Intergovernmental Oceanographic Commission
Reports of Governing and Major Subsidiary Bodies

IOC Black Sea Regional Committee First Session

Varna, Bulgaria
10-13 September 1996

UNESCO

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1. OPENING

The Executive Director of the Bulgarian National Committee for Oceanography and Chair of the Organizing Committee Mr M. Ganchev opened the Session at 10 o'clock on 10 September 1996. He welcomed all participants and expressed his great appreciation of the fact that all Black Sea Coastal States were represented and present. He stated that this first Session of the Regional Committee was organized jointly by the Bulgarian National Oceanographic Committee and the IOC Secretariat on the basis of Resolution 17 of the Eighteenth Session of the IOC Assembly. He informed about the meeting documents and main tasks before the Committee and expressed a hope that the Session will result in an agreed regional co-operative programme. He introduced the Bulgarian Delegation and then invited other delegations to introduce themselves. All delegations presented themselves. The delegate of Georgia read a message from the Minister of Foreign Affairs of Georgia, wishing the Committee all success (given in Annex IV). The list of participants is given in Annex III to this report.

Dr Ganchev informed about available facilities including interpretation and secretariat services. He then suggested the Executive Secretary IOC as the Chair of the day, and possibly of the session. This was unanimously approved.

The Executive Secretary IOC accepted the chair and presented a brief outline of the work of the IOC Regional Subsidiary Bodies and related experiences. He drew attention to the Resolutions of the IOC Assembly and the Report of the Intergovernmental Meeting on the IOC Black Sea Regional Programme in Marine Sciences and Services (Paris, 7-9 April 1995). He pointed out several important matters therein as regards the structure and responsibilities of the Committee, and also referred to the IOC Manual as regards the regional bodies.

2. ADMINISTRATIVE ARRANGEMENTS

2.1 ADOPTION OF THE AGENDA

The Chair drew attention to the draft agenda and time schedule and invited comments.

Following suggestions from several delegations, the Committee decided that the substantial part of the session should be concluded on 12 September. Detailed discussions of scientific aspects could continue on 13 September.

The adopted agenda is given in Annex I.

2.2 DESIGNATION OF THE RAPPORTEUR

Following a proposal by Turkey, Dr A. Bologa (Romania) was unanimously elected the rapporteur of the session.

2.3 CONDUCT OF THE SESSION

Following discussion it was agreed that consideration of management and resource aspects of pilot projects could go on in parallel with the scientific seminar. These considerations would

involve the Heads of the delegations. The Committee decided that the session should focus on the two pilot projects and aim at reaching an agreement on their phased implementation.

Clarification was given on the contents of the scientific presentations (list of presentations, given in Annex V). The Committee noted that these would be published through the Black Sea 1997 Symposium in Varna, Bulgaria.

3. STRUCTURE AND TASKS OF THE COMMITTEE

The Committee reviewed the Terms of Reference and initial tasks of the Committee given in Annex I and II respectively of Resolution XVIII-17. The Committee took note that it has been established accordingly *"as the management body for the IOC Black Sea Regional Programme"*. It also noted that its tasks included liaison and cooperation with other programmes and bodies active in the Black Sea Region, the specification of expected outputs of the projects undertaken through the Committee, establishment of regional communication network and verified scientific databases.

The Committee stressed its responsibility in specifying required resources for its work, as well as the expected sources. There are mainly national resources and commitments, resources provided from the IOC and resources to be obtained from donors. These donors can be bilateral, multilateral or the various large international organizations such as UNDP and GEF. The Committee decided that its agreed programme should be presented so that the required resources and the expected contributions from the participating Member States, the IOC and potential donors are all identified. In this way a realistic and comprehensive work programme can be formulated.

The Delegate of Turkey noted the reference to UNCLOS in the Terms of Reference. He stressed that Turkey is not a signatory of UNCLOS, and that the Regional Committee should note that Turkey will implement in the Black Sea the procedures she has adopted in the waters surrounding Turkey and that the Regional Committee could facilitate this matter with regard to the Research Regime.

