

EMECS NEWSLETTER

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International EMECS Center

Chesapeake 2000



Historic New Agreement to Protect the Chesapeake Bay The Renewed Chesapeake Bay Agreement



On June 28, 2000, Maryland Governor Parris N. Glendening, three-term Chair of the Chesapeake Executive Council, along with state and federal representatives of neighboring watershed jurisdictions, signed the new Chesapeake 2000 Agreement. Nicknamed "C2K", the new Bay Agreement continues the cooperative approach from 1983 and the goals and due dates from 1987 as a foundation for new commitments. Those

new commitments go further than those of the previous Agreements, setting new goals for the next decade. In addition, the Chesapeake 2000 Agreement has as a theme the concept of personal responsibility - the idea that individuals are responsible and can make a difference. The new Chesapeake Bay Agreement clearly puts the responsibility for a clean Bay and healthy tributaries on all citizens of the watershed.

The Chesapeake 2000 Agreement is divided into five sections that contain commitments to protect and restore water quality, living resources, and vital habitats, while also promoting sound land use, stewardship, and community involvement. The new Agreement continues all Chesapeake Bay Program commitments made in previous agreements or Executive Council directives and adds major new commitments to move the Bay restoration forward.



As with previous agreements, the primary goal of the new Chesapeake 2000 Agreement is

The Chesapeake Bay is North America's largest and most biologically diverse estuary. The 64,000 square mile (103,000 km²) watershed is home to more than 3,600 species of fish, animals, and plants. The Bay is an extraordinary resource that has sustained the region's economy and defined its traditions and culture for more than 300 years.

In the 1970s, U.S. Senator Charles Mathias initiated a fact-finding mission to try to understand why water quality and other resources in the Bay were declining. His efforts resulted in the development of the regional Chesapeake Bay Program, a watershed partnership that is working to restore the Bay. The partners in the Chesapeake Bay Program are the states of Maryland, Pennsylvania, and Virginia, the District of Columbia, the U.S. Environmental Protection Agency, and the Chesapeake Bay Commission.

The Chesapeake Bay Program operates under the terms of the Chesapeake Bay Agreement, which was originally signed in 1983. The 1983 Agreement was a new cooperative effort that brought Maryland, Pennsylvania, Virginia, the District of Columbia, and all agencies of the federal government together with a single focus - restoring the Chesapeake Bay. In 1987, the Bay Agreement was revised to include specific goals and commitments with defined timetables. For example, reducing the controllable load of nutrients entering Chesapeake Bay by 40% by the year 2000.

The Chesapeake Bay Watershed



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to restore water quality in the Bay and its tributaries so that it fully supports living resources, and also to maintain that water quality into the future. To help accomplish this goal, a new commitment was made to correct nutrient and sediment related problems in the Chesapeake Bay and its tidal tributaries and remove them from the federal list of "impaired waters" by 2010. Accomplishing this commitment will require setting numerical sediment reduction goals for the first time, in addition to establishing increased nutrient reduction goals.

New commitments were also made to better manage and preserve land in the watershed. Specifically, the Agreement signatories made a major new commitment to conserve rural and resource lands by decreasing the rate of harmful sprawl development 30% by 2010. In addition, a commitment was made to preserve 20% of all land in the watershed and permanently protect it from development.

The new Agreement also includes a new approach for managing wetlands across the entire Bay watershed. Using a three-prong approach, the new Agreement contains commitments to (1) achieve a no-net loss of wetlands acreage and function through regulatory programs; (2) achieve a net resource gain by restoring 25,000 acres of wetlands by 2010; and (3) work with local governments to develop wetlands preservation plans for 25% of the land area in each state's Bay watershed by 2010. The Agreement signatories also committed to evaluate the impacts of climate change on the Bay watershed, especially with respect to wetlands.



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Other significant new commitments in the new Chesapeake 2000 Agreement include:

- Increase the number of native oysters tenfold by 2010.
- Establish harvest targets for Blue Crabs and implement management plans Baywide.
- Strive for zero release of chemical contaminants from point sources by 2010.
- Expand public access by 30% by 2010 and add 500 miles of water trails by 2005.

As summarized by Maryland Governor Parris Glendening, "This Agreement takes us a long way towards our goals of a healthy, productive, living Chesapeake Bay, a restored Chesapeake Bay that will be our proudest legacy and our proudest achievement." Most of the new commitments in the new Agreement are scheduled for completion within 10 years. The Bay Program partners are already using it to guide management actions.

