated fishing inside Solomon Islands' Exclusive Economic Zone.

Similar projects have also been implemented in Palau, Republic of the Marshall Islands and the Federated States of Micronesia by The Nature Conservancy.

With the installation of e-monitoring on its locally registered longline fishing vessels in August, Solomon Islands became the first ever member of the Parties of the Nauru Agreement (PNA) to do so.

The installations carried out by the two Satlink technicians (Eduardo from Spain and Lasarusa Torovugalei from Fiji) were observed and assisted by the Solomon Islands Electronic Reporting and Monitoring Coordinator, Mr Derrick Tagosia.

Satlinks's Eduardo Jose installing a camera on SAN JAI FA No.15 while Mr Tagosia looks on.
(Image: Solomon Islands MFMR)

Mr Tagosia was appointed in 2016 with support from the Pacific Community (SPC) and funding through the International Seafood Sustainability Foundation and The Nature Conservancy (TNC) to ensure the implementation process is efficiently carried out.

Mr Tagosia's role is crucial to this e-monitoring process, to ensure, close collaboration between all stakeholders (ie. The Solomon Islands MFMR, the technology provider, fishing industry, regional fisheries organisations and donor agencies) are in line with what is required and as agreed.

The Solomon Islands MFMR's decision to implement e-monitoring on all locally registered vessels is based on the success of similar trials carried out in 2014.

The trials were carried out in collaboration with the SPC and FFA with fisheries observers also on board the vessels.

During the trials two vessels were fitted with e-monitoring units and data collected showed that video electronic monitoring is viable for producing standardised observer data.

The installation process was expected to be completed by the end of October.

(Adapted from: MFMR online news)

Tuvalu Fisheries staff complete annual 'metronome' trips

A key and significant part of the Tuvalu Fisheries Department's annual work plan was undertaken and completed between August and October this year.

Internally known as 'metronome' trips, the third in August to the southern islands (Nukulaelae & Niulakita) involved seven staff from the department.

The one week trip was to liaise with the 'Kaupule' (island council) members and communities and conduct regular and planned fisheries development trainings and activities.

The team of seven for this trip consisted of 4 coastal staff, 2 oceanic staff and 1 from the administration section who spent 2-3 days on each island.

As there have been reports and complaints from outer islands regarding diminishing marine resources and the possibility of illegal fishing within Tuvalu's Exclusive Economic Zone in the past, there were discussions and training on how to recognise foreign fishing vessels as well as monitoring and management of coastal reef resources.

The fisheries officers during this trip also ensured remote communities were aware of both coastal and oceanic fisheries issues and cooperate with the department to address them. These issues include marine pollution, ciguatera – fish poisoning and locally managed marine protected areas.

The Coastal Section team also conducted refresher training with Outer Islands Data Collectors (OIDCs) on creel surveys and on augmenting data collected and creating additional datasets for comparison and analysis.

They also managed to collect data and information relating to ciguatera fish poisoning cases and others for developing fish profiles.

The final metronome trip for this year was carried out between late September and early October (Metro 7) by 4 Coastal Fisheries staff and 1 administrative staff to Niutao, Nanumea and Nanumaga.

Staff and participants during one of the workshops on Nukulaelae island. *(Image: Tuvalu Fisheries)*

Similar sessions and trainings were conducted as in trips to other outer islands and included awareness programmes for primary schools and island communities.

The final metronome trip this year is the seventh (7th) since the initiative started in 2016.

Although all trips to the remote outer islands of Tuvalu are challenged by rough and difficult sea conditions, the department staff are committed to ensuring Tuvalu fisheries is developed and sustained for future generations.

(Adapted from: Tuvalu Fisheries website)

Tonga Fisheries showcases promising developments during the 2017 Royal Agriculture Show

The 2017 Royal Agriculture Show in Tonga kicked off with the first one on Vava'u Island, from 5-6 July. The royal majesties, King Tupou IV and Queen Nanasipau'u officially opened the show and viewed the variety of agriculture crops etc. and marine resources on display. Senior officials from the Ministry of Agriculture and the Ministry of Fisheries were also in attendance and accompanied the royal entourage.

King Tupou IV at the Vava'u Royal Agriculture Show. *(Image: Ministry of Fisheries, Tonga)*

The second show was held on Niua fo'ou on July 14 followed by Niuatoputapu Island on the next day. According to a news report from the Ministry of Fisheries, Niuafo'ou is the warmest island of Tonga, receiving the highest rainfall annually and is well known for its 'vailahi'. The locals tend to rely on the locally grown food and those from the sea for their food supply and livelihood.

