



Seagrass monitoring on the reef flat – Sanur, Bali

World Seagrass Association Inc.

April 2006

Newsletter Issue 3

Key dates to Remember:

ISBW 7 September 2006 in Zanzibar

See Our Web Page

<http://www.worldseagrass.org/>

2005-2006 Committee

President: Fred Short
Vice President: Miguel Fortes
Treasurer: Len McKenzie
Secretary: Rob Coles

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Diana Walker,
Hitoshi Iizumi,
Evamaria Koch,
John Kuo
Silvia Ibarra Obando
Gerard Pergent
Maria Cristina Buia
Jacqui Uku
Gloria Peralta

A note from the Secretary!!!

We have had a busy year here in the Marine Ecology Group in Cairns. Len McKenzie and I participated in a very enjoyable workshop in Bali, Indonesia in May, spreading the word about global and community seagrass monitoring. Despite the recent terrorist attacks (we had our workshop dinner on Jimbarian beach) we would encourage you to visit Bali. The seagrass is fabulous and the island friendly and welcoming. We decline to let the world's crazies win by being discouraged from visiting one of the best parts of the seagrass world and our thoughts remain with the Balinese people as they try to rebuild their struggling tourist industry. Out of the workshop came the setting up by Yuyu La Nafie of the Department of Marine Science, Hasanuddin University of an internet discussion list which has been very valuable source of information. The team here also went on to survey the seagrasses of Pohnpei – a small step in a better understanding of the Pacific seagrasses.

Of particular interest to our future here in Australia is the end of the CRC Reef Research Centre programme – it winds up as a company after the middle of 2006. The centre has provided much appreciated support to the Association – processing credit cards for us and this year helping with the Audit. This will be sadly missed. The good news is that the centre will be replaced by a new Australian Government funded Centre based in Cairns and Townsville in north Queensland called the Marine and Tropical Science Research Facility. We are hoping to be a part of this new centre and have spent some time this month putting together a research proposal for our organisation. No idle task for an organisation spanning watersheds to the reef fisheries and all the primary producers in between. We will let you know how we go. For more information on the new centre look at <http://www.deh.gov.au/cerf>

The seagrass world also lost one of its revered “elders” this year with the loss of Ron Philips – our sympathies go to his wife and family.

The Secretaries job is very much an after hours job for me and I do not always keep up. I have had very little time at home in the second half of this year and paperwork is stacked up until I have some time at home to work on it. On my list at the moment is a job from Fred Short to review the membership list and currency of membership payment. I will try and do this in the new year. When I make a bulk e-mail to members I often get warnings that mail has been not delivered when clearly, because I get an answer, the e-mail gets through. I am concerned though that there are members that for whatever reason are not getting any information from me. If you are reading this newsletter on the web page and you have not been getting any other contact from me please drop me an e-mail so I can fix up your details.

From us all here at the Northern Fisheries Centre Cairns we would like to wish you a happy and prosperous New Year



*Fred Short -
President of WSA Inc.*

President's Message

FRED??

Our Association

The World Seagrass Association is a not for profit company incorporated in Queensland Australia and dedicated to raising the profile of global seagrass issues.

The Association was initiated from discussions that were held at International Seagrass Biology workshops in The Philippines (1998) and in Corsica (2000). Those discussions, which were led by Professor Miguel Fortes and Professor Fred Short, emphasised our need, in this first decade of the new millennium, to approach seagrass issues from a global perspective. We were guided by the 1992 Rio Declaration on Environment and Development, Principle 7 that says in part: "States shall cooperate in a spirit of global partnership to conserve, protect, and restore the health and integrity of the earth's ecosystems."

The Association has initiated a global seagrass monitoring program and is planning to coordinate the production of a meaningful "Seagrass Global Report Card" based on standard methodologies. It has supported the production of a Seagrass Methods book and an Atlas of World Seagrass. It supports, and its members help organise, a biennial International Seagrass Biology Workshop.

Our aim has been to bring seagrass issues onto the radar screen in a world political sense and to give seagrasses a profile similar to that of coral reefs.

We encourage you to join the Association and enjoy interacting with those seagrass people who have a global vision.