The Committee stressed that the representation on the Committee is that of national representations appointed by the Governments and observers. The Committee will facilitate cooperative efforts in addressing the common problems. Through the international cooperation the resources provided by the individual countries are multiplied, and each Government gets more in return than they contribute.

The Committee emphasized that its programme should build on national programmes, needs and priorities. The interdisciplinary and holistic approach was also to be a leading principle.

The Committee reviewed and agreed on its structure: a chair, one vice-chair and an executive secretary. These should all be elected from the members of the Committee and serve on a rotation basis. The elections should be held in accordance with the IOC custom at the end of each session of the Committee. For the present session an interim chair was elected (Executive

Secretary IOC), a vice-chairman (Dr. V.N. Eremeev, Ukraine), and the Executive Secretary (Dr M. Ganchev, Bulgaria). The duties and terms of reference of chair and vice-chair are provided in the IOC Manual. The terms of reference for the Executive Secretary of the Committee are given in Annex VII.

The National Co-ordinators as the national representatives on the Committee were all identified and are noted in the list of participants (Annex III).

One very important role of the National Co-ordinators is to inform the relevant national institutions and agencies about the existence and work of the Committee. A dialogue should be established also with the user community at the national level. The National Oceanographic Committees will also have to become active in this matter and can be used as a relevant mechanism by the National Co-ordinators.

The information about the IOC Regional Committee and IOC itself should be presented so that they are regarded as tools to be used to help address issues and problems of society.

For each of the pilot projects the Committee must identify an international project co-ordinator and each National Co-ordinator will appoint a national project co-ordinator. The Committee Executive Secretary of IOC will identify the staff member of the IOC Secretariat who will serve the Committee in IOC. For the first period this will be Mr D. Travin.

The Committee stressed that documents and proposals for projects for the Committee must be circulated to all National Co-ordinators well before the session of the Committee.

The Delegation of Georgia recalled the results of the First Inter-parliamentary Conference on the Black Sea, Istanbul, 10-12 July 1996, and in particular that the Black Sea Economic Cooperation should be approached for support to the implementation of agreed projects of the Committee, and in particular its Working Groups on Science and Environment. It should be emphasized in this process that all Black Sea Coastal States are participating in the Regional Committee and its projects.

4. WORKING PLAN FOR THE COMMITTEE, 1996-97

The Committee reviewed the present state and formulation of the two pilot projects, which were identified at the Workshop in Varna (1994) and further elaborated intersessionally and discussed at the Intergovernmental Meeting in Paris (1995). The Committee received updated revisions of the pilot projects at the meeting. These were reviewed and all delegations expressed their views on the pilot projects.

First it was agreed that the term pilot project should be understood to mean the initial phase of a project that will gradually lead to a substantial effort in which all the Black Sea Coastal States participate, although the initial phase may not involve all the members.

Overall support was expressed for the pilot projects. However, certain basic principles were emphasized for each of the pilot projects.

Pilot project No. 1

Comments and suggestions include: use experiences from the global GOOS and in particular its regional components such as NEAR-GOOS and EURO-GOOS; start with strengthening IODE, GLOSS and Ocean services in the region; project (and GOOS) should be organised on basis of existing services and systems; a preliminary task would be to make an inventory of such, including existing observation networks/systems and relevant technology; a primary objective is to solve the organisational task; should relate to the GOOS modules, such as LMR*, HOTO**, Coastal and Services Module; and should be in harmony with the GOOS strategy and plan; relevant workshops should be organized in 1997 to specify the project; an inventory of on-going data exchange and existing data base should be made; an effort should be made to rescue existing data, in particular chemical and biological; the aim in the long term is to establish a balanced operational forecasting system, which includes observation, data assimilation and modelling; initially some specific tasks can be addressed e.g.; sea level (Black Sea GLOSS); clear links to other IOC programmes such as IODE, GIPME should be ensured; a realistic implementation schedule must be agreed; a community model has already been agreed upon.

