

P8-Black Sea

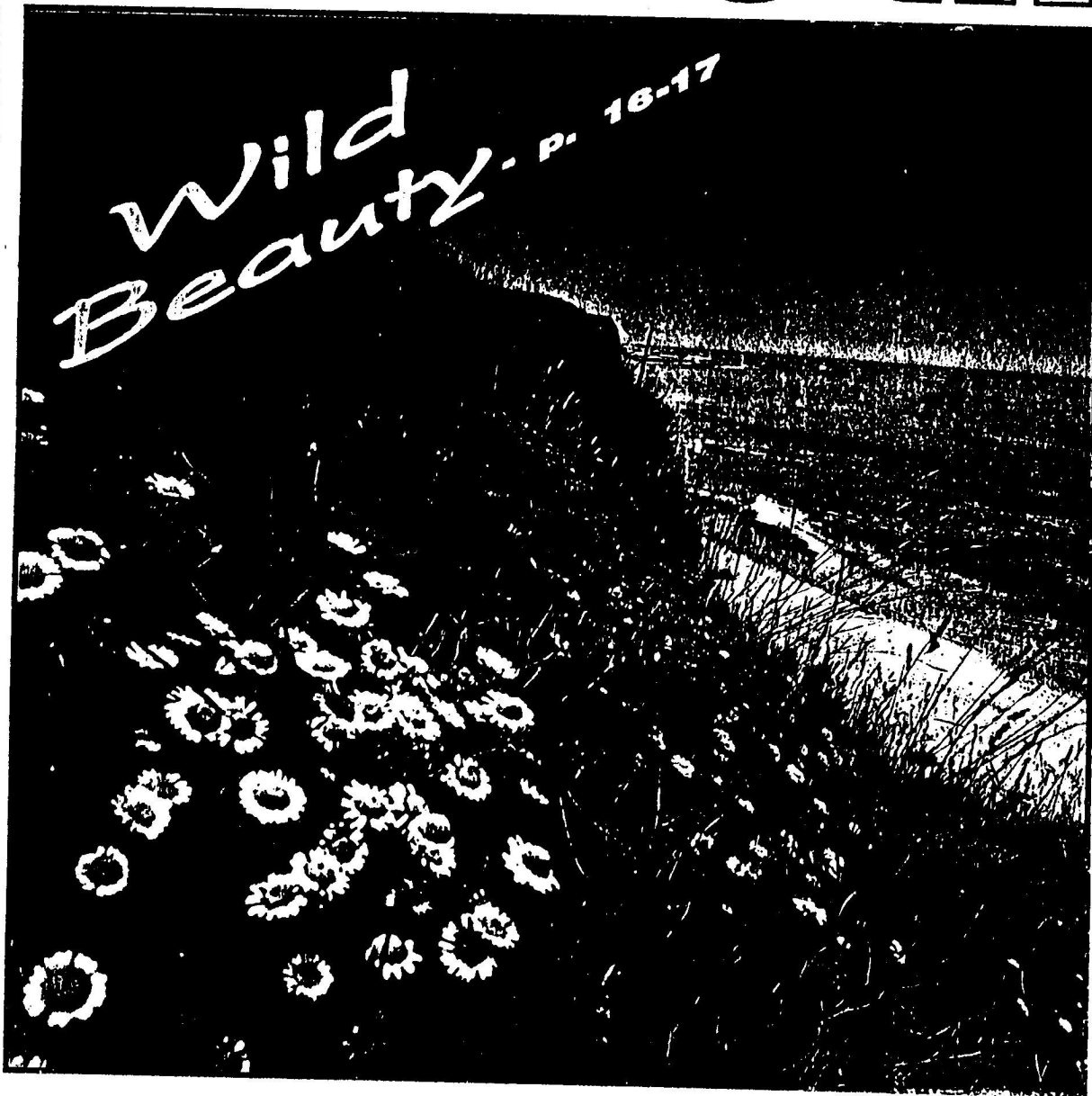
5492

MARINE TECHNOLOGIES FROM EAST EUROPE

MarTech

VOLUME 2, NUMBER 1, MAY 1992

*Wild
Beauty - p. 16-17*



ECOLOGY: The Environmental Aspects of the Oil
and Gas Research and Production • REGIONAL
REPORT: Murmansk • DOSSIER: Fishing War?