Sponsorship

The administrative cost of running the association as an incorporated company (company registration audit fees, web hosting etc.) are paid for by the Queensland Government Department of Primary Industries and Fisheries. This very much-appreciated grant means that any membership fees that you pay are available for the association to spend on seagrass projects, scholarships, conferences etc.

The grant reflects the confidence the Queensland Government has in the association's ability to deliver or support seagrass projects that will lead to more profitable and (by definition) sustainable fisheries.



A credit facility is also provided free of charge by the CRC Reef Research Centre in Townsville who also support the association with staff time and administrative advice.



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You Would Like to Join??

It's easy! Fill in the form on the web page <http://www.worldseagrass.org/> and fax it to the Secretary on the fax number supplied. Be patient, it sometime takes a while to process. Credit cards are best. You can send a cheque or other payment instrument but processing costs will mean we do not get much.

Membership is 20 US dollars for non students and 10 US dollars for students and despite what the form says we do not accept Diners and Amex Cards.

If you are coming to ISBW 7 in Zanzibar we will be happy to take your cash in US or Australian Dollars!!

Activities of the Association

Seagrass Methods:

The Association supported the production of a book of seagrass research methods applicable around the world. The book, edited by the Associations' Vice President and Secretary, "Global Seagrass Research Methods" was published by Elsevier in 2001. See our web page: <http://www.worldseagrass.org/> for order details.

Global Report Card:

In 2001 Association members met in Florida to plan a World Atlas of Seagrasses. The final product was edited and produced by Ed Green and our Vice President Fred Short in 2003. See our web page: <http://www.worldseagrass.org/> for order details.

SeagrassNet: a global seagrass monitoring program:

The Association supports a scientific seagrass monitoring program now operating at 35 sites in 15 countries. Data is collected quarterly on fixed transects. See <http://www.SeagrassNet.org>.

Seagrass Watch science - community based monitoring program:

The Association supports community involvement in seagrass monitoring activities as a means of developing a seagrass constituency and extending our knowledge of change. The web page has recently been updated

See the web page <http://www.seagrasswatch.org>

Seagrass Forum: a web-based discussion group:

The Association supports the Seagrass Forum, where questions are posed and discussions held via the internet concerning seagrass science and policy. Thanks to Mike Van Keulen for maintenance of this forum – see: www.Seagrass_forum@central.murdoch.edu.au

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Student Travel Support:

We expect to provide up to \$3,000.00 for support to a student or students to travel to the ISBW7.

Books and Articles

Current articles including contributions from Association members:

A Guide to Tropical Seagrasses of the Indo-West Pacific, 2004, by Michelle Waycott and colleagues, James Cook University, Townsville. Available at www.jcu.edu.au/tropbiol/seagrass/

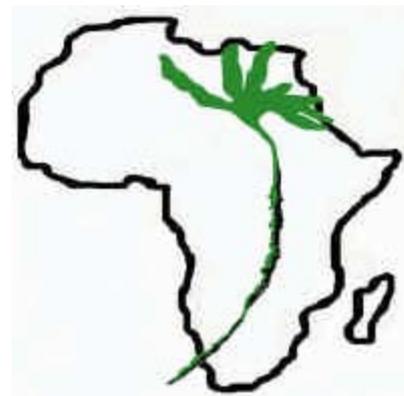
Seagrasses: Biology, Ecology and Their Conservation 2006. Edited by Tony Larkum, Robert Orth and Carlos Duarte, Springer 2006, 691pp..

Aquatic Ecosystems: Trends and Global Prospects. Edited by Nicolas Poulinin, Cambridge University Press., in press. A seagrass chapter by Duarte, Borum, Walker, and Short.

