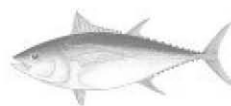


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## *Editorial*



New Year Greetings to all our readers as we bring you this first issue for 2011. So much has happened in the last few months with news of natural disasters dominating the headlines. The impact of climate change and the frequency of natural disasters were experienced all over the world, including our small fragile environments. The earthquake in Christchurch, New Zealand and the 8.9 magnitude earthquake in Japan that triggered a massive tsunami caused considerable damage to property and huge loss of life. Our region has had its fair share of disasters but climate change impact on our coastal areas and livelihoods remains critical.

This issue of our newsletter hopes to raise awareness and inform readers of ongoing regional, national and community projects and initiatives relating to climate change (p.10). Last month, the SPC-coordinated annual 'Heads of Fisheries' meeting in Noumea, New Caledonia discussed issues and concerns relating to the impact of climate change to fisheries (p.3) in the region. The same concern is shared by the Coral Reef Studies – ARC Centre of Excellence (p.4) and the South Pacific Regional Environmental Programme (SPREP) as highlighted in its recently published report on Pacific marine biodiversity (p.8).

PIMRIS' recently expanded its collection to include climate change information materials. Sharing of these resources with network members is made possible through ongoing collaboration and financial support of various international and regional organizations, including USP. In March, the PIMRIS Coordinator participated in the IODE 50<sup>th</sup> Anniversary International Conference and 21st Session in Liège, Belgium as coordinator of the ODIN-PIMRIS project; a summary of her report is included (p.9). All the best for 2011!

Susana Macanawai, PIMRIS Coordinator

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Rising sea levels are a threat to our coastal areas  
(Image source: Google Images)

## 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.

For additional information contact the Coordination Unit or a specific agency.

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## New Faces, New Places

### **Farewell Peter!**

In January this year, Peter Murgatroyd – Manager for PEIN/Library/ Information Centre at SPREP, Apia, Samoa and an active member of the PIMRIS network resigned from his



position to return to Auckland, New Zealand. PIMRIS extends its heartfelt thanks to Peter for his invaluable contributions to the network and the region. Fa'afetai lava and all the best!

### **Talofa Olofa!**

We welcome Olofa Tuaopepe who has replaced Sapeti Tiitii as PIMRIS contact at the Fisheries Division, Samoa.



Olofa is Principal Fisheries Officer with the Advisory Section and co-ordinates the Community Based Fisheries Management Programme that establishes marine/fish reserves and

conservation in local villages. Olofa is a graduate of the University of the South Pacific.

### **PIMRIS Coordination Unit**

The PIMRIS Coordination Unit welcomes back Sanjani Lata as its part-time Junior Library Assistant. She replaces Mereoni Rakikau who has returned to the main library at the Upper Laucala Campus.

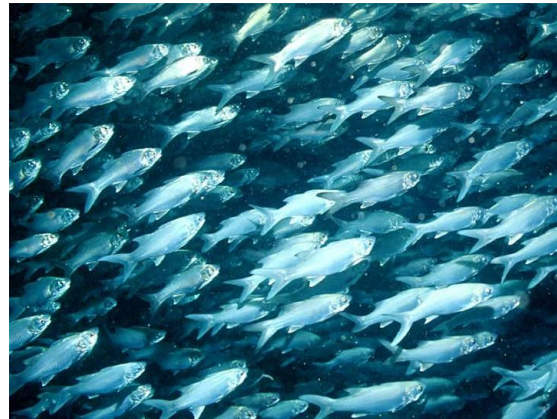
The rotation of library assistants within Laucala Campus libraries and sections helps to develop skills and provides work experience for all part-time and full time Library Assistants.

We look forward to working with you all in 2011!



## Climate change may halve Pacific Islands coastal fish catches

Heads of Pacific Islands' fisheries agencies heard today that climate change is predicted to cause big declines in coastal fisheries resources in the region, with potential production cut by as much as 50% by 2100. Higher sea temperatures, ocean acidification, and loss of important habitats like coral reefs, seagrass beds and mangroves are projected to have a drastic impact on the inshore resources that support many coastal communities, according to Dr Morgan Pratchett who spoke at the SPC Heads of Fisheries meeting on the vulnerability of coastal fisheries to climate change.



Schooling threadfin, a coastal species  
(Source: Wikipedia)

Impacts on mariculture – the farming of saltwater fish and shellfish – are also expected to be negative. Pearl culture – the most valuable aquaculture in the region – is expected to suffer as rising levels of carbon dioxide cause the ocean to become more acidic and make it harder for the pearl oysters to form their shells. Seaweed farming is also likely to be hit as higher water temperatures increase the risk of disease.