More information about the new Chesapeake 2000 Agreement is available on the Internet at www.chesapeakebay.net

Creation of near shore reserve in SW Crimea (the Black Sea) way for protection of this unique natural complex under development of human activity



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Increase anthropogenic pollution of marine environment, enlargement of near shore recreational zones and intensive hydrotechnical construction along coasts can be recognised as one of the most serious ecological threats for the Black Sea coastal ecosystems through the recent 10-15 years. Such adverse impacts has affected many areas along shores of Crimean peninsula and lead to deterioration of water quality, reduction of the ecosystem's self-purification ability and decrease of marine biodiversity.

According to Helsinki Convention (Article 15 of 1992) the need for measures "...to conserve natural habitats, biodiversity and productivity and protect ecological processes" is an essential moment in the international strategy for development of nature protection and sustainable use of the natural resources [2,11]. This

ecosystem-oriented approach became an important element of the new governmental Program on conservation of valuable coastal ecosystems and habitats in the marine environment [4,5].

Until present time in the SW Crimea several protected objects already have been declared as near-shore reserves for which seaside territories and adjacent water areas were incorporated into united reservation complex [1]. These areas cover altogether 12,8 km², including 4,5 km² of protected water areas (Fig.1). These are seascape standards which embrace biocenoses of rocky sublittoral and main habitats and spawning grounds of diverse demersal fish [3,8]. However, the total area (approx. 1.5% of entire territory of the SW Crimea) and present protective rank of the existed protected areas are insufficient in order to provide proper environmental quality and conservation of biodiversity of this coastal zone.

The following reasons were given to allocate concerned region

for reservation:

- i) the presence of coastal biocenoses with the considerable environment-wide effect;
- ii) the present reservation areas are insufficient for maintenance normal functioning of coastal communities and for restoration of essential genetic and ecological diversity;
- iii) preservation of coastal aquatic communities is optimum at the Southern and SW coasts of Crimea.

Results

Description of the proposed reserve area

A part of the Crimean coast between capes Pheolent and Sarych is unique in its climatic, geological, hydrological and biological characteristics and was recognized as one of the highest priority area of conservation importance [1]. The boundaries of the four microclimatic zones merge there (Fig.1). There are following: 1) Western Pre-mountain Zone- very droughty and temperate hot climate with soft winter; 2) Mountain and Depression Zone - semiarid and warm climate with soft winter; 3) Western Zone of the Southern Coast of Crimea - mediterranean-type climate, droughty and hot with temperate warm winter; 4) Zone of Southern slope of the main ridge of Crimean mountains - wet climate with soft winter. These peculiar conditions together with the geomorphologic characteristics were key factors in formation of high diversity of coastal landscapes flora and fauna of which are rich in endemic species.

Geomorphologically the shore from cape Pheolent to Balaklava bay is composed of volcanic rocks (Jurassic ceratophytes) covered with Sarmathian limestones. Stony chaos, abrasive arches, underwater caves and small isles are plentiful in this zone. South-east off Balaklava and around Laspi bay, the rocky spurs of the Crimean mountains recede from the coastline and form a coastal "amphitheatre". At the vicinity of the capes Aja and Sarych the coastal strip is narrow, steep rocks descending into the sea up to 50-70m depth. The coastal belt is small, the underwater slopes down to 10-20m depths are 15-20o steep aggregations of stone blocks, at greater depths there are gravel and sandy substrates. Several sites near the cape Aja are remarkable for voluminous freshwater springs at the sea bottom. The hydrological regimen of

coastal water area depends upon breeze winds. Active water exchange between coastal areas and open sea as well as great depths immediately near the shore promote proper water purification and oxygenation even in summer time.



Examination of the hydrochemical conditions shows that the water area does not bear traces of pronounced eutrophication or other pollution of anthropogenic origin. Dissolved oxygen content (DOC) reaching as much as 120 % of saturation [12]. Insignificant daily variations in DOC can evidenced about a good balance between production and destruction processes.

The underwater diving surveys and ecological mapping of sea floor up to 35-40 m depths allowed to distinguish about 10 bottom seascapes unique in diversity of floristic and faunistic communities including rare and endangered species, vanished elsewhere over the Crimean coast [8; 9].

Terrestrial communities.

