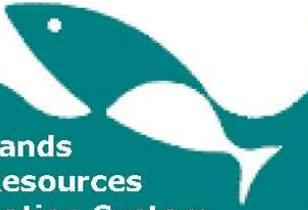


PIMRIS

Pacific Islands
Marine Resources
Information System



NEWSLETTER

Published by the PIMRIS Coordination Unit,

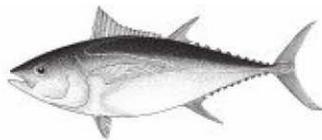
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Editorial



Welcome to our second to last issue for the year! It has been another very busy three months for our regional partners and members with many positive achievements and progress.

In this issue, we are happy to share news on the positive results from a ten year research by CSIRO scientists to improve the Novacq™ prawn feed additive that may contribute to the sustainability of Australia's prawn aquaculture industry (pp.6-7). This is great news not only for Australia and its aquaculture industry, but also for prawn consumers around the world, including us here in the Pacific Islands.

Fisheries and aquaculture activities in the region also benefited from many trainings and assistance given by international donors and organisations, like Kiribati's improved tuna deal with the European Union (pp.12-13), the Food and Agriculture Organisation's funding for the development of milk-fish farming in Tonga (p. 11) and the Waitt Institute's offer of its research vessel and financial support for the Cook Islands Marine Park Project (pp. 9-10).

We have also included the final part of Dr Bidesi-Ram's reflections on her experiences during a tour of the Tohoku region in Japan and its recovery after the 2011 earthquake (pp.3-5) and information on a new publication on mangrove and seagrass species of Fiji, launched at the International Union for the Conservation of Nature office in Suva, Fiji (p.8).

Happy reading!

Susana Macanawai, *PIMRIS Coordinator*

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The Waitt Institute's research vessel that took part in the Cook Islands Marine Park project expedition lately. (Photo credit: Cook Islands News)

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

Congratulations Joyce!

Joyce Samuelu-Ah Leong, is the newly appointed Assistant Chief Executive Officer (ACEO) for the Samoa Fisheries Division. She is a former Principal Fisheries Officer and a graduate of the University of the South Pacific School of Marine Studies in Suva.



Joyce Samuelu-Ah Leong

She holds a Bachelor of Science in Marine Studies and has authored a number of articles and reports on fisheries/marine issues in Samoa. We wish Joyce the best in her new role.

Congratulations & All the best, Taufaa!



Taufaa Domona

Taufaa Domona, one of only two Senior Library Assistants (SLA) at the USP Laucala main library has been recently appointed as the new Senior Library Assistant at the USP Centre Library in Marshall Islands.

Before her new appointment, Taufaa spent more than thirty years in various sections of USP Laucala library, of which the last three was with the Acquisitions Section, processing gifts and exchange materials.

We wish her well on her new role overseas.

Vinaka Alitia!



Alitia Nasila

Alitia Nasila, a library attendant at the main USP Laucala library in Suva, resigned after eight months in the role to join the Central Records & Archives Unit of USP in September 2013.

Her cheerful personality will be missed. All the best at CRAU.

Reflecting on lessons from the tsunami affected Tohoku region in Japan

By Dr Vina Ram-Bidesi
School of Marine Studies, USP

The 2011 earthquake and tsunami that caused extensive structural damage to the north eastern part of Japan also recorded numerous casualties of whom 16,000 died, 6,000 were injured and about 2,700 were recorded missing. There were widespread industrial fires and the damaged nuclear reactors caused radiation and chemical contamination. According to the World Bank estimates, this event has been recorded as the costliest natural disaster in the world to date. The images from world media of the devastation that occurred two years ago were still clear in my mind when I visited the tsunami affected area.

Looking from the plane on our approach to Sendai airport north of Tokyo, we could see huge areas of flat empty land without much vegetation and life, while in some areas, new construction and rehabilitation activities emerge. As we drove from Sendai to Matsushima, we could see piles of debris of demolished buildings and industries, remnants of damaged houses and other infrastructure, such as ports and roads.



A vessel washed from the coast. (Photo credit: Vina Ram-Bidesi)

We spent the night in a Japanese style hotel, located on a hilly spot overlooking the Matsushima Bay where we hear stories of the earthquake and tsunami from hotel staff.

During the tsunami, water damaged some parts of the hotel (restaurant and bath) although it was 40m above ground level.