Some of the expected impacts are positive, however. Freshwater fisheries in countries near the equator could potentially become more productive as a result of increased rainfall. Freshwater aquaculture of fish like tilapia could also benefit from increased freshwater availability and higher temperatures.

For the region's largest fishery, tuna, the projected impacts of climate change are mixed. Models of the abundance and distribution of skipjack (the most plentiful tuna in the region) were presented by Dr Patrick Lehodey. These suggest some increase in production potential over the next 25 years, but a small reduction in the longer term. The best fishing grounds are also expected to shift generally eastwards, with countries in Polynesia the main winners. For bigeye, the most valuable of the four tunas in the region which is already subject to overfishing, the projections are less promising. Again the population is expected to shift to the east, but climate change is expected to cut production in all Pacific Island countries by 2100.

While there are always great uncertainties in forecasting the impacts of climate change on complex physical and biological systems, these results come from a thorough study of the vulnerability of Pacific Islands fisheries carried out by an international team of experts over the past three years. They represent the best and most up-to-date assessments available.

In looking at these long term impacts, the meeting was urged not to lose sight of the more immediate needs for improved management of fisheries and fisheries habitats. For coastal fish, protection of coral reefs, mangroves and seagrass from other causes of damage and avoiding overfishing provide the best chance of these systems being able to adapt to climate change. For freshwater fisheries, the potential positive impact of climate change will rely on good management of the watersheds; and, as WCPFC Executive Director Professor Glenn Hurry reminded the meeting – without effective management to maintain the region's tuna resources, fisheries will decline well before the time frame used in climate change predictions.

"We need to look for win-win solutions that give both short and longer term benefits" emphasized SPC fisheries and climate change adviser Dr Johann Bell. He pointed out that good management of coastal resources, improving access to tuna for coastal populations, and the development of freshwater aquaculture were steps that produce immediate benefits in terms of food security for a growing population, as well as helping to adapt to climate change. Heads of Fisheries were also reminded that action to reduce greenhouse gas emissions at all levels is needed to mitigate climate change impacts.

For further information contact Johann Bell, [JohannB@spc.int](mailto:JohannB@spc.int)

(Source: <http://www.spc.int/en/component/content/article/216-about-spc-news/683-climate-change-may-halve-pacific-islands-coastal-fish-catches.html>)

## Extinction predictor 'will help protect coral reefs'

More than a third of coral reef fish species are in jeopardy of local extinction from the impacts of climate change on coral reefs, a new scientific study has found.

(Local extinction refers to the loss of species from individual locations, while they continue to persist elsewhere across their range.)

A new predictive method developed by an international team of marine scientists has found that a third of reef fishes studied across the Indian Ocean are potentially



*Image source: Indosight website*

vulnerable to increasing stresses on the reefs due to climate change. The method also gives coral reef managers vital insights to better protect and manage the world's coral reefs, by showing that local and regional commitment to conservation and sustainable fisheries management improves prospects for coral recovery and persistence between storms and bleaching events.

The team applied their 'extinction risk index' to determine both local and global vulnerability to climate change and human impacts. They tested the method by comparing fish populations before and after the major 1998 El Nino climate event which caused massive coral death



and disruption across the Indian Ocean.

In all, 56 of the 134 coral fish species studied were found to be at risk from loss of their habitat, shelter and food sources caused by climate change. Those most in jeopardy were the smaller fishes with specialised eating and sheltering habits. Because most of these species have wide geographic ranges and often quite large local populations, few were at particular risk of global extinction.

“The loss of particular species can have a critical effect on the stability of an entire ecosystem – and our ability to look after coral reefs depends on being able to predict which species or groups of fish are most at risk,” explains lead author Dr Nick Graham of the ARC Centre of Excellence in Coral Reef Studies and James Cook University. “Until now, the ability to do this has been fairly weak.”

“For example, we know that the loss of seaweed-eating grazing fishes can lead to coral reefs which have suffered some other form of disturbance being replaced by weeds. Protecting these fish, on the other hand, gives the corals a much better chance to recover.

“Where there is a widespread death of corals from a climate-driven event such as bleaching, the fish most affected are the ones that feed or shelter almost exclusively on coral. However when corals die off and the reef structure collapses, small reef fish generally are much more exposed to predators.

“By understanding which species and groups of fish are most at risk, we can better manage coral reefs and fish populations to ensure their survival in times of increasing human and climate pressure,” adds Dr Shaun Wilson of the Western Australian Department for Environment and Conservation.