Terrestrial flora of this coastal zone numbers over 500 species of higher plants, of which about 30 have been entered into the National Red Data Book, many being endemic [6]. The largest (up to 10.000 trees) population of the Crimean pine (*Pinus pityusa Stankewiczii*) as well as other rare species: *Juniperus excelsa* and *J.foetidissima* (7500 trees), *Arbutus andrachne* (more than 3.000 trees), *Pistacia mutica* (1800 trees), *Taxus baccata* (700 trees). Some old trees of pines and junipers have age 300-500 years. The place is rich also in rare bushes such as *Cistus tauricus*, *Ruscus ponticus*, and orchids (20 species of the total 39 ones occurring in the Crimea). Among the diversity of Orchids 12 species are endemic. In recent years the numbers of many other rare endemic plants, such as *Cerastium biebersteini*, *Hesperis steveniana*, *Cladium mariscus*, *Asphodelina lutea*, *Anacamptis pyramidalis*, *Paeonia taurica*, *P. tenuifolia*, *Pulsatilla taurica*, *Adonis vernalis* dropped dramatically as a result of intensive recreational activities undertaken in this coastal zone and unregulated visits of tourists.

Terrestrial fauna numbers 24 endangered species listed in the Red Data Book [6]. These are birds: *Falco peregrinus*, *F.cherrug*, *Phalacrocorax aristotelis*, mammals: dolphins *Tursiops truncatus ponticus* and *Delphinus delphus ponticus*, bats *Vespertillio murinus*, *Pipistrellus savii Banaparte*, *Rhinolophus hipposideros*, *R.ferrumequinum* and *Myotis emarginatus*, 7 reptile species including *Elaphe situla* and *E. Quatuorlineata*. As for insects, there are more than 20 rare and endemic species. Their abundance is remarkably low and they may even turn extinct unless the disturbance of natural biotopes and destructive recreational and commercial activities in the adjacent coastal areas.

Marine communities.

In macrophytobenthos more than 75 species have been distinguished of the

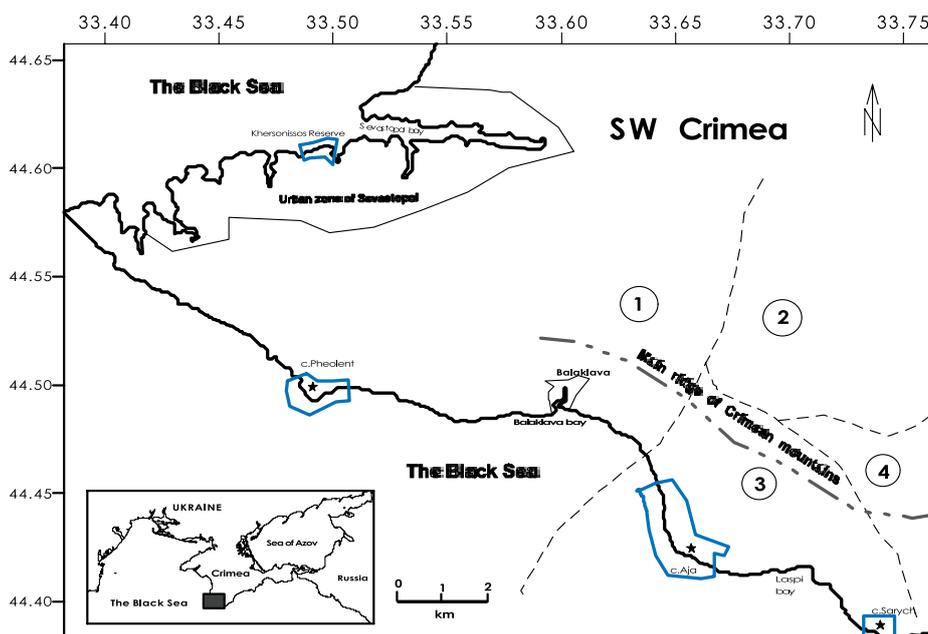


Fig.1. Map of South-Western Crimea. Blue solid lines indicates the boundaries of existing protected areas. Black dotted lines indicates the borders of microclimatic zones (1-4): 1- western pre-mountain zone; 2 - mountain and depression zone; 3 - western zone of the Southern coast of Crimea; 4 - western zone of Southern slope of Crimean mountains.

totality of 108 species known near the Crimean shores. In these communities brown and red algae of oligosaprobic ecological group prevail. Biomass yielded by prevailing brown algae, *Cystoseira barbata* and *C. crinita*, makes up to 3-5 kg/m², sometimes 7.2 kg/m², these algae cover as much rocky bottom area as 50-90%. *Cystoseira spp.* are substrate-forming, the substrate shelters settlements of filter-feeder molluscs *Mytilus galloprovincialis* and *Mytilaster lineatus*, beneficial to self-purification capacity of the coastal ecosystem, and also is nursery places for larvae of many fishes (Gobiidae, Blennidae, Labridae) [9].