Farmland, industries and properties along the coastal areas were also severely damaged and destroyed by electrical fires. We were told that the tsunami warning was issued 5 minutes after the earthquake and

locals were warned to take precautions. Since earthquakes are so frequent in Japan, some people did not take the warning seriously while others did not realize the gravity of the calamity to come. Even warnings through the media were restricted as electricity was out as a result of the earthquake. In some areas, the tsunami warning was given 30 minutes before the event and this may have hindered evacuation and reaction. Preparation played a crucial role on how individuals fared during the actual disaster.

The highest death toll from this disaster was mostly the very young, the old and women. It was a cold freezing wintery afternoon and most old, young and vulnerable people were indoors and could not move quickly to higher ground. A number of people also died because of exposure to the cold immediately afterwards.

The encounters with having no water, electricity and food for days after the disaster and having to look for lost family members and relatives were depressing, overwhelmingly sad and beyond imagination.

How would I see myself caught in such a situation and would I have survived? What coping skills would help me through should a similar disaster occur where I am or live? These are the real issues one needs to integrate in any disaster preparedness programme. Besides preparing material needs, counseling and emotional healing are also important elements of post-tsunami assistance programmes.

We travelled to Kesenuma to meet with Mr. Makoto Hateyama who owns a family operated aquaculture farm. Mr Makoto belongs to a Non-Profit Organization (NPO) "*Mori wa umi no koibito*", which means "Forest is longing for the sea and sea is longing for the forest" explained by the concept of biosphere. The personal experience and courage of Mr Makoto is incredible and admirable. Being swept away by the tsunami waves into the sea, he lost contact with his family for four days and found himself on another island where he had to help put out fires. His vessels were all damaged and he lost most of his investment at his farm.

With his courage and determination, he has been able to pick up the pieces and move forward within two years as a successful farmer now cultivating scallops, mussels and oysters. He explained that the NPOs were more organized to step in to assist the devastated areas because of their social networks while government was much slower because of the bureaucracy and procedural processes that needed to be followed before assisting people. He was also able to secure some financial assistance from outside through the NPO membership to re-start his business, which has since continued to progress.

A number of local governments have given high priority to building elevated sea walls to protect the coastal areas as part of the rehabilitation work. However, in the case of Kesenuma, the focus has been on reforestation which tampers less with nature and has lower impact on the aquaculture farms in the area.



Previously occupied residential area with only selected industries allowed after re-zoning
(Photo credit: Vina Ram-Bidesi)

While many fishers have rebuilt their lives like Mr Makoto, some are too scared and have not fully recovered from the aftermath. Some have been affected psychologically and are hoping for the return of loved ones.

Others have become dependent on government support as an easy option while some have to find alternative livelihoods elsewhere because they have been displaced from their properties. The tsunami has not only brought about physical, environmental and economic changes but also major cultural and social change.



What is left after the tsunami. (Photo credit: Vina Ram-Bidesi)

The government is cautiously re-zoning the coastal areas where the impacts of the tsunami were most felt to ensure that vulnerability in such areas is minimized. As part of rehabilitation, selective industries are being built along the coastal areas while set back limits are being imposed on residential areas.



Evidence of determination to rebuild and re-construct to get life and economy back to normal. (Photo credit: Vina Ram-Bidesi)

There are indeed many lessons to learn from the stories and experiences of people affected by the tsunami. Site visit and actual observation has helped to put these experiences into perspective starting from heeding and responding to the tsunami warning signs, changing laws and regulations on land use to prioritizing the use of public funds. I have realized that disaster preparedness is much more complex and needs to be approached in a holistic and integrated manner as part of national planning by considering both short term responses and long term policy solutions simultaneously.

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## 'Perfect' food for 'perfect' prawns

Australian researchers have developed a food additive for farmed prawns that will mean prawn lovers will have access to more sustainable prawns that still taste great.

After 10 years of research, CSIRO scientists have perfected the Novacq™ prawn feed additive. Farmed prawns fed with *Novacq* grow on average 30 per cent faster, are healthier and can be produced with no fish products in their diet, a world-first achievement in sustainability.

CSIRO's Dr Nigel Preston has been working with the A\$75 million Australian prawn farming industry for over 25 years, and says this is a game changer for the industry.

"We fed *Novacq* to black tiger prawns, and it made them even better for consumers, the environment and prawn farmers," Dr Preston said.