The study does, however, offer encouragement by showing that the fish most at risk from climate change are seldom those most at risk from overfishing or other direct human impacts, pointing to scope to manage reef systems and fishing effort in ways that will protect a desirable mix of fish species that promote ecosystem stability.



*A healthy coral reef. (Image source: Google Image)*

“Critically, the species of fish that are important in controlling seaweeds and outbreaks of deleterious invertebrate species are more vulnerable to fishing than they are to climate change disturbances on coral reefs. This is encouraging, since local and regional commitment to fisheries management action can promote coral recovery between disturbances such as storms and coral bleaching events,” explains Dr Wilson.

They conclude that identifying the fish species most at risk and most important to ecosystem stability and then managing coral reefs to maintain their populations will help ‘buy time’ while the world grapples with the challenge of limiting carbon emissions and the resulting climate change.

The team adds that their novel approach to calculating extinction risk has wider application to conservation management beyond coral reef ecosystems and can readily apply to other living organisms and sources of stress.

Their paper “Extinction vulnerability of coral reef fishes” by Nicholas A. J. Graham, Pascale Chabanet, Richard D. Evans, Simon Jennings, Yves Letourneur, M. Aaron MacNeil, Tim R. McClanahan, Marcus C. Öhman, Nicholas V. C. Polunin and Shaun K. Wilson appears in the latest issue of the journal *Ecology Letters*.

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<http://www.coralcoe.org.au/>

(Source: [http://www.coralcoe.org.au/news\\_stories/extinctionrisk.html](http://www.coralcoe.org.au/news_stories/extinctionrisk.html))

## **Fisheries experts agree on first global guidelines on reducing fishing discards**

*Problem may involve over 20 million tonnes of fish and other animals annually.*

The first [global guidelines for bycatch management and reduction of fishing discards](#) were released today by the UN's Food and Agriculture Organization. They now go to the Committee on Fisheries for endorsement when it meets in Rome at the end of the month. The guidelines were agreed by fisheries experts from 35 countries who met at FAO last month.



*Fishers need new ways to catch only target fish*

The guidelines cover all types of bycatch including discards, that is, fish that are caught accidentally and then thrown back into the sea either dead or dying. Unmanaged bycatch and discards threaten the long term sustainability of many fisheries and adversely affect the livelihoods of millions of fishers and fish workers.

Bycatch may also include endangered species, juvenile fish, turtles, seabirds, dolphins and so on.

Depending on the definition used, current bycatch may be in excess of 20 million tonnes a year. In some countries, bycatch has an economic value and is consumed, making it hard to estimate the scale of the wastage.

"These are the first guidelines to cover all species encountering fishing gear," said FAO fishing technology expert Frank Chopin. "The guidelines extend the principles of fishery management to all species and all areas of concern. Although the Code of Conduct for Responsible Fisheries refers to bycatch and discards, these guidelines elaborate more clearly how countries should address bycatch and discard problems in practice". He noted that the bycatch guidelines had been requested by the countries themselves and are another important step towards applying an ecosystem approach to fisheries management.

The guidelines cover bycatch management planning, improvement of fishing gear, fisheries closures, economic incentives to facilitate uptake of measures, monitoring, research and development, building the capacity of states to follow the guidelines and other relevant issues.

Chopin said care had been taken so that the guidelines would not place an undue burden on poor artisanal fishers and on developing states. "The guidelines emphasize doing an assessment of the situation first to see if there is a problem. The social, economic and biological impacts of applying these guidelines need to be studied in each case," he said.

(Source: <http://www.fao.org/news/story/en/item/49486/icode/>)

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## **Support for climate change adaptation core of first World Bank strategy for Kiribati**

**Washington, DC, March 1, 2011** - The World Bank Board today approved the first Country Assistance Strategy for Kiribati. The strategy, which was developed in consultation with government, donors and civil society, puts climate change at the centre of the three-year plan.

With 33 atoll islands, spread across an area the size of India, Kiribati is one of the most remote and geographically dispersed countries in the world. Its' inhabited atolls lie only a few meters above sea level, making the country highly vulnerable to impacts from climate change and natural disasters. Already the effects of rising sea-levels and associated soil salination are starting to threaten limited fresh water supplies.

Reflecting Kiribati's vulnerability to climate change and natural disasters, the core of the World Bank Group's Country Assistance Strategy will be to support the Kiribati government on climate change adaptation measures. This will include supporting the government to manage groundwater reserves, managing coastal areas, improving rainwater collection, and developing new sources of water.