In macrozoobenthos the forms sensitive to anthropogenic pollution are prevailed, such as molluscs (*Cerithium vulgatum*, *flexopecten ponticus*, *Donax semistriatus*, *Calyptrea chinensis*), many crustaceans, echinoderms and chordates (*Eugira adriatica*, *Ascidella aspersa*, *Amphioxus lanceolatum*). The species diversity of soft-bottom communities is represented by 80 species. However, recently a tendency has manifested itself towards a quantitative decrease of phyto- and zoobenthos, gradual disappearance of species sensitive to pollution and their replacement by cenoses wherein species-indicators of human-induced eutrophication prevail (near Balaklava and Laspi bays). There are green algae *Ulva rigida*, *Enteromorpha intestinalis* and *Cladophora vagabunda*, benthic predatory molluscs *Tritia reticulata*, *Nana neritea*, *Lucinella divaricata*, *Spisula subtruncata* and *polychaetes Nereis spp.*, *Capitella capitata*, *Nephtys hombergii*, *Polydora ciliata* [8].

The biodiversity of the local demersal ichthyocenoses is comprises over 60 of 87 fish species common to the Black Sea [3]. Rich nutritive base, undisturbed marine environment and the diversity of underwater biotopes are beneficial for preservation and persistence of such endangered species as sturgeons *Acipenser stellatus*, *A. gueldenstadti*, *Huso huso*.

During the ichthyofauna surveys made in 1991-1995 in the coastal waters it was found that many rare fish which have been extinct elsewhere near Crimean shores still persisted there (*Psetta maotica*, *Pomatomus saltatrix*, *Scienna umbra*, *Trigla lucerna*, *Tripteron tripteron*, *Chromis chromis* and others) [7]. It is important to protect and preserve both the near-shore and commercial fish which are important links in the trophic chains of Crimean

coastal ecosystem.

Proposals for protection

The area proposed for protection is 130 km² large, of this 60 km² are coastal water surroundings. The total coastal line is 30 km long, marine borders are 2 km off the shore line. The territory of proposed reserve divides into several different zones are having the different protective

ranks (Fig.2). This functional zonation allows to protect a multiple-use coastal ecosystems with an integrated management system and varying degrees of protection.

) **Coastal and Marine Core zones** (15 % of the reserve area) is a strict reserve, where only research activity is allowed, while forestry, fishery, tourism, agricultural, recreational and other commercial activities are forbidden. A 1 km wide water strip around the Core is a marine protection zone for conservation of unique underwater landscapes, restoration of self-purification capacity and habitat and reproduction area for rare fish species;

) **National & Marine Parks** (35 % of the area) is subject to guided protection, allowing some recreational activity but in the form of organised ecological excursions for local inhabitants and tourists;

) **Terrestrial & Marine Buffer zones** (40 % of the area) is open for regulated recreational use. Forest plantation, primarily plants with high resistance to anthropogenic impact and of high aesthetic value is allowed. A planned infrastructure (minibus and small ferry routes, walking trails etc.) for recreational purposes including tourist camps, marines is permitted.



) The rest of Reserve' territory (10 %) is open to agriculture, habitation and limited municipal activities, recreation service fields are managed by the Administration of reserve. Activities include monitoring of environment and research studies of the terrestrial and marine communities, field training of students-biologists and actions on improvement of awareness of visitors about ecological problems of the Crimea.

Thus, the proposed actions on creation of new coastal reserve in SW Crimea would combine research, municipal and recreational activities with efficient protection and investigation of unique native nature of Crimea. Otherwise, the further development of intensive uncontrolled human-induced impact in the region will destroy the last of extant wild lands and endemic near-shore communities, that in turn will cause a drop in natural potential and biodiversity of the Crimean coast.