"This is a major achievement for the sustainability of Australia's aquaculture industry as prawns fed this diet are not only a top quality product and reach market size faster, they also no longer need to be fed with any products from wild fishery resources."



Prawns fed with *Novacq* are more sustainable and a top quality product. (Credit: CSIRO)

"This means that Australian prawn aquaculture, already a world leader in sustainability and environmental management, is now set to become even better, and really solidifies aquaculture as a sustainable source of protein to help meet the ever growing demand for food."

Until now, Australian prawn farmers have needed to feed their prawns with a pellet that includes some sustainably sourced fish meal or fish oil, in order to ensure that the prawns grew fast, and were a healthy and high quality product for consumers.

"When we are talking about relieving pressure on our ocean stocks of fish, every little bit helps. *Novacq* will mean that the Australian prawn farming industry could potentially no longer be reliant on wild-caught fishery products," Dr Preston said.

CSIRO and Australian owned and based Ridley AgriProducts have announced that Ridley AgriProducts has taken a licence to produce and distribute *Novacq* in Australia and several South-East Asian countries. Mr Bob Harvey, General Manager of Aquafeed from Ridley AgriProducts said this means the Australian industry will soon have the opportunity to use the *Novacq* feed additive to boost domestic prawn farm productivity.

"We've seen this product in action and we know how great it is. We've conducted multiple laboratory-based trials, and in conjunction with CSIRO and a great customer of ours, Australian Prawn Farms, we have proven the effects of *Novacq* when commercially grown, added into a commercial prawn feed and fed to black tiger prawns in multiple full-scale commercial sized ponds," Mr Harvey said.

"Adding *Novacq* into even the best performing prawn diets on the market, we proved a significant incremental growth rate and food conversion rate improvement."

"We are really excited to now be able to start the process of commercialising *Novacq*, so that Australian prawn farmers will soon be able to benefit from it. Over the next twelve months we will be upscaling production, performing additional tests and further farm-scale trials, and then to move into full-scale commercial production."



Prawns fed with *Novacq* feed additive grow faster and are healthier. (Credit: CSIRO)

The effectiveness of *Novacq* has already been demonstrated on one Australian prawn farm, with Mr Matt West, Operations Manager of Australian Prawn Farms based at Ilbilbie in Northern Queensland, getting a chance to see the results over a period of four months, testing the feed additive on black tiger prawns.

"What I saw on my farm was a clear incremental growth compared to the high quality diets that were used as a control for the large-scale trials we recently conducted at our farm," Mr West said.

"Apart from the improved growth rate I observed, what is really exciting to me about *Novacq* is the very real possibility for Ridley to ultimately be able to produce a great performing prawn feed without using any marine sourced proteins in the diet. This will, of course, mean an even more sustainably produced prawn crop being farmed at Australian Prawn Farms."



CSIRO researchers have developed the perfect feed for prawns like the popular black tiger prawn. (Credit: CSIRO)

*Novacq* is an entirely natural food source based on the smallest organisms in the marine environment, the marine microbes which are the foundation of the marine food pyramid. It is based on over 10 years of CSIRO research to understand the natural marine microbial processes that occur in prawn farm ponds and natural marine estuaries, and the role of microbes in prawn nutrition.

Production of *Novacq* relies on the controlled production of these marine microbes. CSIRO researchers have discovered how to feed and harvest them, and convert them into a product that can then be added to feeds as a bioactive ingredient, like a dietary supplement for prawns.

Including *Novacq* in the diet of farmed prawns has shown for the first time that fish meal and fish oil can be completely replaced in the prawn diet, potentially freeing the prawn aquaculture industry from reliance on wild fishery resources. CSIRO has substantiated this through dozens of tests over the past five years, both in Australia and throughout Asia. These results were presented at the 2013 Ridley AquaFeed Australian Prawn and Barramundi Farmers Conference in Queensland.

Adapted from: <http://www.csiro.au/Portals/Media/Perfect-food-for-perfect-prawns.aspx>

## New publication on mangrove and seagrass species of Fiji launched in Suva

A new publication titled 'A field guide to the mangroves and seagrass species of Fiji' was launched in early July 2013 by the Permanent Secretary for the Ministry of Lands and Mineral Resources, Mr Tevita Boseiwaqa, at the International Union for Conservation of Nature (IUCN) Oceania office in Suva, Fiji.