*More information :*

<http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:22846487~pagePK:34370~piPK:34424~theSitePK:4607,00.html>

## Outlook report on the state of the marine biodiversity in the Pacific Islands region

An Outlook Report on the State of the Marine Biodiversity in the Pacific Islands Region is now available. The report provides a clear overview of key areas of the marine ecosystems contained within a combined Regional EEZ of approximately 29 million km<sup>2</sup>.

Major marine environmental issues identified in the Pacific Islands region include impacts from environmental change, habitat loss and the effects of coastal modification, invasive species, fishing pressure as well as land based marine pollution.

The Pacific islands report provides a summary of pressures, state and responses to these threats for the Pacific Islands region as well as the responses by our Pacific islands countries and territories.

Published by the Secretariat of the Pacific Regional Environment Programme (SPREP), it is hoped that by identifying a common set of indicators in this report we could see the replication of positive responses and approaches utilised by different regions in addressing these issues.

“The report has been prepared by SPREP for the UN Environment Programme (UNEP) and the UNEP World Conservation Monitoring Centre as part of a global assessment by the UNEP Regional Seas Programme. It is a very concise overview of the available data on a number of indicators that reflect the current state of regional marine biodiversity,” said Stuart Chape, Programme Manager - Island Ecosystems, SPREP.

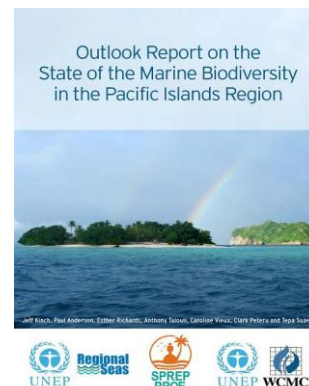
“It looks at the pressures on our marine biodiversity, the current state of key areas and the response that is being undertaken at all levels – in our community as well as on a national and regional level.”

The report concludes that the lack of human, technical, institutional and financial capacity in the Pacific Island Countries and Territories is a key factor in environmental management. Lack of capacity leads to poor monitoring and highlights the need to build capacity and provide appropriate resources and funding for data collection, management and analysis for environmental monitoring in the Pacific Islands region.

“The 2010–2015 SPREP Strategic Plan identifies Environmental Monitoring as a strategic priority for SPREP and the region over the next five years,” said Mr Chape. “We are aware of the importance of marine biodiversity to the Pacific way of life, including livelihoods. In order for SPREP to strengthen the role of Environmental Monitoring in our region, securing appropriate funding and other resources are top priority.”

The contents of the report include a chapter on “Pressures” which covers Fish Stocks, Nutrient Loading, Port Activity, Sea Surface Temperature and CO<sub>2</sub> Flux. The second chapter on State encompasses information on Mean Trophic Index, Marine Fauna – Red List and Acidification. The responses to these issues lies in the Chapter on Response which covers the Fish Stock Agreements, Global Programme of Action (GPA) Implementation, National Adaptation Programmes of Action for Climate Change, Marine Protected Area establishment and Ballast Water Regulations.

(Source: [http://www.sprep.org/att/publication/000890\\_Kinchetal\\_2010\\_MarineBiodiversityOutlookReport\\_SPREP\\_UNEP\\_WCMC.pdf](http://www.sprep.org/att/publication/000890_Kinchetal_2010_MarineBiodiversityOutlookReport_SPREP_UNEP_WCMC.pdf))





## **PIMRIS Coordinator participation at the IOC - IODE 50<sup>th</sup> Anniversary Conference and 21<sup>st</sup> Session**

*21-26 March 2011, Liège, Belgium*

Susana Macanawai, Coordinator PIMRIS (& ODIN-PIMRIS)



**Far left:**  
*IODÉ XXI  
Session  
Participants*

**Left:**  
*PIMRIS  
Coordinator  
beside the  
IODÉ 50<sup>th</sup>  
Anniversary  
Conference  
Banner*

The PIMRIS Coordinator was invited by the IODE Project Office to participate in the IODE 50<sup>th</sup> Anniversary Conference and 21<sup>st</sup> Session in Liege, Belgium in late March 2011 in her capacity as the coordinator of ODIN-PIMRIS project funded by the IODE Office in Oostende, Belgium. A report on the activities of the ODIN-PIMRIS pilot project phase was also presented at the meeting, summarizing achievements and challenges of the period 2008-2009 as well as proposed plans for the period 2011-2013.

As this was the coordinator's first time to participate in an IODE Conference and Session it provided an opportunity to know more about the IODE and its activities, discover the vast array of fisheries/marine information and data sources available, learn from other similar project experiences and add new friends to the network for possible future exchange and expert advice.