MARINE TECHNOLOGIES FROM EAST EUROPE **MarTech**

VOLUME 2, NUMBER 1, MAY 1992

PUBLISHER

Dr. Nikola Dukov

EDITOR

Tinko Trifonov

ASSISTANT EDITOR

Georgi Dimitrov

DESIGN

Angel Zlatanov

EDITORIAL

ADVISORY BOARD 1992

Prof. Michail Ageev
Institute of Marine Technology Problems,
Vladivostok

Prof. Dr. Jerzy Doerffer
Technical University, Gdansk, Poland

Deam Given
Editor/Publisher Waves, West Star
Productions, Spring Valley, CA., USA

Don Walsh
President, International Maritime INC.,
San Pedro, CA., USA

Prof. Dr. Vyacheslav
Yastrebov
Director, Institute of Oceanology
of the Academy of Sciences, Moscow

Morski Sviat
(Maritime World)
Publishings

P.O.Box 86
25, Maxim Gorki Str.
Varna 9000
Bulgaria, Europe

Tel/fax: +359 52 237147



The wild beauty
of the latest reserve
on the Bulgarian Black Sea coast.
Will it survive the invasion of man?

Cover photo
and photos on pages 16-17 -
Rosen Donev

CONTENTS

ECOLOGY

CoMSBlack and the Black Sea.....5

COOPERATION

Marine Technology - Key Area.....22

ECONOMY

"Plan Marshal" - is what Eastern Europe Needs....24

REGIONAL REPORT

Murmansk - Specialized Fleet Idle.....27

DOSSIER

Fishing War Or Something Else?.....29

MarTech is a commercial news magazine, covering the development and trends of marine technologies in Eastern Europe and the C.I.S.. It is distributed mainly in the West European countries, US and Canada to encourage cooperation and mutual understanding. MarTech is a quarterly published by the Center of Ocean Engineering Ltd. - Varna, and is sponsored by the Morski sviat (Maritime World) Publishings.

MarTech welcomes advertisements, articles, notes and information, as well as photo and illustrations, for all its issues. Material should be attractive for the readers interested in the latest development in marine technologies.

ISSN 0881 - 4660

During the past few years, international attention focused on the severe ecological stress placed on marginal seas, especially the Black Sea. The pollution of the major rivers entering this sea is well-documented, as are more local sources of pollutants such as Bourgas Bay in Bulgaria and similar industrial centers. Commercial fisheries have collapsed, but the relative contributions of overfishing and anthropogenic impact are not yet quantified. Phytoplankton blooms have become more and more intense, resulting in areas of low oxygen on our shallow continental shelves and indirectly in reduced tourism. Large-scale changes in benthic ecosystem structure and function are documented, although neither uniformly nor comprehensively. This increased public awareness has caused the new government leaders to take note, and to seriously address the myriad of problems.

In the past, most research and monitoring of the Black Sea followed strict national boundaries. That pollution follows no national boundaries was ignored, with the result a seriously degraded ecosystem. This degradation is particularly critical to the Black Sea, which suffers from strong natural stresses. Of the 2200 m of water depth, only the upper 100 m on average contains oxygen: the remainder is a lifeless desert where only bacteria thrive. The threat of further deoxygenation of the Black Sea by man's activities, the suggestions that over-control of river flow into the sea by way of dams or diversions, and the spectre of global climate change all focus urgency on this situation. And the solution will require regional action, not just national activities.

In recognition of this need for regional action, scientists from the Black Sea coastal states embarked on a bold new experiment. Joined by the Woods Hole Oceanographic Institution, a regional scientific and monitoring framework has been established to address in a uniform and sophisticated manner the environmental problems of the Black Sea proper. Formed in Varna, Bulgaria, in October 1991, this new Program emerged from the interests of the various littoral countries: The Cooperative Marine Science Program for the Black Sea (CoMSBlack). This Program has various goals; its terms of reference are outlined in the accompanying sidebar. Fundamentally, the CoMSBlack was set up as a non-governmental group with the intent of coordinating and cooperating on marine science issues of the

A Coalition to Diagnose the Patient:

CoMSBlack and the Black Sea

by

D.G. Aubrey

Woods Hole Oceanographic Institution,
Woods Hole, MA USA

Z. Belberov

Institute of Oceanology, Bulgarian Academy
of Sciences, Varna, Bulgaria

A. Bologa

Romanian Marine Research Institute,
Constantza, Romania

V. Ereemeev

Marine Hydrophysical Institute,
Sevastopol, Ukraine

U. Unlauta

Middle East Technical University,
Erdemli, Turkey

Black Sea. This group of interested scientists from experienced and recognized institutions on the Black Sea coast has joined hands to provide the expertise and facilities (notably ships and measurement tools) to address these marine environmental issues.