The field guide was produced with the assistance of the Fiji Department of Environment, the University of the South Pacific (USP) and the IUCN Oceania – MESCAL (Mangrove Ecosystem for Climate Change Adaptation and Livelihoods) Project.



The first field guide on mangrove and seagrass species in Fiji. (Photo credit: USP)

Mangroves are known for their many contributions to not only coastal communities but also to the marine environment and ecosystem. They are home to a variety of fish, crab, shrimp and mollusk species and provide coastal protection from storm surges and high winds especially in the Pacific Islands region.

This new publication will be a useful reference guide for non-specialists or people in the community at large who are interested in learning more about mangroves and seagrasses not only in Fiji but also throughout the Pacific Islands region.

It provides an introduction to plant taxonomy concepts, an overview to the importance of mangroves and various forest/habitat types in a mangrove system, colour field photographs for identification purposes as well as information on names, uses and distribution of mangrove and seagrass species in Fiji.

According to the authors, Fiji has twelve (12) known species of mangroves and over 38,000 hectares of land covered by mangrove forests with the largest stands found in Viti Levu and Vanua Levu islands.

Like mangroves, seagrasses are flowering plants that grow mainly around coastal areas, and there are about sixty known seagrass species found worldwide. In Fiji, there are about six seagrasses that are common throughout the country which are illustrated in this new publication.

Seagrasses are a nursery grounds for prawn and fish species which are very important to the livelihood of the Pacific Islands coastal communities. They are also important in stabilizing coastal sediments and contribute to the protection of reefs.

PIMRIS congratulates the authors for this very useful resource and extends its gratitude to the International Union for Conservation of Nature (IUCN) Oceania office in Suva, Fiji for copies donated to the USP Laucala Campus libraries (main library at Upper Campus and Lower Campus Library).

(Source:[http://www.iucn.org/news\\_homepage/news\\_by\\_date/?13344/New-book-Fijis-first-mangroves-and-seagrass-guide](http://www.iucn.org/news_homepage/news_by_date/?13344/New-book-Fijis-first-mangroves-and-seagrass-guide))

## News from around the Region

### Cook Islands Marine Park gets international support

The Cook Islands Marine Park project received a major boost when a yacht was offered to assist with research activities within the newly established marine park last July.

The vessel, which belongs to the Waitt Institute and was previously used in several National Geographic expeditions, assisted with ocean research within the Cook Islands Marine Park area.

Its mission started with a three-week expedition in the Cook Islands from July 22 to August 11.

The Te Ipukarea Society (TIS) of the Cook Islands received the generous offer by the Waitt Institute to assist with the marine park project, complementing an approved financial assistance of around \$800k over a twelve month period for related activities and staff salaries from Oceans 5.

The Waitt Institute is a member of Oceans 5, a global collaborative that aims to help protect the world's oceans. They invest in and support large scale projects aimed at expanding marine reserves and limiting overfishing.

Eight Cook Islands residents were on the expedition which included members of Te Ipukarea Society (TIS), the Pacific Islands Conservation Initiative (PICI) and the National Environment Service (NES). They had a 'practice' dive before the vessel arrived. They were assisted by the yacht's professional and experienced crew of fifteen.



A team of Cook Islands researchers taking part in the July training. (Photo credit: Cook Islands News)

The research mission according to the head researcher for the local team Teina Rongo, included observation of the biodiversity and the state of the coral reef in parts of the marine park.