While the conference and sessions provided invaluable experience, the surroundings and temperatures were typical of Europe. The easily accessible meeting venue is located alongside a large river frequently used by long boats and next to buildings with interesting architectural features. The quiet surroundings are disturbed only by the sirens of police vehicles and ambulances.

Arrival in Liege (Belgium) after an hour's train ride (and a train change) from Brussels airport was indeed a very cold welcome with the temperature just above freezing. Although the 24 hour journey to get there was tiring, the excitement of participating in an international conference and meeting attended by representatives and experts from more than 40 different countries, provided the much needed energy to go through the week-long event and interesting programme.

PIMRIS, through the ODIN-PIMRIS project, is grateful for the IODE Project Office's continuous support and financial assistance to improve regional access to marine/fisheries information and to develop the capacity of Pacific Islands library and information centre staff through information skills training. Merci beaucoup.

## News from around the Region

### Conservation planning at local and national scales

WCS-Fiji is involved in two projects in collaboration with researchers from the [ARC Centre of Excellence for Coral Reef Studies](#) at James Cook University. The first project is using field monitoring data on target fish species abundance and actual catch locations and amounts to model optimum designs for marine protected area networks in Kubulau District, Vanua Levu, that minimize economic loss (aka opportunity costs) to fishers.

The second project is assessing the feasibility of using conservation planning to complement existing community-based management efforts through the Fiji Locally Managed Marine Area (FLMMA) network to achieve national scale conservation goals. The work complements ongoing efforts of the national Protected Area Committee to prioritize areas for biodiversity conservation in Fiji.

(Source: <http://www.wcsfiji.org/Research/tabid/3434/Default.aspx>)

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### New Ireland mine ordered shut after toxic spill

*Cyanide from Allied Gold's Simberi mine killing marine animals*

*By Harlyne Joku*

PORT MORESBY, Papua New Guinea (PNG Post-Courier, March 9, 2011) - The Department of Environment and Conservation (DEC) has ordered Allied Gold limited, operator of the Simberi Gold/Copper mine in the New Ireland Province, to shut down its mill plant following a cyanide spill from one of its deep sea tailings disposal tanks last Tuesday.

Simberi Gold mine is located on Simberi Island, 135 kilometers [84 miles] east of Kavieng town.

The islanders are claiming that fish, turtles, dugongs, whales and other marine life are dying as a result of the cyanide in the water.

The mine is using the Deep Sea Tailings Placement System to dispose its waste and has reported to DEC that there is a leakage in one of the tailings tank in the sea. Secretary of DEC Dr. Wari Iamo confirmed the incident yesterday evening.

He said Allied Gold had reported to DEC about the incident on March 2 and that they were trying to contain the spill.

DEC officers moved in swiftly and instructed the mine to shut down its mill plant until further investigation and instructions.

"The company has also been instructed to provide an incident report to DEC so we can be able to assess the situation and take necessary action including prosecution if there was negligence on the part of the company," Dr. Iamo said.

Meanwhile, fish, whales, turtles and dugongs are dying as a result of the spill, the Deputy Provincial Administrator of New Ireland Province Ms Veronica Jigede also confirmed yesterday.

Jigede said the provincial government has sent several officers to the islands to verify the report.

She said they have taken photographs of dying fish and other marine life.

Jigede said they had received unconfirmed reports that the impact of the spill has extended to neighboring Tatau and Big Tabar Islands and that two workers have been hospitalized.

Jigede said the locals have expressed anger over the accident saying they do not want to be treated like guinea pigs in testing out the Deep Sea Tailings Disposal system (DSTD).

(Source: <http://pidp.eastwestcenter.org/pireport/2011/March/03-10-04.htm>)

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## Rising sea water threatens village

*Maciu Malo*

A coastal village in Ra continues to be threatened by rising sea waters.

Navolau No.1 village headman Sireli Naivava said the sea swells had damaged the village sea wall and there were fears homes near the shoreline would suffer the same fate soon.



*Waisake Lalanabaraavi during the tikina meeting at Navolau No.2 village in Rakiraki. (Photo credit: Baljeet Singh)*

The issue was brought up for discussion at the tikina Navolau meeting held at Navolau No.2 village last week. Mr Naivava said the matter was raised in previous council meetings but nothing had been done. While waiting for assistance, Mr Naivava said the villagers planted 2,000 mangrove plants along the coast. Mr Naivava said the village planned to plant 8,000 more mangrove trees.

"These mangrove trees will at least help in preventing the rise in sea level," he said. "We have nowhere else to move as we are surrounded by mountains and sea on all sides of the villages." "The old sea wall in the village is broken and we are really concerned about our safety."