Specific initial pilot activities could include: sea level observations (Black Sea GLOSS); marine forecasting; training through regional participation in national cruises; modelling workshop, data rescue efforts and intercalibration efforts.

Pilot project No. 2

Comment and suggestions include: should aim for producing a quantitative model of sedimentary material as well as pollutant fluxes and reconstruction of recent geological history as the basis for ecological forecast for Black Sea; an international expedition may be organized and national efforts in national coastal waters using a common approach; data quality and intercalibration exercises should be organized; EU-MAST should be approached for possible funding and external co-operation could be also established; the project is very essential for the understanding the Black Sea ecological system; inputs from rivers must be particularly investigated; the project is very large and must be more focused to be realistic - resources will not otherwise be available; two parts are essential: paleo and present conditions. The project is interdisciplinary and this must be an essential element in its implementation; bio-geochemical cycles and processes are major factors to be included; connection and linkages should be sought with IGBP, in particular JGOFS and LOICZ; an initial effort should focus on preparing a science plan, using an approach in harmony with those of the JGOFS and LOICZ; one harmonized version of the project plan must be established and agreed upon by the Committee.

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* LMR = Living Marine Resources

** HOTO = Health of the Ocean

In concluding these deliberations the Committee reviewed the plans for the scientific seminar on 11 September and identified the chair persons for the sessions of the seminars particularly concerned with the pilot projects. These persons were also charged to chair, lead and report on the working group discussions for the pilot projects.

The two pilot projects were reviewed and revised in two subgroup. The resulting revised project proposals were presented in the plenary session of the Regional Committee in the morning session on 12 September. The Committee reviewed and discussed the proposals. An overriding

principle for both proposals are that the Committee as a whole supports both. They are regionally co-ordinated intergovernmental projects within the IOC framework. The principles of data exchange adopted by IOC through the IODE must be followed and the policy of open and free data exchange must be applied. The quality control principles developed through relevant programmes and existing regional projects should be used. The data should be exchanged in a timely fashion through existing NODCs or the national institution identified by the National Co-ordinators for those cases where NODC has not been established.

Inventories should be made of existing data and data base, and data rescue operations should be carried out. Reference was made in this context to IOC Workshop Report No. 88*. The revised pilot project proposals are given in Annex VI.

Particular points for Pilot Project No. 1

The revised version of the project document covers the needs of the operational and scientific aspects. Experiences from other GOOS related actions are used.

The delegation of Turkey expressed full support for the pilot project No. 1 (as well as pilot project No. 2). Their contributions will be part of the Turkish national programmes. The delegation expressed the wish that requirements and contributions from the participating countries should be clearly identified through the National Co-ordinators. Small research ships can be used to carry out repeated surveys (sections or polygons) so as to obtain time series of most important parameters. Turkey is initiating this in its national waters.

The delegation of Russian Federation noted that earlier programmes which had been stopped could be used to identify sites (stations) so as to obtain a linkage to existing time series.

The international project co-ordinators for pilot project No. 1 are Dr S.U. Unluata (Turkey) and Dr L.M. Popova (Bulgaria).

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* IOC-CEC-ICSU-ICES Regional Workshops for Marine States of Eastern and Northern Europe (Global Oceanographic Data Archeology and Rescue [GODAR] project).

Particular points for Pilot Project No. 2

The delegation of Turkey emphasized that the surveys in the national waters should be carried out by the coastal State. There can be possibilities to have scientists provided for training purposes for other Black Sea States participating in these national survey cruises. It may be appropriate for this pilot project to divide the tasks between the participating countries, and ensure that agreed methods, standards and approaches are used by all. National Co-ordinators should send to the Executive Secretary of the Committee the national project contributions and plans, with copies to all National Co-ordinators.