7th International Seagrass Biology Workshop

ISBW 7, Zanzibar,
Tanzania

Sept. 10-16, 2006



Organising Committee

Dr. Matern Mtolera, Institute of Marine Sciences, University of Dar es Salaam Dr. Alfonse Dubi, Institute of Marine Sciences, University of Dar es Salaam Dr. Thomas Lyimo, Department of Botany, University of Dar es Salaam Dr. Jacqueline Uku, Kenya Marine Fisheries Research Institute Dr. Salomao Bandeira, Dept. of Biol. Sci., Universidade Eduardo Mondlane Prof. Sven Beer, Department of Plant Sciences, Tel Aviv University Assoc. Prof. Mats Björk, Department of Botany, Stockholm University Dr. Evamaria Koch, Horn Point Laboratories, University of Maryland

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Workshop Contact Address (Secretariat)

Dr. Matern. Mtolera,
Institute of Marine Sciences, University of Dar es Salaam,

P. O. Box 668, Zanzibar, Tanzania. Tel: No: 255 (024) 2230741/ 2232128; Fax No: 255 (024) 2233050 E-mail: mtolera@ims.udsm.ac.tz

7th International Seagrass Biology Workshop, Zanzibar, Tanzania September 10-16, 2006

EXPRESSION OF INTEREST

Please return the following information to the workshop Secretariat at the Contact Address, or by e-mail to mtolera@ims.udsm.ac.tz and a copy to Dr. Jacqueline Uku, juku@kmfri.co.ke

I wish to receive forthcoming announcements.

Name (underline surname).....

Occupation/Title.....

Organization/Company.....

Address.....

Postal code/City..... Country.....

Tel..... Fax E-mail.....

. Tentative Presentation Title

Scope and Objective

Seagrasses are submersed monocotyledons that have adapted to marine life (probably 70-140 million years ago). They are the only higher plants that live, and complete their full life history, entirely submerged in the sea. Seagrasses are found worldwide in tropical, subtropical and temperate coastal areas. While having little direct commercial value, the importance of seagrasses lies in ecological aspects such as (1) providing food to fish, turtles and dugongs, and both sheltering and harbouring sessile invertebrates and epiphytic micro- and macro-algae, as well as providing nursery grounds for fish, including species of commercial and recreational value (2) improving the marine productivity by "pumping" nutrients trapped in the sea bed and harbouring nitrogen-fixing organisms capable of fertilising water columns which contain limiting nutrients, (3) stabilising shorelines etc. However, the provision of these vital services is threatened by seagrass degradation attributed to, among other things, unsustainable use of coastal resources, pressures from growing coastal populations, land based pollution, inadequacy of information and research inputs into resource management and constraints in technical development of alternative livelihoods and resource harvesting technologies. Acquisition of appropriate scientific and

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technological know-how is therefore crucial to arrest the situation.

ISBW workshops bring together researchers, scientist and managers from around the world in a congenial and friendly atmosphere to discuss a wide range of seagrass science topics with the view to sustainably manage this vital resource.

Both marine-oriented scientists and graduate students from the region are encouraged to attend the meeting. While oral presentations from experienced professionals will be preferred, students are encouraged to give poster presentations on their specific research topics. The meeting will be 5 days long. In order to encourage interactions, the field trip to special seagrass sites will be on the 2nd day of the meeting. The meeting will be followed by an optional 2-day on hands training course for students of the region (see forthcoming announcements for details).

While the various scientific themes for the meeting will be decided upon as based on the abstracts and presentation titles submitted, potential themes include: Ecology, Adaptations to Various Environments, Cellular Biology, Monitoring and Mapping, Impact Assessments and Management. The topics and presenters of plenary talks will also be decided upon based on the titles submitted by the participants. There will be no parallel sessions and ample time will be given for discussions.

Welcome Note from the Host Institution

Dear colleagues and all other guests,

On behalf of the Organising Committee, fellow staff members at the Institute of Marine Sciences (IMS) and on my own behalf, it is a great pleasure and privilege for me to invite you all to participate in the 7th International Seagrass Biology Workshop (ISBW7). This workshop is the seventh international meeting on seagrasses to be organized by the WSA and is the first meeting to take place in the Western Indian Ocean Region and in Africa. The 1st, 2nd, 3rd, 4th, 5th and 6th ISBWs were in Kominato-Japan (1993), Perth-Australia (1996), the Philippines (1998), Corsica (2000), Ensenada-Mexico (2002) and Townsville-Australia (2004), respectively. The decision to have this workshop organized in the Western Indian Ocean Region is a clear indication of the WSA commitment to contribute towards worldwide management of seagrass meadows. The ISBW7 will be hosted by the Institute of Marine Sciences of the University of Dar es Salaam. The workshop will take place 10th - 16th September 2006 at the Zanzibar Beach Resort, Zanzibar, Tanzania. The venue is located within a working distance to the seagrass meadows. The Organising Committee is making every effort to ensure that your participation is scientifically rewarding and that pleasant memories of Zanzibar and Tanzania will remain with you for a long time.