At the meeting, Mr Naivava requested the provincial office and other Government departments to assist the village in the construction of a new sea wall. Roko Tui Ra Sakiusa Karavaki said they had taken note of the concerns raised by Mr Naivava and would work closely with the Government in trying to meet the request made by Navolau villagers.

"We have a five-year development plan and all queries raised in this meeting will be looked into during these five years," said Mr Karavaki.

Meanwhile, Mr Naivava also commended the youths of the village for their efforts in the planting of 1000 pineapple plants. "This is one of the few projects targeted by our youths and there are plans to involve our youths in community service," he added.

(Source: *The Fiji Times online*)

## 37,000 mangroves for Kiribati

Over 37,000 mangrove seedlings have recently been planted on the islands of Aranuka, Butaritari, Maiana, Makin and in North and South Tarawa.

The seedlings were planted through an activity funded by KAPII (Kiribati Adaptation Program Phase II) under the supervision of the Government of Kiribati's Environment and Conservation Division.

Turang Favae, Acting Biodiversity and Conservation Officer at the Environment and Conservation Division says, "First and foremost it contributes to the building of coastlines and protects our shores against coastal erosion." Mangroves, although considered a 'soft' option when compared to seawalls, can be one of the most effective forms of coastal protection that in addition provide a range of other benefits.



Planting mangroves on the atoll of Tarawa.

(Source: World Bank website)

*"We see mangroves as an important habitat for marine life that use the mangroves as their homes. In that sense mangrove ecosystems are important to the marine species that we depend on for our livelihoods," says Mrs. Favae. "They also contribute to the natural carbon dioxide cycle, act as buffers to storm surges and sea sprays and help filter nutrient runoff from land as mangrove roots absorb these nutrients and reduce pollution impacts on the sea."*

Dr. Helene Jacot Des Combes, of the Pacific Centre for Environment and Sustainable Development at the University of the South Pacific, Suva, sees mangroves as a coastal protection option that can go beyond government and into the hands of the people.

*"It is a solution that is not as costly as others and it can be done by the community, there is no real maintenance required and it profits the community by providing extra food and fire wood,"* says Dr. Jacot Des Combe.

Community involvement in the planting is indeed central to the planting programme implemented in Kiribati confirms Mrs. Favae. *"The importance of engaging the community is to gain their full support in the management of the mangroves themselves. We encourage and practice mangrove planting with communities, youth groups and school students so they can see the importance of planting and gain a sense of ownership to look after and manage the mangroves."*

The Government of Kiribati has long recognised the importance of healthy coastal ecosystems and well managed coastal protection. Mangrove planting is seen to support these national aims that are outlined in both the 2008-2011 Kiribati Development Plan (KDP) and the 2006-2010 Kiribati National Biodiversity Strategy Action Plan (NBSAP).

More information:

<http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0..contentMDK:22871309~pagePK:34370~piPK:34424~theSitePK:4607,00.html>



## New Additions to PIMRIS Library



**Climate change and food security: adapting agriculture to a warmer world** / edited by Lobell, David B.; Burke, Marshall. 1<sup>st</sup> ed. Dordrecht, Netherlands: Springer, c2010. ISBN: 978-90-481-2952-2.

This book aims to resolve some of the controversy by exploring and comparing the different methodologies and data that scientists use to understand climate's effects on food security. It explains the nature of the climate threat, the ways in which crops and farmers might respond, and the potential role for public and private investment to help agriculture adapt to a warmer world...*(Source: Springer website).*



**Life saving appliances (LSA code)** by International Maritime Organization. London: IMO, c2010. ISBN: 9789280151435.

This publication contains the three most important IMO instruments dealing with life-saving appliances, namely the International Life-Saving Appliance (LSA) Code, the Revised Recommendation on Testing of Life-Saving Appliances and the Code of Practice for the Evaluation, Testing and Acceptance of Prototype Novel Life-Saving Appliances. The International Life-Saving Appliance (LSA) Code was adopted by IMO's Maritime Safety Committee (MSC) at its 66th session (June 1996)...*(Source: IMO website)*



**Coral bleaching: photosynthetic impacts on symbiotic dinoflagellates - coral reefs and climate change** by Ross Hill. Saarbrücken, Germany: VDM Verlag, c2008. ISBN: 9783639114799.