Any approach to outside donor organizations should be done in an organized fashion through the Executive Secretary of the Committee in consultation with the Chair and Vice Chair. National Co-ordinators should be informed.

The National Project Co-ordinators should co-ordinate relevant national data inventories and related quality control, and ensure proper exchange of the quality controlled data in accordance with the principles agreed and stated above. Deadlines for these actions are provided in the Workplans of the pilot projects.

Needs of existing data should be specified and requested from existing NODCs, as well as the World Data Centres (e.g. World Data Centre B, Oceanography in Obninsk, Russian Federation). A distributed data base should be developed for the project. The NATO-TU waves and GEF data bases should be approached so that existing relevant data within can be made available for the projects. The international project co-ordinator for the pilot project is Dr K. M. Shimkus (Russian Federation).

Under these conditions the Regional Committee adopted both pilot projects as presented and reviewed.

5. CONSIDERATION OF OTHER INITIAL TASKS

The Regional Committee reviewed its other initial tasks identified in Annex 2 to Resolution XVIII-17.

Item (i) and (ii) are covered by the formulation of the two pilot projects and the workplan.

Item (iii): The Regional Committee considered that this task will be initiated through the pilot projects and that the experiences obtained should be used to extend and ensure a sustainable communication network; some existing programmes have established communication networks which should be used to the extent possible and supplemented as required.

Item (iv): The Regional Committee agreed that the pilot project proposals would be transmitted through the National Co-ordinators and the Executive Secretary of the Committee to relevant donors. The IOC Secretariat may also help establish dialogue with some potential donors. Through the IOC Secretariat information may also be provided to the National Co-

ordinators on those European institutions interested in potential cooperative-partnership research in the Black Sea.

The Vice Chair, National Co-ordinator of Turkey and Executive Secretary of the Committee, will contact and visit the Black Sea Environmental Programme Co-ordinating Unit to discuss cooperation and a possible MOU, following transmittance of the report of this session to the PCU. They will also at the same time visit the Black Sea Economic Co-operation Secretariat.

Item (v): The pilot projects need to establish relations and cooperation with other relevant IOC programmes, including IODE, GIPME and GOOS.

Items (vi, vii, viii): These are partly initiated through the pilot projects and experiences obtained from actions in the pilot projects will be used to proceed further. Specific activities of supplementary nature will also be identified through the pilot projects.

The Regional Committee considered it most relevant to use the 1998 International Year of the Ocean to organize dedicated activities aiming at awareness creation and establishing an improved dialogue between the scientific community and other parts of the society, e.g. industry and economic development activities, policy and decision-making authorities, as well as the public at large, including schools. The Delegation of Bulgaria informed the Committee about an initiative in this direction in Bulgaria. The Delegation of Romania informed about the existing plans for a major scientific conference in Romania in 1998 with possible NATO support, to review the current scientific understanding of the Black Sea.

The Regional Committee adopted its Resolution 1, and decided that the Resolution together with the Workplan and Budget should be transmitted to the IOC Executive Council (Paris, 24 September - 4 October 1996). The whole report will be delivered to the IOC Assembly in 1997.

6. DATE AND PLACE OF NEXT SESSION

The Delegate of Ukraine proposed that Turkey should consider hosting the second session of the Committee in 1997, probably in the fall. Prior to or during the IOC Assembly a small consultation could be held to prepare for the session and provide the information to the Assembly. The Delegation of Turkey welcomed this and invited the Regional Committee to have the second session at the Istanbul University. This was accepted with acclamation. The Delegation of Ukraine also invited the Third session of the Committee to be held in Kiev, Ukraine.

7. ADOPTION OF REPORT AND CLOSURE

The Regional Committee adopted the Draft Report of the Session. The Delegation of Russian Federation on behalf of all participants thanked the hosts for the excellent arrangements, as well as the Chairman

The Executive Secretary IOC, as the Chairman, expressed his great appreciation to all participants for their active work in the Committee, and to interpreters and secretaries for their excellent work and support.