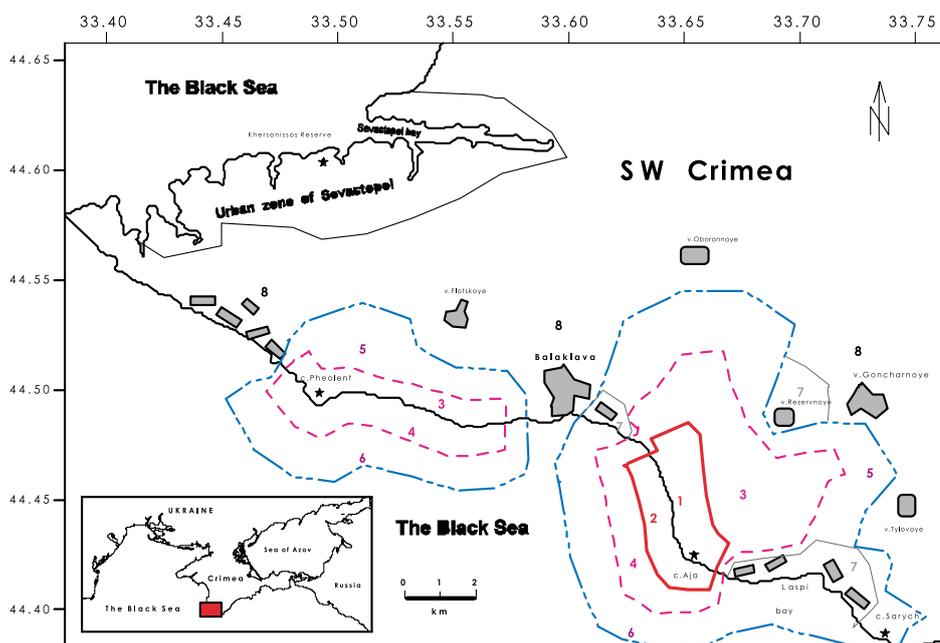


Fig.2. Map of the proposed near-shore reserve of SW Crimea. Categories of the protected 1 & 2 (red solid line) - terrestrial and marine Core zones; 3 & 4 (purple dotted line) -terrestrial and marine National Parks' 5 & 6 (blue dash/dotted line) - terrestrial and marine Buffer zones; 7 - areas of limited municipal and recreational 8 - other non-protected areas. Shaded objects - villages and resort

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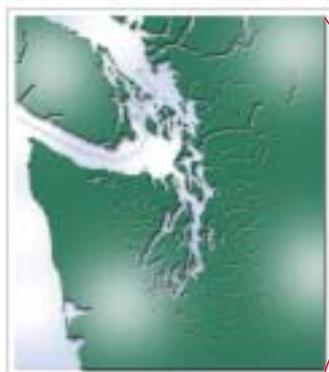
Taking Sound Steps To Protect and Enhance the Puget Sound Estuary



Ms. Nancy Mckay
Chair, Puget Sound Water
Quality Action Team



SCENIC PICTURE OF PUGET SOUND



The Puget Sound Water Quality Action Team works to restore and enhance the biological health and diversity of Puget Sound by protecting and enhancing the Sound's water and sediment quality; its fish and shellfish, and its wetlands and other habitats.

Puget Sound is a magnificent and productive estuary. More than 10,000 streams and rivers drain into Puget Sound. Nearly 85 percent of the basin's annual surface water runoff comes from 10 major rivers. Puget Sound is surrounded by 2,354 miles of shoreline which consists of a mosaic of beaches, bluffs, deltas, mudflats and wetlands.

Our quality of life in Puget Sound, our cultural identity, and much of the promise and potential of this region is based on natural resources and the industries, tourism and recreation that these resources support.

While much of Puget Sound is healthy, rapid growth and development in the region are stressing the system. A steady loss of habitat, alarming declines in some fish and wildlife populations, and closures of shellfish beds are signs that the very best of Puget Sound is threatened.

The Puget Sound Water Quality Action Team was created by our state legislature to enhance the Sound and its resources. We partner with federal, state, tribal and local governments, citizens and businesses to carry-out innovative solutions to the challenges we face in keeping Puget Sound healthy. The Action Team is also part of a national network of 28 programs, which are part of the National Estuary Programs created by Congress under the federal Clean Water Act in 1987. Together we share information and explore new ways to restore and preserve our nation's estuaries.

We're committed to keeping a strong focus on Puget Sound's health by maintaining the progress we've made and by setting actions in place to protect water quality and enhance habitat for the future.

The Organization of The Puget Sound Water Quality Action Team

The Puget Sound Water Quality Action Team includes a governor-appointed chair; the directors of ten state agencies; a city

and a county representative, and a representative of federally recognized tribal governments, each appointed by the governor; and ex-officio representatives of three federal agencies. The Action Team in concert with others, develops and implements two-year work plans that guide protection of water quality and biological resources in the Sound. The biennial work plans are based on the *Puget Sound Water Quality Management Plan*, Washington's strategy for protecting Puget Sound.

The management plan guides the efforts of state and federal agencies and local and tribal governments to address challenging water quality issues facing our region. Plan programs include contaminated sediments and dredging, nonpoint source pollution, habitat, stormwater, monitoring and research, and education and public involvement.

The Puget Sound Council is the citizen-arm of the Action Team and provides advice and recommendations on priorities and work plan actions to enhance the Sound. The Council has 12 members. Eight are appointed by the governor and represent agriculture, business, cities, counties, the environmental community, the shellfish industry and tribal governments. Four members are state legislators.