My fellow staff at IMS and the whole of Eastern Africa and Island States, consider you to be our privileged guests. Business aside, we urge you to make the most of our hospitality and to have an enjoyable and pleasant stay in Zanzibar, Tanzania. All of our countries hold significant areas of seagrass meadows, which have borne the impact of population pressure, environmental degradation and inadequate institutional frameworks. The ISBW7 is one of those rare opportunities for capacity building within the region with the view to acquiring appropriate scientific and technological skills to arrest the situation.

We invite contributions on all aspects of seagrass Ecology, Adaptations to Various Environments, Cellular Biology, Monitoring and Mapping and Impact Assessment, in a week with lots of inspiration and joy.

Dr. Alfonse M Dubi, Director

Institute of Marine Sciences (IMS)

The Institute of Marine Sciences (IMS) was established in October 1978 and on 1st July 1979. It is part of the University of Dar es Salaam and is based in Zanzibar. IMS aims and objectives are as follows: (a) undertaking research in all aspects of marine sciences (b) providing postgraduate in marine sciences, (c) provide undergraduate training in accordance with the national manpower requirements and (d) providing advisory and consultancy services in marine affairs.

IMS research activities are mainly oriented towards understanding, managing, utilising and

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conserving marine and coastal resources. In addition to direct research activities, the Institute also plays the role of facilitator in inputs of other academic, governmental and nongovernmental institutions. In this role, we provide input in environmental policy development, socio-economic development and environmental protection, training and education programmes, as well as international and regional co-operation and networking.

IMS is privileged to work with 50 -100 visiting undergraduates annually from the European Union and United States, 20-30 distinguished scholars annually from Sweden, Canada, Australia, USA, UK, Belgium, Netherlands, South Africa, Israel, etc and 40-50 visiting scientist from sister institutions in the Western Indian Ocean region. Whereas stays of visiting scholars range from one week to a few months, students stay six months to one year.

GENERAL INFORMATION

The next (7th) International Seagrass Workshop (ISBW7) is hosted by the Institute of Marine Sciences of the University of Dar es Salaam, located along the Mizingani road in Stone Town (on the West Coast of Zanzibar). Participants will have a unique opportunity to visit tropical Indian Ocean seagrass environments in Zanzibar, Tanzania.

Zanzibar Islands (Unguja and Pemba; total area 2,400 km²) are home to about 1 million people (600,000 in Zanzibar), whose livelihood depends mainly on fishing, family scale farming (including seaweed farming), and an upcoming tourist industry. After a long history of being a major trading post between the Far East and the West (mainly of spices, but also of slaves), Zanzibar gained its independence through a revolution in January 1964, and three months later was united with Tanganyika to form the country Tanzania, which it is part of today. Being an island that has kept its own character and life style, Zanzibar offers a genuine and friendly atmosphere for a meeting such as the ISBW. The meeting is planned for September 10-15, 2006. The venue for the meeting shall be the Zanzibar Beach Resort, 3 kilometres from the Zanzibar Airport. The venue is 6 kilometres from the Stone Town and the closest seagrass site is a walking distance away.

Dates and Venue

ISBW7 will be held during September 10-16, 2006, at the Zanzibar Beach Resort, Zanzibar (see www.zanzibarbeachresort.net). The resort is situated 6 kilometres from the city centre (Stone Town), on the West Coast of Zanzibar.

Climate

The tropical but cooler month of September in Zanzibar is mostly sunny, but may have some rain. Average maximum daytime temperature is around 30 °C.

Language

The official language of the symposium will be English. English is also commonly understood in Zanzibar (but most Zanzibarians speak Kiswahili as their mother tongue).

Letter of Invitation

Upon request, the Secretariat will send a personal invitation to participants in the Workshop. Such an invitation is not a commitment on the part of the organisers to provide any financial support.