The Chair closed the session at 16.30 on 12 September.

ANNEX I

AGENDA

1. Opening

2. Administrative Arrangements
2.1 Adoption of the Agenda
2.2 Designation of Reporter
2.3 Conduct of the Session

3. Structure and tasks of the Committee

4. Working plan for the Committee 1996-1997

5. Consideration of other initial tasks

6. Date and place of next session

7. Adoption of report and closing.

ANNEX II

Resolution 1

The IOC Black Sea Regional Committee

Recalling: Resolution of the 27th general Conference of UNESCO (Drc. 27C/5 1.211 and DR 190),

Recalling: also Resolution XVIII-17 "IOC Black Sea Regional Programme in Marine Sciences and Services" through which the IOC Black Sea Regional Committee was established.

Noting: The terms of reference for the Committee given in Resolution XVIII-17 and the initial tasks for 1996-97,

Having reviewed the initial formulations of the two pilot projects* and revised them,

Having considered the other initial tasks of the Committee,

Adopts its work programme and proposed budget for 1996-97 as given in Annex I of this Resolution.

Proposes that its second session be convened in the fall of 1997, hosted by Turkey.

Expresses its appreciation and thanks to Bulgarian National Oceanographic Committee for having hosted its First session with excellent arrangements.

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* Pilot project No 1 Black Sea GOOS Step towards Observation and Prediction System,
Pilot Project No 2 Assessment of the Sediment Flux in Black Sea: mechanisms of formation transportation and dispersion and ecological significance

Annex to Resolution

IOC Black Sea Regional Committee Work programme and budget

Activity	Participants responsibilities	Time Schedule	Budget		
			National USD	IOC USD	Donors USD
Second Session of the Committee and preparations	All Black Sea Coastal States	1997	X		-
Propositions for 1998	All Black Sea Coastal States	1996-97	X		
Consultation with GEF Black Sea Environmental Program and BSEC	Vice Chair, Executive Secretary of Committee, Turkey national Co-ordinator	1996-97	X	4000	
Pilot Project 1 (see separate table)					
Pilot Project 2 (see separate table)					

ANNEX TO THE RESOLUTION

Pilot Project No. 1

WORKING PLAN FOR PILOT PROJECT I ACTIVITIES IN 1997-1998

Activities	1997 funding	1998 funding	Results	Responsibilities	Participants
1. Workshop for project initiation	1997 (from IOC)		Two working groups	WG1 for the inventory WG2 for the science plan	All countries
2. Inventory of existing possibilities	1997 national funds		Inventory	WG1	
3. Science plan	1997		Science plan	WG2 (adviser-V.Ryabinin)	
4. Restoration of observations and setting up time series networks	1997 national funds	1998 national funds	SHIPs BATHY TESAC extended coastal observations	all participating countries	
5. Initiation of Black Sea GLOSS	1997 national funds + IOC US$ 8000	1998 national funds	Proposal for Black Sea GLOSS exchange of data & its standardization	Prof. Metreveli (adviser- Dr Zilberstein)	
6. Regional real-time and near-real time data exchange network	1997 US$ 24 000	1998 US $ 24 000	realization of IODE pp for the Black Sea regional network	Dr M. Popova	Bulgaria Georgia Russia all countries
7. Data rescue activities	1997 national & external funds	1998 national & external funds	distributed database for the Black Sea countries	Prof. Unluata	all countries
8. Workshops for project status and progress		1998 IOC	finalization of the plans and adoption of recommendations concerning regional standards, methods, etc.		all countries
9. Operational forecasts	1997 national & external funds	1998national & external funds	forecasts of winds, waves, storm surges, temperature, ecological forecasts	Bulgaria Turkey	all countries all countries