Science, Coordination, Outreach, and Education

Puget Sound Ambient Monitoring Program

Monitoring and research are vital to understanding the status of Puget Sound's health. The Puget Sound Ambient Monitoring Program (PSAMP) brings together local, state, and federal agencies to assess trends in environmental quality in the Sound. Every two years monitoring data is published in the *Puget Sound Update and Puget Sound's Health*. Every three years, the Action Team hosts a research conference for scientists and resource managers to discuss recent research findings and renew their understanding of the Puget Sound ecosystem.

Puget Sound/Georgia Basin Shared Waters Program

The international boundary between Washington and British Columbia zig zags through the inland marine waters of Puget Sound and the straits of Georgia and Juan de Fuca. Fish, birds and other marine life pass freely through these shared waters, yet the laws, regulations and customs used to manage environmental impacts of human activities vary sharply on opposite sides of the border. Since 1992 the Puget Sound/Georgia Basin International Task Force has connected scientists, agencies and policy-makers on both sides of the border to improve the protection of our common waters. Staff of the Action Team co-chairs and supports the work of the task force.

Outreach and Technical Assistance

Local liaisons form the outreach and technical assistance arm of the Action Team. They provide local and tribal governments, and citizens and businesses with tools and information such as model programs and ordinances, and educational materials.

Public Involvement and Education

The Public Involvement and Education Fund puts money in the hands of dedicated individuals, businesses, non-profit organizations and local and tribal governments for innovative education projects in their communities. The Action Team allocates these contracts every two years.

Publications/Website

The Action Team produces a number of fact sheets and other publications to inform citizens about the health of Puget Sound. Sound Waves, a quarterly newsletter, features articles about regional conservation, restoration initiatives, and an update about Puget Sound's health. Puget Sound Notes, published twice a year, provides technical information on research and monitoring activities. Publications

are available on our website at www.wa.gov/puget_sound/

Some of The Action Team's Accomplishments

Tracking the Vital Signs of Puget Sound: Trends in water quality, habitat, and biological resources have been measured over the last 10 years around Puget Sound. The Action Team reported twice on 17 environmental indicators of Puget Sound's Health. Four Puget Sound research conferences have brought scientists, decision-makers, citizens and students together to discuss findings and learn about issues affecting the Sound and its resources.

Getting Contaminated Sediments Cleaned Up: As directed in the Puget Sound Management Plan as part of a comprehensive, sediment-quality program, Washington was the first state to adopt standards for sediment quality and, in some areas of the Sound, contaminated sediments have been cleaned up.

Preventing Sewage Pollution from Homes and Boats: All 12 Puget Sound counties are developing or enhancing programs to ensure proper operation and maintenance of on-site sewage systems. Puget Sound boaters now have access to 58 sewage disposal facilities around the Sound.

Restoring Shellfish Beds: Action Team agencies, tribal and local governments, and community and industry groups have restored a number of commercial shellfish growing areas around the Sound.

In addition, nearly 150 recreational shellfish areas have been classified as either open or closed for public harvest.

Preventing the Spread of Aquatic Nuisance Species: The work of the Action Team to prevent the introduction of nonnative species to Puget Sound and to control the spread of species already established helped lead to the passage of two new laws that will bolster coordinated prevention and control efforts on the West Coast, and address the discharge of ships ballast water in Puget Sound.

Getting People Involved: The Action Team has funded over 250 projects to educate and involve the public in taking action to enhance Puget Sound. Five field agents funded by the Action Team provide direct education to community groups, schools and business groups.

Working in the Watershed: Forty watershed plans have been developed and are being used to guide actions by cities and counties around the Sound.

Managing Stormwater and Protecting Habitat: Almost half of the local governments in the Puget Sound basin have developed stormwater programs; many have wetland enhancement programs, and marine reserves and marine protected areas have been designated around the Sound.



ASIAN PACIFIC ISLANDER EDUCATION PROJECT BEACH PICTURE
Photographer: Kim Clarke, Tacoma-Pierce County Health Department.
"Kids learn about beach ecology as part of the Public Involvement and Education Fund Program"

Conferences

Coastal Zone Canada 2000 International Conference

FREDERICTON (New Brunswick, Canada) -- An international event focusing on coastal sustainability is coming to Saint John in September 2000. The Coastal Zone Canada 2000 (CZC2000) Conference will take place in the port city Sept. 17 - 22.

Focusing on the theme Coastal Stewardship: Lessons Learned and the Paths Ahead, the conference will deal with four specific topics: community-based actions, coastal health, oceans governance and Aboriginal practices.

The goal of the conference is to develop a collective vision and identify products, policies, and research that will move the field of integrated coastal zone management forward. Accordingly, participants in the event will include the federal and provincial governments, industry, communities, universities, young people and Aboriginal groups from Canada and abroad. About 700 people from 50 different countries will attend.