At the Niuatoputapu show the famous local yams, the 'ufi lei Lotuma' and 'ufi vao' were the highlight of the day. These two varieties are the island's main food source especially during times of drought and after natural disasters.

The King and his entourage at the Ha'apai Royal Agriculture Show. *(Image: Tonga Fisheries Ministry)*

Next on the annual show schedule was the Ha'apai Royal Agriculture Show on 18th July which featured similar products and resources as others held earlier.

The people of Ha'apai depend a lot on the sea for their food supply hence the prominence of marine resources during the show.

Marine produce at the Tongatapu Royal Agriculture Show. *(Image: Tonga Fisheries Ministry)*

The Tongatapu show on the 29th July was the final event for this year following the 'Eua show on the 22nd July.

Farmers and those relying on the sear for their livelihood were reminded of their responsibilities and to reconsider the environmental impacts of usage of chemicals to the soil and underground water supply.

Staff from the Ministry of Agriculture and the Ministry of Fisheries were acknowledged and thanked by the Honourable Minister Fakahau for their contributions to this year's Royal Agriculture Show.

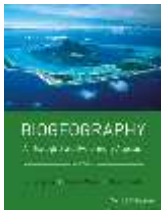
(Adapted from the Tonga Fisheries website)

New Additions to PIMRIS (Lower Campus) Library

Handbook of seafood quality, safety and health applications / C. Alasalvar, [et. al] (eds.). London, UK: Blackwell Publishing, c201. ISBN: 9781405180702.

This book is a resource for those interested in the latest advances in the science and technology of seafood quality and safety as well as new developments in the nutritional effects and applications of marine foods.

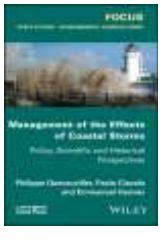
http://au.wiley.com/WileyCDA/WileyTitle/productCd-1405180706.html



Biogeography : an ecological and revolutionary approach / by Cox, C., Moore, P., Laddle, R. South, UK: Wiley-Blackwell, c2016. ISBN: 9781118968581.

This edition incorporates the exciting exciting changes of the recent years, and presents a thoughtful exploration of the research and controversies that have transformed our understanding of the biogeography of the world.

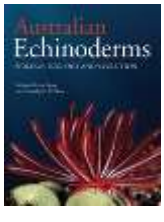
http://au.wiley.com/WileyCDA/WileyTitle/productCd-1118968581.html



Management of the effects of coastal storms: policy, scientific and historical perspectives / Quevauviller, P. [et. al]. UK: Wiley-ISTE, c2017. ISBN: 9781848217621.

This book discusses policy, research and historical background (essential elements) needed to be interconnected for effective coastal planning and management.

http://au.wiley.com/WileyCDA/WileyTitle/productCd-1848217625.html



Australian echinoderms: biology, ecology and evolution / edited by M. Byrne & T. O'Hara. Melbourne: CSIRO Publishing, c2017. ISBN: 9781634856515.

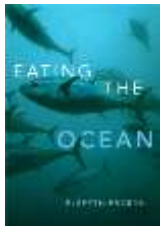
A comprehensive, illustrated resource for identification, evolution, and ecology of echinoderms.

http://www.publish.csiro.au/book/6484/

Governing the coastal commons: communities, resilience and transformation / edited by D. Armitage [et al.]. NY: Routledge, c2017. ISBN: 9781138918436.

The book shows how a governance approach generates insights into the specific forms and arrangements that enable coastal communities to steer away from unsustainable pathways.

https://www.routledge.com/Governing-the-Coastal-Commons-Communities-Resilience-and-Transformation/Armitage-Charles-Berkes/p/book/9781138918436



Eating the ocean / Probyn, E. Durham: Duke University Press, c2016. ISBN: 9780822362357.

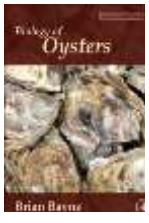
'*Eating the Ocean'* investigates the profound importance of the ocean and the future of fish and human entanglement.

https://www.dukeupress.edu/eating-the-ocean

Sustainable building and built environments to mitigate climate change in the tropics: conceptual and practical approaches / T. H. Karyono [et. al], (eds). Switzerland: Springer, c2017. ISBN: 9783319496009.