CoMSBlack has offered its services to local, national, and international agencies to provide the scientific and monitoring know-how required to tackle the problems of the Black Sea. Knowing that making accurate measurements in this tempestuous sea requires not only great expertise, but also well-equipped ships and well-trained scientists and technicians, CoMSBlack is addressing the marine training (where lacking) and marine facilities requirements of these littoral countries. Since all Black Sea riparian countries have a national program of some magnitude, one major goal of CoMSBlack is to coordinate where needed these projects in order to stretch limited resources and to create common standards for such research. In addition, by focusing on a regional perspective, CoMSBlack will be able to design

more effective monitoring arrays, with participation from all Black Sea countries without concern for maritime boundary restrictions. A commonly voiced question is how scientists can materially improve the environment, since

Sea is sure to fall short. A common analogue used is that of the medical profession: first, triage is performed to determine the extent of the injuries, then the victim is stabilized to maintain life support, and then the various ills

The seismic research vessel m.v. "Fred J. Agnich" was assigned by major companies to study the Bulgarian shelf resources. A look at the computing center.



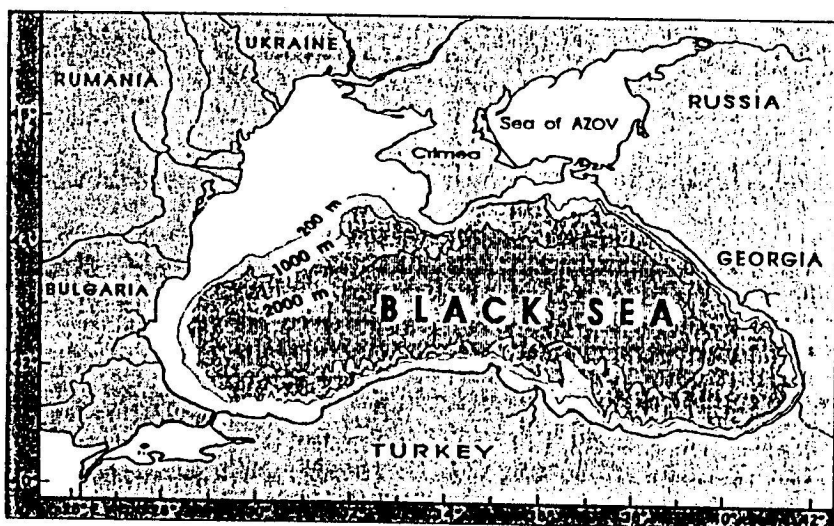
scientists conduct studies and don't design facilities. The simple answer is that without top quality, coordinated science and monitoring, by trained and experienced people and contemporary facilities, the clean-up of the Black

are treated in order of their severity. The same must be done with the Black Sea: we need to understand the primary sources of pollution, we need to understand the marine processes by which these particular pollutants most affect

the sea, and finally we need to evaluate using sophisticated models and analysis what effect various remedies will have on the Black Sea. Without this triage, there is considerable likelihood of failure. In the Black Sea, we may have only a short time to find the cure.

Although each littoral country as well as foreign countries has participated in Black Sea research for up to 100 years, past studies suffer from lack of completeness, absence of common standards and approaches, and discrepancies in national personnel training and marine facilities. By coordinating and cooperating between various national programs and external interest, the path to adequate understanding will be cleared.

The CoMSBlack has conducted several activities to date that demonstrate its success. First, a successful monitoring effort known as HydroBlack'91, involving par-



Black Sea is a closed basin and only the layer of down to 100 m contains oxygen

ticipants from all Black Sea countries was carried out in September, 1991. This was the first cruise ever to map out synoptically for the entire Black Sea the health of its waters. In essence, HydroBlack'91 took the pulse of the entire Black Sea, giving us a data base and understanding against which previous and future measurements can be compared. More than three hundred stations were occupied, with water column measurements made to nearly full water depth. More than 100 stations included measurements of nitrogen, oxygen, hydrogen sulfide, phosphorus, and other biogeochemical parameters. The data set is unprecedented in its coverage for a synoptic view of the Black Sea. Two workshops detailing the results of this cruise have been held so far: one in Woods Hole resulted in a technical report (Aubrey et al., 1992), the second in Yalta, Ukraine.

The second major accomplishment of this effort was the completion of an International Workshop on the Black Sea, held in Varna, Bulgaria, in September-October, 1991. This workshop provided an overview of our state of knowledge of the Black Sea, and formulated a strategy for marine science and monitoring of the Black Sea for the next decade. Using this framework, the synoptic/holistic coordination of the marine science and monitoring Black Sea efforts can begin.