The CZC2000 Conference has sponsors from the private and public sectors.



Besides the CZC2000 Conference, two other initiatives are on the program: a youth forum and trade show, both of which address the same coastal zone theme. The Youth Forum will be held Sept. 15 - 17, just before the main conference.

These related events have been combined to reflect the responsibility that all sectors of society share for protecting and properly managing the world's coastal zones.

Chairman of the Coastal Canada 2000 Conference, Dr Barry Jones, said New Brunswick, and the Bay of Fundy in particular, is a logical place to hold such an event because of its 2,065 km of extensive and varied coastline. "This event provides an ideal opportunity to promote New Brunswick and the ecological, economic and social wealth of its coastal areas," Jones said. "It also

offers an opportunity to propose initiatives aimed at harmonising methods for managing our coastal zones and to highlight the intrinsic importance of this environment to the communities that live within it."

The CZC2000 Conference will be held at the Saint John Trade and Convention Centre in Saint John, Canada. More information is available at: <http://www.gov.nb.ca/dfa/czc-zcc2000.htm> or via e-mail, czc2000@gov.nb.ca <mailto:czc2000@gov.nb.ca>



International Symposium on Protection and Management of Coastal Marine Ecosystems EMECS International Symposium in Bangkok

Objectives:

More than 60% of the population of Asian and the Pacific region lives in coastal areas, and coastal marine ecosystems provide critical resources to support this population. However, due to increasing pressure, the coastal and marine ecosystems are degrading at an alarming rate. Protection and proper management of marine coastal ecosystems are essential elements for the rational use of coastal resources and sustainable development.

Organiser

United Nations Environment Programme (UNEP)

East Asian Seas Action Plan Regional Coordinating Unit (EAS/RCU)

International Center for the Environment Management of Enclosed Coastal Seas (International EMECS Center)

Co-Sponsors

The Thai Marine Policy and Restoration Committee

Office of Environmental Policy and Planning (OEPP)

Chulalongkorn University

Southeast Asian Programme in Ocean Law, Policy and Management (SEAPOL)

Session Theme

- 1) Socio-economic importance of marine coastal ecosystems including ecosystem evaluation, e.g. mangroves, coral reef, seagrass and wetlands;
 - (i) Conservation and restoration of marine coastal ecosystems;
 - (ii) Sustainable use of marine coastal ecosystems;
 - (iii) Economic valuation of coastal ecosystems;
 - (iv) Community-based management of coastal resources
- 2) Legal requirements and implications for protection and management of coastal marine ecosystems;
 - (i) Legislation and policy making for protection and management of coastal marine ecosystems;
 - (ii) Legal requirement and enforcement;
 - (iii) Agency collaboration for Co-ordinated policy development
- 3) Scientific and technical understanding for protection and management of coastal marine ecosystems
 - (i) Monitoring and marine habitat assessment;
 - (ii) Marine protected areas;
 - (iii) Impact on the environment caused by the loss of coastal marine ecosystems;
 - (iv) Impact of marine pollution on coastal resources

Date

12-13 December, 2000 (2 days)

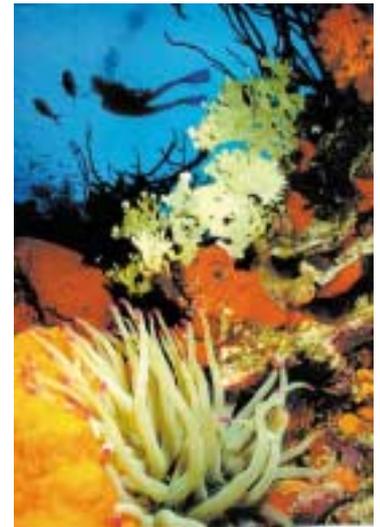
Venue

Siam City Hotel, Bangkok, Thailand

Speaker

About 30 invited speakers from the countries of the Association of Southeast Asian Nations (ASEAN), China, R. Korea and Japan taking into account the themes of the symposium.

For more information: International EMECS Center Secretariat (secret@emecs.or.jp) or UNEP EAS/RCU UNEP (jiang.unescap@un.org Web:<http://www.unep.org/unesp/regoffs/roap/easrcu/index.htm>)



The Ninth International Greening of Industry Network Conference

SUSTAINABILITY AT THE MILLENNIUM Globalization, Competitiveness, & the Public Trust The Greening of Industry Network - Asia Chulalongkorn University Bangkok, Thailand

Date: January 21-25, 2001

Venue: The conference venue will be the Imperial Queen Park Hotel, a five-star hotel in Bangkok with full facilities for conferences, breakout sessions, small group meetings, and exhibitions. Participants of the conference are entitled to a special hotel rate.