Insurance

The workshop organisers cannot accept liability for personal accidents or loss of, or damage to, private property of delegates and accompanying persons, either during, or indirectly arising from, ISBW7. All participants should therefore make their own arrangements with respect to health and travel insurance.

Health

Participants are asked to consult the health authorities of their countries of origin for recommendations regarding prevention of sickness whilst in Zanzibar. The most common prevention is against malaria, which is common in Zanzibar.

Travel

Zanzibar can be reached either by ferry boat from Dar es Salaam (travel time ca. 2 to 4 hours), and, perhaps preferably, by air. Several airlines link with Zanzibar through Nairobi, Dar es Salaam and Mombasa, and direct charter flights may be available from several European destinations. The airport is situated 3 km from the Workshop Resort Hotel (and 10 km from the centre of Zanzibar Town (Stone Town)). The Zanzibar harbour is situated within walking distance to most hotels located in the Stone Town area, but 6 km from the Zanzibar

Beach Resort. You will be picked up from the airport/port if your travel schedule is communicated well in advance by a shuttle bus/car (with the sign ISBW7).

Passport and Visa Requirements

Visitors from all nations are welcome in Zanzibar, but must have a valid passport, and for many countries a visa is required. Visas for travellers from many countries can be purchased upon arrival (approx. \$25-50 depending on where you come from). The best is to consult your travel agent or a Tanzanian Embassy **well in advance** regarding visa requirements.

Currency

The currency used in Zanzibar is the Tanzanian Shilling (TSH). At present (September 05), exchange rates are: 1 US\$ = TSH 1065. Banking facilities are available and major credit cards are usually accepted.

REGISTRATION

The registration fee will be around \$300 – **please see forthcoming announcements** for exact prices, including prices for accommodation, deadlines and ways of payment.

SCIENTIFIC PROGRAMME

The scientific programme will largely be based on the abstract / presentation titles suggested by the participants according to the above Expression of Interest form. It will include Plenary Lectures, Contributed Symposia Papers and Poster Sessions.

Contributed Papers

Contributions are invited on all aspects of Seagrass biology and management. Contributed papers must be presented by one of the authors. The time allowed for each paper will be 15 -20 min. Each speaker is only permitted one presentation.

The lecture hall will be provided with a standard overhead projector, LCD (for PowerPoint presentations) and slide projector. Speakers requiring any other or additional equipment (e.g. video) must notify the Secretariat on submission of their abstract form.

Poster Sessions

Authors of posters will be expected to present their poster during designated sessions. Posters will be displayed in the symposium venue for the duration of the symposium.

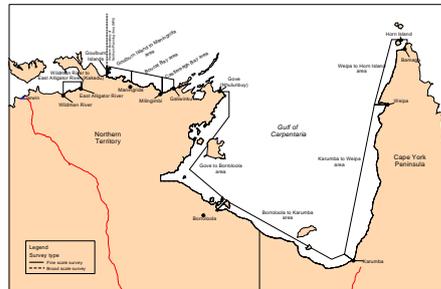
Forthcoming: Please look forward to additional specific information, regarding Fees and Payments, Accommodations, Instructions for Contributions, Tours and Social Programmes.



Surveying Northern Australian Seagrasses

Anthony Roelofs and Rob Coles

In November 2004 we completed a survey of intertidal seagrass along the Northern coast of Australia to address a gap in knowledge of the distribution of Australian seagrasses. The survey covered nearly 3,500 kilometres of coast and was completed at low tide using a helicopter flying slowly at 500 feet altitude and landing to confirm seagrass presence. Some on boat surveys were also conducted to confirm subtidal meadows but this was restricted to the Northern Territory.



Seven species were recorded during the survey: *Halodule uninervis*, *Syringodium isoetifolium*, *Thalassodendron ciliatum*, *Enhalus acoroides*, *Halophila decipiens*, *Halophila ovalis*, and *Thalassia hemprichii*. *Halodule uninervis* and *Halophila ovalis* were by far the most common on the open sand and mud flats. *Thalassia hemprichii* and *Thalassodendron ciliatum* were found on reef platforms and around rocky islands.