Global climate change is leading to the rise of ocean temperatures and is triggering mass coral bleaching events on reefs around the world. The expulsion of the symbiotic dinoflagellate algae from the coral host is believed to occur as a result of damage to the photosynthetic apparatus of these symbionts, although the specific site of initial impact has not been identified. This book provides evidence of impacts to a number of sites within the light reactions of photosynthesis and evaluates the efficiency of photoprotective heat dissipating pathways...*(Source: Amazon.com)*



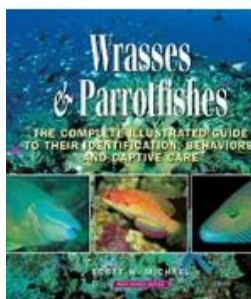
**Biological clock in fish** by Ewa Kulczykowska, Włodzimierz Popek, B.G. Kapoor (editors). Boca Raton, FL: Taylor and Francis, c2010. ISBN: 9781578086757.

Each organism has its own internal biological clock, which is reset by environmental cues (Zeitgebers), thus keeping it synchronized with the external environment. It is a chemically based oscillating system within cells, relying on molecular feedback loops. Circadian biological clocks exist in most organisms. What is so special about the clock in fish? Where is it located in the retina? inside the brain? in the pineal? What is the molecular basis of its function? How is the clock able to keep time in the absence of environmental cues?...*(Source: Amazon.com)*



**Tourism and climate change: risks and opportunities** by Susanne Becken and John Hay. Clevedon, UK: Channel View Publications, c2007. ISBN: 9781845410667.

The book provides a comprehensive discussion of the latest knowledge in the field of tourism and climate change. It is aimed at tourism practitioners and those with an academic interest in the fields of tourism management and climate change mitigation, adaptation and policy... (Source: [barnesandnoble.com](http://barnesandnoble.com))



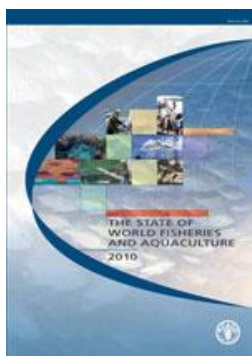
**Wrasses & parrotfishes: the complete illustrated guide to their identification, behaviors, and captive care** by Scott W. Michael. Neptune City, NJ : T.F.H. Publications, c2009. ISBN: 1890087440.

This groundbreaking guide provides authoritative coverage of popular and rare species that are among the most sought-after in the aquarium world. In addition to the illustrations, tip boxes, charts, and sidebars, the book contains over 500 world-class, full-color photos among them more than 375 new identification photographs (species, color morphs, geographical variants, and juvenile forms) including many rare and newly discovered fishes...(Source: [Amazon.com](http://Amazon.com))



**Methodological workshop on the management of tuna fishing capacity : stock status, data envelopment analysis, industry surveys and management options** edited by William H. Bayliff, Jacek Majkowski. Rome: FAO, c2007. *FAO Fisheries Proceedings*. No. 8.

These Proceedings include the report and papers presented at the Methodological Workshop on the Management of Tuna Fishing Capacity: Stock Status, Data Envelopment Analysis, Industry Surveys and Management Options. The Workshop was hosted by the Inter-American Tropical Tuna Commission (IATTC) in La Jolla, California, United States of America, from 8 to 12 May 2006. (Source: [FAO website](http://FAO website))



**The state of world fisheries and aquaculture** by Food and Agriculture Organization Fisheries Department. Rome: FAO, c2010. <http://www.fao.org/docrep/013/i1820e/i1820e00.htm>

The State of World Fisheries and Aquaculture (SOFIA) is the flagship publication of the FAO Fisheries and Aquaculture Department. This premier advocacy document is published every two years to provide policy-makers, civil society and those whose livelihoods depend on the sector a comprehensive, objective and global view of capture fisheries and aquaculture, including associated policy issues. (Source: [FAO website](http://FAO website)).

## New Publications – Pacific Related

### Journal Articles

Adams VM, Mills M, Jupiter SD & Pressey RL (2010). **Improving social acceptability of marine protected area networks: a method for estimating opportunity costs to multiple gear types in both fished and currently unfished areas.** *Biological Conservation*. DOI: 10.1016/j.biocon.2010.1009.1012

Brander K (2010). **Impacts of climate change on fisheries.** *Journal of Marine Systems*, Vol. 79, Iss. 3-4, pp. 389-402. DOI: 10.1016/j.jmarsys.2008.12.015

David G, Leopold M, Dumas PS, et al. (2010). **Integrated coastal zone management perspectives to ensure the sustainability of coral reefs in New Caledonia.** *Marine Pollution Bulletin*, Vol. 61, Iss. 7-12, pp. 323-334. DOI: 10.1016/j.marpolbul.2010.06.020