Time Table (2000-2001)

October 30	Full papers due
January 21-25, 2001	9th International Greening of Industry Network Conference

We have hoped to receive more papers from Asia countries. At the current stage, we may have some rooms for good papers although not many. The deadline of the abstract has well passed the set date but we could be flexible up to the end of August. We hope to be able to notify the acceptance of the papers in mid August for the papers we already received.

Funding and Fees: The registration fee includes all sessions, exhibitions, lunches, receptions, the annual network banquet, and conference materials. The registration fee for participants (including speakers) is US\$450. Participants from developing and emerging economies may apply to the Network's Participation Fund for registration scholarships. The cost of travel and accommodations are additional and are not the responsibility of the conference organizers

For more information: <http://www.eric.chula.ac.th/GIN-Asia>



Books

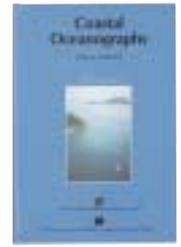
Interactions between Estuaries, Coastal Seas and Shelf Seas

The 9th meeting of the International Biennial Conference on Physics of Estuaries and Coastal Seas (PECS), sponsored by Kyushu and Ehime Universities, took place from 24 to 26 September 1998 at Ehime University in Matsuyama, Japan. The special theme of this Conference was "Effects of Open Sea Variability on Coastal Seas and Estuaries -Episodic Events and Long-term Trends-". This volume includes 19 papers of this conference. (Terra Scientific Publishing Company, Tokyo)



Coastal Oceanography

This volume summarizes the studies carried out by my colleague and I from 1974 to 1996 at the Laboratory of Coastal Oceanography, Department of Ocean Engineering, Ehime University, Japan. In a sense, then, this book is my personal View of coastal oceanography because my studies have covered almost the whole field. (Terra Scientific Publishing Company, Tokyo)



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Center's Calendar (May ~ July)

● JICA Participants visited the Center

On June 9, 2000, 9 participants in the JICA training course "Bioproduction and Environmental Management in Semi-Enclosed Sea" visited our Center. The Center introduced our activities to them and exchanged the information on the future EMECS activities.



● The Center have decided our training course of JICA Participants of this year.

JICA and the Center held the meeting with Prof. Tsuno, course leader, On June 29, 2000 to discuss the program contents and to select the participants of JICA training course of this year. The Center will accept 6 persons from China, Indonesia, Philippines, Saudi Arabia, Thailand and Turkey as participants in this training course. The Center will kick off this program from August 23 through October 20 in cooperation with the nation and local governments, Institutes, Universities, private companies.

● The Center participated in the 8th Earth Environment Symposium.

The Center participated in the 8th Earth Environment Symposium organized by Japan Society of Civil Engineers which was held in Tokyo on July 6 and 7, 2000.

● Preparation for the Symposium in Bangkok.

Prof. Kumamoto and the Center's official and staff members visited UNEP EAS/RCU, Chulalongkorn University and Thai government from July 19 through 23 to discuss the matters of the symposium which will be held in Bangkok this December.

Bulletin Board

Information regarding membership of the International EMECS Center

The goals of the International EMECS Center are to build an organized network of researchers, policy makers, companies, private citizens and other entities, to promote academic exchanges held on an international level and activities such as providing assistance for research and training in order to help preserve existing enclosed coastal sea environments and create new ones, and to build a society capable of sustainable development in which human beings can coexist with the myriad forms of nature.

Readers who support these goals are invited to join in helping to achieve them by becoming Members of the International EMECS Center. Please also help "spread the word" by telling your friends and colleagues about our Membership program.

Notice

We still have the CD-ROM and report on "Water Quality Conservation for Enclosed Water Bodies in Japan" in stock. Please feel free to ask the Secretariat if you'd like. Regarding the Proceedings of the MEDCOAST99/EMECS99 Joint Conference, you can purchase it from MEDCOAST Secretariat (medcoast@metu.edu.tr)

Call for Articles

Contributions from readers (reports on research on enclosed coastal seas, conference information, etc) would be greatly appreciated.

Annual Dues:

Organizational Membership	100,000 JPY
NGO Membership	30,000 JPY
Individual Membership	10,000 JPY

Benefits

- 1 Priority status for participation in symposiums, seminars and the like, sponsored or cosponsored by the Center
- 2 Access to the latest information gathered by the Center.
- 3 The opportunity to participate in the formation of research projects and other activities initiated by the Center.

International EMECS Center

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