Cymodocea rotundata, *Cymodocea serrulata* and *Halophila spinulosa* have been recorded in shallow sub-tidal waters in this region previously and *Zostera capricorni* has been recorded from Horn Island. These species were not seen in the present survey. The distributions are mapped in the Geographic Information System layers.

An area of just over 42,000 hectares of seagrass was mapped. Combined with data from previous surveys we estimate at least 70,000 hectares of seagrass are present. The seagrass meadows are extremely patchy and the distribution is sometimes difficult to explain. The previous storm and cyclone history of the area may be a contributing factor.

Almost all seagrass meadows observed showed evidence of turtle activity and/or dugong feeding. Some small patches were heavily grazed and may be vital for dugong travelling along the coast.

Seagrass and algae meadows have been rated the third most valuable ecosystem globally (on per hectare basis) for ecosystem services, behind only estuaries and swamp/flood-plains. The northern Australian seagrasses are extremely important and it is essential to understand, and to measure and monitor the parameters that control their distribution and abundance.. The greatest threats of loss of seagrass in this area are likely to be from climate events or climate change. This report provides only a snapshot in time of the seagrass communities. Longer-term monitoring and seasonal comparisons would be desirable to better understand the dynamics of the distribution observed.

As part of this survey the location of discarded fishing net, pieces of net, and discarded or apparently abandoned crab traps were recorded. Large numbers of net pieces were identified despite the likelihood that the survey techniques, designed to map seagrass, almost certainly missed a large proportion. The density of observations was clumped with an area in the western Gulf and area to the north of Weipa with high densities of beached net pieces. Large numbers of abandoned crab traps were recorded in the southwestern Gulf. Net and trap type and location are recorded in a Geographic Information System layer.



North Queensland mangrove wetlands



Typical patchy seagrass in North Queensland



Seagrass near the Jardine River



Preparing for a helicopter flight

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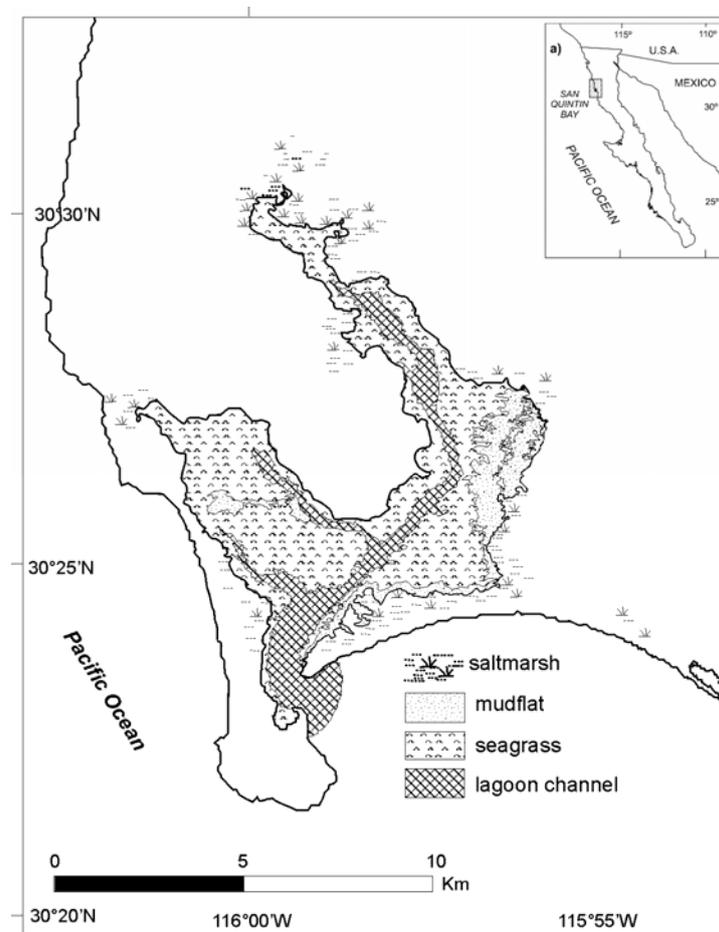
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San Quintin Bay, the first Mexican SeagrassNet station

by Silvia Ibarra-Obando

Mexican researchers working on seagrasses along the Baja California peninsula, and the Gulf of California, became interested in joining the SeagrassNet after its presentation at ISBW5, held in Ensenada in October 2002. The means by which this interest could be materialized was when Dr. Evamaria Koch, at the University of Maryland, submitted a proposal to the Inter-American Institute for Global Change (IAI), which included three countries: United States, Brazil, and Mexico. The Mexican station was to be located somewhere in the temperate waters of Baja California.