Jenkins AP, Jupiter SD, Qauqau I, et al. (2010). **The importance of ecosystem-based management for conserving aquatic migratory pathways on tropical high islands: A case study from Fiji.** *Aquatic Conservation Marine and Freshwater Ecosystems*, Vol.20, Iss.2, pp. 224-238. DOI: 10.1002/aqc.1086

Jupiter SD, Egli DP (2011). **Ecosystem-based management in Fiji: Successes and challenges after five years of implementation.** *Journal of Marine Biology*. DOI: 10.1155/2011/940765

Nunn PD (2011). **Disruption of coastal societies in the Pacific Islands from rapid sea-level fall about AD 1300: New evidence from northern Viti Levu Island, Fiji.** *Journal of Coastal Conservation*. DOI: 10.1007/s11852-010-0142-z.  
<<http://www.springerlink.com/content/g77q61200743g877/>>

### Reports/Guidelines/Books

**Pacific food security toolkit: building resilience to climate change : root crop and fishery production** / Food and Agriculture Organisation. Rome: FAO, 2010.  
[http://www.faopacific.ws/Portals/167/publications/Reports/Pacific\\_toolkit\\_web\\_03.pdf](http://www.faopacific.ws/Portals/167/publications/Reports/Pacific_toolkit_web_03.pdf)

**WCS-Fiji marine biological monitoring handbook** by the Wildlife Conservation Society. Version 3.1. Suva, Fiji: Wildlife Conservation Society, 2010. 34 pp.

**Principles and practice of ecosystem-based management: a guide for conservation practitioners in the tropical western Pacific** by Pepe Clarke and Stacy Jupiter. Suva, Fiji: Wildlife Conservation Society. ISBN: 9789829120021.

## Conference & Workshop Notices

- |                   |   |
|-------------------|---|
| 24 – 31 Mar 2011  | <p><b>The 5<sup>th</sup> International Conference on Community Based Adaptation (CBA) to Climate Change.</b> Dhaka, Bangladesh.</p> <p>Website: <a href="http://www.iied.org/climate-change/key-issues/community-based-adaptation/cba-conference-2011">http://www.iied.org/climate-change/key-issues/community-based-adaptation/cba-conference-2011</a></p>   |
| 4 -5 Apr 2011     | <p><b>International Conference: 'It's not just about the fish' – Social and Cultural Perspectives of Sustainable Marine Fisheries'</b>, Greenwich, London, UK. Website: <a href="http://www.gre.ac.uk/sci/conf/fisheries">www.gre.ac.uk/sci/conf/fisheries</a></p>  |
| 4 – 8 Apr 2011    | <p><b>Greenhouse 2011.</b> Conference is the latest in a series organized by CSIRO. Aimed at scientists and representatives from industry and government involved in the research and application of climate change science. Website: <a href="http://www.greenhouse2011.com">www.greenhouse2011.com</a></p>  |
| 10 May 2011       | <p><b>"Symposium: How can stable isotopes inform ecosystem based management?"</b> Identifying ways in which information and knowledge about food webs obtained from stable isotopes can be best integrated into ecosystem-based management. Fremantle, Western Australia. Website: <a href="http://www.csiro.au/org/Stable-Isotope-Symposium.html">http://www.csiro.au/org/Stable-Isotope-Symposium.html</a></p>  |
| 16 – 19 May 2011  | <p><b>62<sup>nd</sup> Tuna Conference</b>, Lake Arrowhead Conference Center, California, USA. Website: <a href="http://www.tunaconference.org">http://www.tunaconference.org</a></p>  |
| 19 – 21 May 2011  | <p><b>ICCAFFE2011</b> : Climate Change, Agri-food, Fisheries and Ecosystems. Reinventing Research, Innovation and Policy Agendas for Environmentally- and Socially-Balanced Growth. Agadir (Morocco). Website: <a href="http://nrncs.webnode.com/scientific-events/iccaff2011/">http://nrncs.webnode.com/scientific-events/iccaff2011/</a></p>  |
| 3 – 7 June, 2011  | <p><b>"Reef Resilience and Responding to Climate Change".</b> This is a workshop for trainers from throughout the Western Pacific to learn about building resilience into reef management and the tools available for addressing the impacts of climate change. Koror, Palau. Website: <a href="http://www.reefresilience.org/Training_of_Trainers.html">www.reefresilience.org/Training_of_Trainers.html</a></p> |
| 14 – 17 June 2011 | <p><b>"22nd Asia Pacific Science Congress".</b> Focusing on countries bordering the Pacific Ocean and the islands of the Pacific basin. Kuala Lumpur, Malaysia. Website: <a href="http://www.22ndpsc.net/">http://www.22ndpsc.net/</a></p>  |