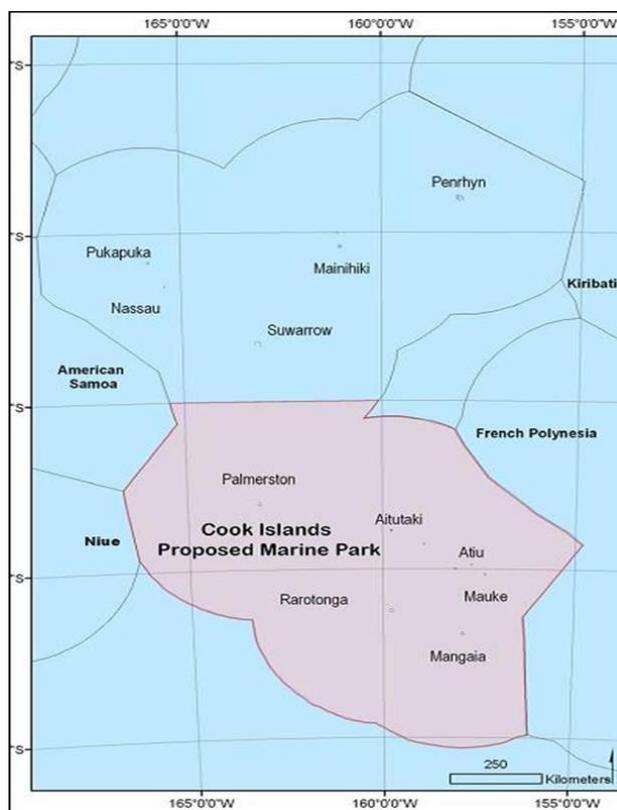
All information collected will be used in drawing up a management plan for the marine park, in addition to the results of consultations with the public.

This expedition also provided the opportunity for an updated view of the Aitutaki ocean area that was last surveyed and inspected by the Cook Islands National Environment Service.

The Cook Islands Marine Park was officially launched by Prime Minister Henry Puna at the opening of the 43<sup>rd</sup> Pacific Leaders Forum in Rarotonga in August 2012.

The establishment of this 1, 065,000 square kilometers marine park by the Prime Minister and the marine park steering committee will provide the necessary framework to promote sustainable development by balancing economic growth interests with conservation of biodiversity and natural assets in the ocean, reefs and islands.

The steering committee is made up of members of civil society and key government agencies, as well as traditional leaders. They are responsible for helping design and build support for the marine park.



A map of the proposed Cooks Islands Marine Park  
(Photo credit: waittfoundation.org)

(Source: <http://www.cookislandsnews.com/2013/July/Wed24/other.htm#1307180707>)

## FAO assists community aquaculture development in Tonga

Development of community-based milkfish farming in Tonga has been given a boost through an FAO funded project under the Food and Agriculture Organization (FAO) Technical Cooperation Programme. The project for Nomuka and Tongatapu Islands is worth USD 231,000.

The official project document was signed by the Minister for Agriculture & Food, Forests and Fisheries for Tonga, the Honourable Sangster Saulala and the FAO Sub - regional Coordinator for the Pacific Islands, Mr Gavin Wall, during the 10<sup>th</sup> Meeting of the FAO South West Pacific Ministers for Agriculture held in Apia, Samoa on 11-13 April 2013.



The Tonga Minister for Agriculture & Fisheries with the FAO Sub-regional coordinator for the Pacific Islands. (Photo credit: FAO)

The primary objective of the project is to develop commercially viable and environmentally friendly milkfish farming systems in Nomuka Island and Tonga'tapu that will result in a sustainable source of food and income for island communities in Tonga.

The project will be executed by the Fisheries Department, Ministry of Agriculture & Food, Forests and Fisheries in Tonga in cooperation with FAO.

Under the project, the viability of community - based milkfish farming systems will be demonstrated by establishing and operating two pilot aquaculture systems. This will require the identification of suitable farm sites, environmental impact analysis, construction of the farm ponds, training in farm operations and management, local feed production, post harvest handling of the fish and marketing.

The local communities will be involved in each step of the process and will receive extensive training in the operation of the farm as well as in business management. The successful implementation of the project will enhance food security in the communities of Nomuka and Tongatapu. It will also add to efforts by the Tongan government to establish viable income sources for local communities and to increase local production of nutritious food.



Milk fish farming training in Tonga in mid-September 2013. (Photo credit: Tonga Fisheries)

(Source: [www.tongafish.gov.to/](http://www.tongafish.gov.to/))

## Kiribati's new tuna deal with the European Union

Kiribati has secured a US\$1.71 million deal for 15,000 tonnes of tuna per year with the European Union. Under the agreement, the EU is now able to deploy four purse seiner and six longline vessels in Kiribati's waters.

Sources within the fisheries industry in the region say the new deal undercuts the high standards set by the Parties to Nauru Agreement (PNA) and Kiribati, a PNA member, should reconsider as the Spanish fishing industry will gain immensely compared to what PNA has established under the Vessel Day Scheme.