Once the proposal was funded there was the need to select the sampling location, establish the stations, and train us in the methodology to be used. For this purpose, Evamaria Koch and Fred Short visited Ensenada in August 2004. After comparing the reduced eelgrass (*Zostera marina*) beds at the Punta Banda estuary, located 20 km south of Ensenada, with the extensive eelgrass beds located at San Quintin Bay, 250 km south of Ensenada, this second location was the obvious choice (See map below).



The location of San Quintin Bay, along the Pacific coast of Baja California (insert). The bay has two arms: the west arm is known as Bahia Falsa, and the east arm as Bahia San Quintin. The mouth is opened permanently.

San Quintin Bay is a Y-shaped coastal lagoon located on the Pacific coast. It covers an area of 42 km² and has a mean depth of about 1.6 m. Total evaporation in summer and winter exceeds total rainfall, and there is ordinarily no significant runoff or groundwater inflow. As a consequence, the bay is a net evaporative system. San Quintin Bay is under the influence of upwelling events, mainly during spring and summer. Eelgrass beds are the structurally dominant habitat, and cover about 40% of the bay area. Oyster

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aquaculture is the dominant economic activity in the bay, limited to its west arm. At present, oyster aquaculture covers about ~ 7% of the total bay area (see photo below).



The oyster racks and the eelgrass beds in the west arm of San Quintin Bay (photo by Laura Rodriguez, University of California, Davis).

We consider this site to be of interest for the following reasons: (1) Upwelling events at the mouth of the bay have been identified as the main driver of temporal change in biological and chemical variables. We expect global warming to have a measurable effect on eelgrass beds; (2) San Quintin bay is the wintering ground of black brant (*Branta bernicla nigricans*). During their stay in the bay, brants feed on eelgrass, so a severe reduction in eelgrass beds will have a negative effect on this migratory species, as well as in any other species associated with it; (3) Results from our study can be linked to regional monitoring programs interested in the effects of El Niño/La Niña events in the biological systems along the California Current (e.g. CalCOFI program and its Mexican extension) (3) We have data from previous samplings that could be helpful trying to assess changes through time.

We are being helped in the field by Mr. Juan Guerrero, who has a small family enterprise for growing oysters (*Crassostrea gigas*). This collaboration is our link with the local community. He keeps informed the oyster growers about the importance of our study, and watches over our monitoring instruments when we are not around (see photo below).

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Juan Guerrero driving Miriam Poumian and Silvia Ibarra to the monitoring site on the west arm of the bay (photo by Laura Rodriguez, University of California, Davis).

Our first data set shows a clear seasonal trend with high values in summer, and low values in winter. Total biomass, percent cover, shoot density, and canopy height, all reduced their values in about 50% between August and January. The deep and shallow stations are submitted to higher variability, than the middle one. Our study site shows a significant positive correlation between shoot density and water temperature.

At present we are waiting the response from the second proposal that Dr. Evamaria Koch submitted to IAI, in order to continue our monitoring. If funded, we will be able to gather data for a 5-year period. This new proposal already includes the second Mexican monitoring station to be located in the southern tip of the Baja California peninsula.

The Corsican Posidonia Monitoring Network

By Gerard and Christina Pergent

Posidonia oceanica is a powerful biological indicator, identified in the European Water Framework Directive as a quality element to be monitored in coastal water bodies. A Corsican Posidonia Monitoring Network (CoPMoN) was set up in August 2003. Currently, 10 sites, on the North-East coasts have been studied, and by the end of 2006, the network will cover 30 sites all around the island. Monitoring of the lower limit is carried out by positioning permanent cement bollards along this limit, photographing these markers and studying several *P. oceanica* vitality parameters (density, covering, type of limit). Monitoring of the upper limit is based on the same methods, complemented by aerial photographs. Results show that, while the Corsican coast is not excessively affected by human activities, damage due to fishing (trawling) and sewage effluents can be observed. We propose scales for interpreting the parameters to enable sites to be compared, with the perspective of an intercalibration framework.