This book offers a selection of the best papers presented during the International conference on Mitigating and Adapting Built Environments for Climate Change in the Tropics, held at Tanri Abeng University (TAU), Jakarta, Indonesia on March 2015.

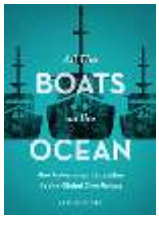
http://www.springer.com/gp/book/9783319496009



Biology of oysters / Bayne, B. Vol. 41. London, UK: Academic Press, c2017. ISBN: 9780128034729.

This book offers scientific insights into the structure and function of oysters and provides an understanding of the edible oysters in order to equip researchers with background needed to undertake further investigations on this marine invertebrate.

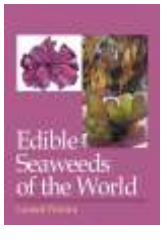
https://www.elsevier.com/books/biology-of-oysters/bayne/978-0-12-803472-9



All the boats on the ocean: how government subsidies led to global overfishing / Finley, C. Chicago, Ill.: Chicago University Press, c2017. ISBN: 9780226443379.

All the boats on the ocean… casts a wide net to reveal how the subsidy-driven expansion of fisheries in the Pacific during the Cold War led to the growth of fisheries science and the creation of international fisheries management**.**

http://press.uchicago.edu/ucp/books/book/chicago/A/bo25581521.html



Edible seaweeds of the world / Pereira, L. Boca Raton : CRC Press, c2016. : ISBN: 9781498730471.

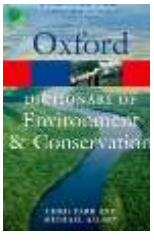
This book details 147 species of edible seaweed, including scientific name and respective common names, geographic location, nutritional composition, uses and is extensively illustrated.

https://www.crcpress.com/Edible-Seaweeds-of-the-World/Pereira/p/book/9781498730471

Marine ecosystem-based management in practice: different pathways, common lessons / Wondolleck, J. & Yaffee, S. Washington, DC: Island Press, c2017. ISBN: 9781610917995.

This is the first practical guide for the marine conservation realm. In a unique collection of case studies, the authors showcase successful collaborative approaches to ecosystem-based management.

https://islandpress.org/book/marine-ecosystem-based-management-in-practice



A dictionary of environment and conservation / Park, C. & Allaby, M. 2nd ed. Oxford: Oxford University Press, c2013. ISBN: 9780199641666.

This dictionary provides over 9,000 A to Z entries on scientific and social aspects of the environment—its key thinkers, treaties, movements, organizations, concepts, and theories.

http://www.oxfordreference.com/view/10.1093/acref/9780199641666.001.0001/acref-9780199641666

Conferences, Workshops & Events
January – June 2018

11 – 16 Feb	**2018 Ocean Sciences Meeting**, Portland, Oregon. More Info.: https://osm.agu.org/2018/
19 - 22 Feb	**Aquaculture America 2018,** World Aquaculture Society Meeting, Paris Hotel, Las Vegas, Nevada, USA. https://www.was.org/meetings/Default.aspx?code=AA2018
13 –15 Mar	**Oceanology International**, London. The world's premier event for ocean technology and marine science. *Oceanology International's world-class exhibition and conference help bring together marine professionals, businesses and organisations to improve their strategies for measuring, developing, protecting and operating in the world's oceans.*
15 – 16 Mar	**3rd International Conference on Coastal Zones and Marine Ecosystems – *'Innumerable Possibilities for the Conservation of Coastal and Marine Ecosystems'***. Singapore. More Info.: http://www.wamsi.org.au/events/3rd-international-conference-coastal-zones-and-marine-ecosystems
23 – 26 Apr	**APA 18: Asian – Pacific Aquaculture 2018**, Taipei, Taiwan. http://www.was.org/meetings/default.aspx?code=APA2018
24 – 26 Apr	**Seafood Expo Global/Seafood Processing Global –** Brussels, Belgium. *Seafood Expo Global/Seafood Processing Global is the world's largest seafood trade fair. The fair features more than 1,850 exhibiting companies from 79 countries.* https://www.brussels-expo.com/en/events/detail/seafood-expo-gobal-seafood-processing-global/
19 – 21 Jun	**SeaWeb** Seafood Summit – Barcelona, Spain. The World's Premier Conference on Seafood Sustainability. https://www.seafoodsummit.org/