Tuna being loaded at sea.  
(Photo credit: [www.radioaustralia.net.au](http://www.radioaustralia.net.au))

This agreement replaces the old agreement, which expired in September last year. Under the new agreement, the EU pays an annual amount of EUR975,000 (US\$1.26 million), equivalent to a reference tonnage of 15,000 tonnes per year for access to the Kiribati EEZ and EUR350,000 (US\$453,817) to support and implement initiatives of the Kiribati sectoral fisheries policy. This is a total of US\$1.71 million. Should the total quantity of catches per year by European Union vessels in the Kiribati EEZ exceed 15,000 tonnes, the annual financial contribution shall be increased by EUR250 (US\$324) per tonne for the first additional 2,500 tonnes and by EUR300 (US\$388.98) per tonne for any further tonne above these additional 2,500 tonnes. These additional costs shall be borne by the EU with the amount of EUR65 (US\$45.38) per additional tonne and the remaining part should be paid by shipowners;

During the period covered by this protocol, the European Union and Kiribati shall ensure the sustainable use of the fishery resources in the Kiribati EEZ. The parties will undertake to promote cooperation at sub-regional level on responsible fishing and, in particular, within the WCPFC and IATTC and any other sub-regional or international organisation concerned. A spokesperson from the European Union confirmed to Islands Business that the agreement was a done deal, but the formal adoption procedures are taking place. "The protocol was signed by the European Union and the Government of the Republic of Kiribati on 9 November 2012 and 15 January 2013 respectively," he said.

"The protocol applies provisionally from 16 September 2012. The process of adoption by the EU of an international agreement in fisheries lasts approximately one year from the date of signing." The spokesperson said the new protocol does not stipulate the amount paid per vessel fishing day. "EU will also provide an annual contribution of EUR350,000 to enhance the governance and development of Kiribati's fishery sector," he said. "Apart from the EU contributions, it should be also noted that EU shipowners are subject to the payment of fishing authorisation fees under the current Protocol."

A recent report on atuna.com ([www.atuna.com](http://www.atuna.com)) states that the EU fleet would be paying US\$3600 per fishing day under this new deal, which is well below the PNA's US\$6000 per fishing day under its Vessel Day Scheme. Atuna based its calculation on the assumption that purse seiners catch an average of 32 tons each day, so it would take about 469 available fishing days to catch 15,000 tonnes.



Fishermen at sea. (Photo credit: Greenpeace)

Atuna.com is the world's leading website on Tuna Industry News. Kiribati is a PNA member and the Vessel Day Scheme is supposed to reduce catches of tuna species, while increasing the rate of return from fishing activities of foreign vessels. Under the old treaty with the EU secured in 2006, the annual catch was limited to 6,400 tonnes.

### **More involvement**

Kiribati's President Anote Tong said his country wants to be more involved in the industry itself.

He told Islands Business that by involving itself in the industry it would get them much higher returns than they were currently getting, which is about eight percent of the landed value of the catch.

"It's not enough, because the value of the fish that's being taken out is about \$400 million per annum," he said. "We want to get at least half of that, but we cannot do so by just continuing to licence. "We have to get involved in the processing and the next levels of the industry. "Once we achieve that, we would have all the resources to do a lot of things we need to do, such as building resilience against climate change."

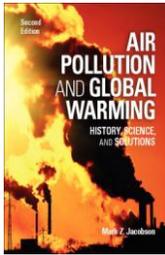
### **PNA response**

When asked whether he thought Kiribati as a PNA member was approaching the EU deal with the right attitude, PNA's Dr Transform Aqorau said PNA gives members the best possible economic outcomes to fulfill the wishes of their leaders. "They want the region and in particular the people of this region to get maximum benefits from their resources. When these values and principles are tested against the returns that are being negotiated, then you must wonder whether the people are indeed and in fact listening to what the region's political leaders are actually saying. It is known that the Kiribati-EU agreement does not follow the process agreed to through PNA. Negotiation by applying VDS as the access and monitoring tool has been followed by all other parties, and has reaped considerable dividends with fee rates higher than those derived through dealings with the EU."

Dr Aqorau said the negotiation with the EU was also a risk since the EU seeks at every turn to undermine PNA's sub-regional measures, which are often much more conservation-minded than those advanced through WCPFC. "The EU has consistently failed to adhere to WCPFC measures by exceeding high seas days and failed to adhere to the VDS. What is worse is that the EU vessels catch significantly more fish per day and fish on Fish Aggregation Devices, with no selectivity on pre-adult tunas."