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SEAGRASS WATCH, A NEW TOOL TO MONITOR METALLIC CONTAMINATION ?

Since seventies, mussels are commonly used to evaluate trace metal contamination, according to their ability to accumulate these contaminants. More recently, many studies on seagrasses have shown their potentiality to record trace metal contamination too. A comparison of the potentiality of a “native/natural” population of the seagrass *Posidonia oceanica* and an “implanted” population of the mussel *Mytilus galloprovincialis* (cagging) was performed. Three sites, with different levels and types of human impact (a pristine site: Calvi Bay – Corsica, an impacted site due to asbestos mine: Canari coastline – Corsica and an impacted site due to human/economic development: Toulon harbour – French Riviera) and six metals were taken into account (Cd, Co, Cr, Hg, Ni, Pb). Samplings were realized, each two weeks during four month, for the both organisms, to compare the kinetic of contamination/decontamination. Results showed, for the both organisms, similar trends according to time, and to levels of contamination of the sites. Higher levels of Cadmium are recorded along Corsican coastlines (natural input from basement alteration), higher levels of Cobalt, Chromium and Nickel are observed in the vicinity of the Canari mine, whereas maximum concentration in Mercury and Lead are found in Toulon harbour. For several metals, concentrations measured for the both organisms are on the same range. These results confirm the possibility to use *Posidonia* shoots when there is no native population of mussels

Use of SPOT 5 and IKONOS satellites for mapping biocenoses in a Tunisian lagoon

Within the framework of the preservation and the management of Mediterranean biodiversity, mapping tools are very useful to evaluate and inventory key ecosystems and natural formation World Heritage. Historical data concerning the El Bibane lagoon, situated in the Tunisian South near the Libyan border, mentions various ecosystems as *Neogoniolithon notarisii* reef platform and seagrass meadows. Two satellites image, IKONOS and SPOT 5, were tested as management tools to identify these specific ecosystems. The IKONOS satellite, launched in September 1999, and the SPOT 5 satellite, launched in May 2002, which provide multispectral fused imagery with different spatial resolution (0.6 m and 2.5 m), were used. Classifications were made of both satellite’s image. Seagrass meadows appear as the most important ecosystem, whereas the *Neogoniolithon notarisii* reef constitutes a thin structure lining the north coast of the lagoon. SPOT 5 and IKONOS satellites provide different results which can be both satisfactory according to the aim of the study.



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Seagrasses in the Natural Park of Cadiz Bay (Atlantic Coast on the South of Spain)

By Gloria Peralta

Very little is described about the distribution of seagrass beds on the Atlantic Coast of Southern Spain. However, within this area there are extensive meadows of seagrasses. A good example is the Natural Park of Cadiz Bay, situated close to where the Atlantic Ocean joins the Mediterranean Sea..



Two seagrass species occur in this protected bay, *Zostera noltii* and *Cymodocea nodosa*. Both may grow in the same location, but normally they occur at different depths. *Zostera noltii* is small seagrass occurring in almost the whole intertidal range. Whereas *C. nodosa*, which can reach 1 m of leaf length, occurs in the low intertidal to subtidal areas, where it competes for space with the green algae *Caulerpa prolifera*.



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Cadiz Bay is characterized by the daily renovation of the water column and its shallow depth, which apart from within the dredged shipping channel, is not more than 3 m deep. Severe eutrophication has not been detected in this shallow system. Although the impact of the uncontrolled shellfish activities clearly restricts the area occupied by seagrasses, probably making it the most important human impact detected in this system.



Thanks to the effort of the EDEA group and volunteers, the seagrass populations of Cadiz Bay have been monitored over a number of years. A data base has been created with demographic and architectural characteristics of the populations (i.e. biomass, shoot density and leaf, rhizome and root morphometry) and also dynamic variables (i.e. growth and elongation rates).



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In our next newsletter:

- An update on the SeagrassNet Global monitoring program and on the SeagrassWatch program.
- An outline of the Phuket Post Tsunami workshop



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