Planning is well underway for 1992 activities, some of which already have been held. Broad expansion includes more environmental focus, expanded cruise activity, and concentrated training and technology transfer. Two basin-wide monitoring cruises will be held: one in late May, 1992, and one in Autumn, 1992. These are fully interdisciplinary

nary cruises with broad participation from scientists throughout the region.

Further information on this program can be obtained from any of authors of this article.



Cousteau Expedition Flies Over Bulgarian Nuclear Power Station

This mission performed by a French crew and researchers caused a lot of noise in the Bulgarian media. The reason was that it is absolutely prohibited for any kind of flying craft to cross the air-space above the Kozlodui nuclear power station on the Danube. In fact - as it was later revealed - the French chopper flew some 1,200 or more meters beside the station.

The world famous French ocean-lover and researcher Jacques-Yves Cousteau is working on a large scale project concerning the ecology of the Danube river. For two years a team of scientists sponsored by the Cousteau Foundation is making a thorough research of the river. A crew of film-makers is following the research. A TV-serial about "what I call the Dunavia country" is to be released after the expedition is over, said Cousteau himself when he visited Bulgaria in December last year. Cousteau with a crew of experts then inspected the Kozlodui power station in order to take a personal view and attitude towards station's safety. Afterwards he handled the Bulgarian president a report on the matter. This particular nuclear power station is of great concern for the West Europeans because its first two old fashion reactors have been built without a proper anti-earthquake safety equipment.

The chopper mission followed in early March this year. In fact the scientists' goal was different this time. They have flired over certain points of the river in several countries to explore the natural and caused by human activities radioactive pollution on the river's shores. It is known that they have flired over similar power station near the Hungarian city of Pecs. The surveillance equipment of the chopper included computer-based technologies which produced colour maps which clearly showed the radioactive pollution. That particular research program was sponsored by the European Bank for Reconstruction and Development and the International Nuclear Power Agency (MAAE) based in Vienna.

CoMSBlack will continue to offer the combined efforts of all involved institutions to assure that marine science and monitoring is of sufficiently high quality to provide managers and policy makers with the most up-to-date

data and analysis. This high quality information then can be used with the other required site inputs to derive a comprehensive, regional strategy for the protection of the Black Sea. When the Convention for the Protection of the Black Sea against Pollution is signed as it must be, the activities of CoMSBlack will help assure that this Convention can profit from an existing framework, to assure its implementation and coordination.

The challenge to save the Black Sea lays before us. CoMSBlack is willing and eager to con-

tribute its part: that of providing the highest quality marine science and monitoring capabilities, on a regional basis, to provide significant and necessary guidance to the managers and decision-makers. Only by doing this can we assure that investments made within this region will contribute successfully to the improvement of the Black Sea environment.

TERMS OF REFERENCE COOPERATIVE MARINE SCIENCE PROGRAM FOR THE BLACK SEA

Implementing the recommendations of the Workshop on the Black Sea,

Coordinating Marine Science activities, as appropriate, among the Black Sea riparian nations and foreign countries,

Improving communication among scientists in these countries,

Providing highest quality science, published in refereed literature, to provide decision makers with a solid scientific framework for management, policy, regulatory, and legal issues regarding the Black Sea,

Serving a fund-raising function for the member nations, and

Serving as a non-governmental body to communicate with the involved governments as well as national, international (including UNEP, as well as the Convention for the Protection of the Black Sea) and local programs on the Black Sea.

The methods used for implementation of the above terms of reference include:

Establishment of sub-groups for carrying out specific goals related to the Marine Science Program,

Hosting workshops with the sub-groups to achieve specific goals for those sub-groups,

Encouraging cooperative marine science projects, such as those outlined in the Working Group reports, by coordination and where possible by fund-raising,

Hosting Black Sea meetings to encourage rapid and free dissemination of recent results, and close interaction with management, legal, and policy interests,

Publication, where appropriate, of scientific articles and books on the Black Sea,

Encouragement or implementation of a monitoring, data base management, and geographic information system (GIS) for the Black Sea riparian countries,

Strengthening of ties with private, national, or international science bodies.

SHIP AND CTD INVENTORY HYDROBLACK '91

Vessel	Country	CTD	Dates	Number of Stations
R/V Akademik	Bulgaria	Sea Bird SBE-9	2 - 12 Sept 91	53
R/V Bilim	Turkey	Sea Bird SBE-9	5 - 23 Sept 91	104
R/V Prof.Kolesnikov	Ukraine	Istok V	9 - 29 Sept 91	94
R/V Parshin	Ukraine	Hydrozond	8 - 12 Sept 91	40
R/V Piri Reis	Turkey	Sea Bird SBE-9	7 - 17 Sept 91	16
TOTAL				307