More on: <http://www.islandsbusiness.com/2013/5/business/kiribatis-new-tuna-deal-with-the-eu/>

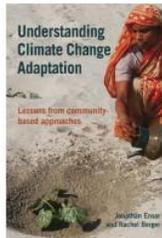
## New Additions to PIMRIS Library



**Air pollution and global warming : history, science, solutions** by Mark Z. Jacobson. 2<sup>nd</sup> ed. New York : Cambridge University Press, c2012. ISBN: 9781107021617.

This book provides a comprehensive introduction to the history and science of the major air pollution and climate problems that face the world today, as well as the energy and policy solutions to those problems.

More details: <http://www.cambridge.org/us/academic/subjects/earth-and-environmental-science/atmospheric-science-and-meteorology/air-pollution-and-global-warming-history-science-and-solutions-2nd-edition?format=PB>



**Understanding climate change adaptation : lessons from community-based approaches** by J. Ensor and R. Berger. Warwickshire, UK : Practical Action Pub., c2009. ISBN: 9781853396830.

This publication provides analysis demonstrating various climate change adaptation strategies used by communities in south Asia, Africa and Latin America and the role of social networks in accessing appropriate climate knowledge and resources as well as communicating useful approaches.

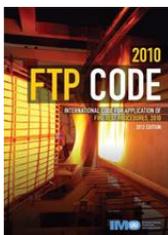
More details: <http://developmentbookshop.com/understanding-climate-change-adaptation-pb.html>



**Priority adaptation to climate change for Pacific fisheries and aquaculture: reducing risks and capitalizing on opportunities** by J. Johnson, J. Bell & C. De Young. Rome : FAO, c2013. ISBN: 9789251074473.

These proceedings present the outcome of a workshop held in Noumea, New Caledonia, 5-8 June 2012 focusing on adaptations that Pacific island countries and territories (PICTs) can implement to reduce the effects of climate change.

More details: <http://www.fao.org/docrep/017/i3159e/i3159e.pdf>



**FTP Code : International code for application of fire test procedures, 2010 : [Resolution MSC.307 (88)]** / International Maritime Organization . Maritime Safety Committee, c2012. ISBN: 9789280115482.

The 2010 FTP Code provides the international requirements for laboratory testing, type approval and fire test procedures for products referenced under SOLAS chapter 11-2.

More details:

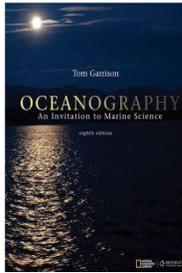
[http://www.imo.org/blast/blastDataHelper.asp?data\\_id=30476&filename=307%2888%29.pdf](http://www.imo.org/blast/blastDataHelper.asp?data_id=30476&filename=307%2888%29.pdf)



**International Convention for Safe Containers, 1972 : CSC** / International Maritime Organization. London : IMO, c2012. ISBN: 9280115464, 9789280115468.

The International Convention for Safe Containers (CSC) 1972, has two goals: to maintain a high level of safety in the transport and handling of containers by providing generally acceptable test procedures and strength requirements, and to facilitate the international transport of containers by providing uniform international safety regulations.

More details: <http://www.imo.org/Publications/Pages/Home.aspx>

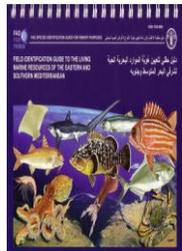


**Oceanography : an invitation to marine science** by T. Garrison. 8<sup>th</sup> edition. Belmont, CA : National Geographic Learning, c2012. ISBN: 9781111990848.

This book provides a 'basic understanding of the scientific questions, complexities, and uncertainties involved in ocean use, as well as the role and importance of the ocean in nurturing and sustaining life on the planet.'

More details:

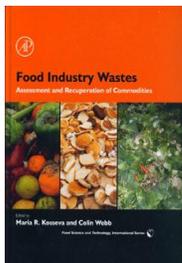
[http://books.google.com/fj/books?id=I21puAAACAAJ&source=gbs\\_ViewAPI&redir\\_esc=y](http://books.google.com/fj/books?id=I21puAAACAAJ&source=gbs_ViewAPI&redir_esc=y)



**Field identification guide to the living marine resources of the Eastern and Southern Mediterranean** by Bariche, M., Krouma, I., D'Antoni, E. Rome : Food and Agriculture Organization of the United Nations. c2012. ISBN: 9789250064505.

'This field guide covers major animal groups of the southern and eastern Mediterranean Sea, including crustaceans, molluscs, sea urchins, fishes, sea turtles, and marine mammals that can be encountered in fisheries landings, on the market, or at sea.'

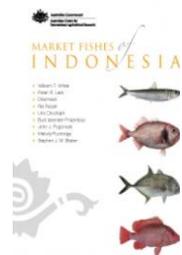
More details: <http://www.fao.org/docrep/017/i1276b/i1276b00.htm>



**Food industry wastes : assessment and recuperation of commodities** edited by M. R. Kosseva.& C. Webb. Amsterdam : Elsevier/Academic Press. c2013. ISBN: 9780123919212.

This book presents a 'variety of important aspects involved in dealing with food wastes. The main aim is to emphasize trends in food waste management techniques and processing technologies.'

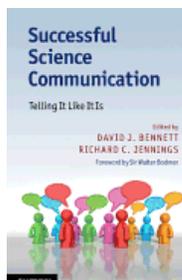
More details: <http://www.sciencedirect.com/science/book/9780123919212>



**Market fishes of Indonesia = Jenis-jenis ikan di Indonesia** by W. T. White et al. Canberra : ACIAR. c2013. ISBN: 9781921962776.

The first detailed guide to the bony fish species that are caught and marketed in Indonesia. The bilingual (English and Indonesian) layout contains information on identifying features, size, distribution and habitat of 873 bony fish species recorded during intensive surveys of fish landing sites and markets.

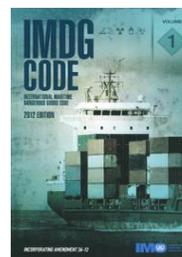
More details: <http://aciar.gov.au/publication/mn155>



**Successful science communication: telling it like it is** edited by D. J. Bennett & R. C. Jennings. Cambridge; New York : Cambridge University Press. c2011. ISBN: 9781107003323.

This guide provides a one-stop resource covering science communication in its many different forms, with chapters from successful science communicators from across the academic, commercial and media worlds.

More details: <http://www.cambridge.org/us/academic/subjects/life-sciences/life-science-professional-development/successful-science-communication-telling-it-it>



**International Maritime Dangerous Goods code : IMDG code** by the International Maritime Organization. London : IMO. Vols.1 & 2. c2012. ISBN: 9789280115611.

The amended IMDG code aims at 'harmonizing the practices and procedures followed in the carriage of dangerous goods by sea and ensures compliance with the mandatory provisions of the SOLAS Convention and of Annex III of MARPOL.'

More details:

[http://www.imo.org/Publications/Documents/IMDG%20Code/IMDG%20Code%20%28inc%20Amdt%2036-12%29/II200E\\_pages.pdf](http://www.imo.org/Publications/Documents/IMDG%20Code/IMDG%20Code%20%28inc%20Amdt%2036-12%29/II200E_pages.pdf)

## Conference & Meeting Notices

- 5 - 11 Oct 2013      **Secretariat of the Pacific Community (SPC) – Meeting of the Applied Geoscience and Technology Division (SOPAC)**, Rarotonga, Cook Islands.
- 22 – 24 Oct 2013    **Meeting of the Pacific Islands Maritime Association (PacMA)**, Secretariat of the Pacific Community, Suva, Fiji.
- 23 – 24 Oct 2013    **Forum Fisheries Agency (FFA) - FFC Subcommittee on South Pacific Tuna Billfish (SC-SP TBF)**, FFA Honiara, Solomon Islands.
- 1 Nov 2013          **Special 87<sup>th</sup> Forum Fisheries Committee Meeting**, Forum Fisheries Agency, Honiara, Solomon Islands.
- 18 – 19 Nov 2013    **Secretariat of the Pacific Community (SPC) 8<sup>th</sup> Meeting of the Conference of the Pacific Community**, Suva, Fiji.
- 22 – 27 Nov 2013    **Special 88<sup>th</sup> Forum Fisheries Committee Meeting**, Cairns, Queensland, Australia.
- 2 – 6 Dec 2013      **Western & Central Pacific Fisheries Commission (WCPFC) 10<sup>th</sup> Annual Session**, Cairns Convention Centre, Queensland, Australia.