10. Intercalibration	1997 IOC US$ 15000		agreed standards &unification of methodology	Ukraine	all countries
11. Coordination of activities with other existing programmes	1997	1998	facilitate cooperative activities in relation to the pilot project	Bulgaria, Turkey	all countries

WORK PLAN
1996-1997
Black Sea Regional Committee Pilot Project 2

1 Determination of Project participants
Deadline 31.12.1996
Responsible person: National Co-ordinators

2. Inventory of the existing data to support the project
Deadline 31.11 1996
Responsible person: Project Co-ordinator

3 Collection of information upon programmes of studies and financial support of the project 2 from all countries - participants in the project.
Deadline 31.12.1996
Responsible person: project co-ordinator, National Co-ordinators

4. Establishment of contacts with other countries with the aim to obtain possible contribution and cooperation on Project 2. To be done as agreed by Regional Committee
Deadline: 1996-97

5. Finding appropriate vessels in order to undertake the international collaborative expedition possibly in May 1997
Deadline: 31.12.1996
Responsible person: Prof. V.N. Eremeev (Ukraine)
Prof. P S. Dimitrov (Bulgana)
Prof. N. Cogatay (Turkey)

6. Pre-cruise meeting for discussion of issues related to the cruise and approval of the final options of the cruise programme of the undertaken expedition.
Deadline: March 1997
Responsible person: Project Co-ordinator

7. Expedition in the Black Sea
Deadline: May-June 1997
Responsible person: Project Co-ordinator, Head of the cruise

8. Processing of cruise experimental data
Deadline: September 1997
Responsible person: Chief the expedition

9. Preparation of the report of the cruise experiments
Deadline: December 1997
Responsible person: Chief of the expedition

10 Post-cruise workshop to discuss the results of the studies and preliminary report of the expedition (Istanbul)
Deadline: October 1997
Responsible person: Project Co-ordinator and .....

11 Preparation of publications based on the cruise results

ANNEX III

LIST OF PARTICIPANTS

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ANNEX IV

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Pilot Project 2

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ANNEX V

MESSAGE FROM THE MINISTER OF FOREIGN AFFAIRS OF GEORGIA

REPUBLIC OF GEORGIA
MINISTRY OF FOREIGN AFFAIRS
COMMISSION FOR UNESCO

საქართველოს რესპუბლიკა
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To: Participants to the 1st Session of the IOC Regional Committee for the Black Sea

On behalf of the Georgian Government and the Georgian National Commission for UNESCO I wish to greet you, the participants to the 1st Session of the IOC Regional Committee for the Black Sea and to wish you success in your endeavours.

Let me express the belief that the recently-established Regional Committee shall strongly promote the interrelations of the Black Sea countries in the fields of science, education and informatics, with a view to solve the problems related to the sea and coastal territories.

Once more I wish you every success and a favourable wind in your noble undertakings. Let me assure you that you shall lack no support from the Georgian Government in the initiatives aiming at partnership and peaceful co-existence of the Black Sea countries.

With profound respect,

Irakli Menagarishvili
Minister of Foreign Affairs of Georgia,
President of the National Commission
for UNESCO

ANNEX VI

SCIENTIFIC SEMINAR ON THE REGIONAL PROGRAM FOR COMPLEX BLACK SEA INVESTIGATIONS

9.00 - 9.20 - "Black Sea pollution and selfpurification in relation to sedimentation processes - geological basis for the ecological forecasting", K.M. Shimkus

9.20 - 9.40 - Modern problems of Georgian Coastal Zone : Shalva. Jaoshvili, A. Kiknadze, V. Sakrarelidze

9.40 -10.00 - Sediment dispersal in the Western Black Sea - a geological model: Ch. Chrischev, V. Georgiev, Emil Kozhuharov, N. Ruskova

10.00-10.20 - Sedimentation streams in Black sea - pilot project 2: P. Dimitrov, K. Shimkus

10.20-10.50 - The benefit of the improvement of the regional data exchange in the Black Sea : M. Popova

10.50-11.10 - COFFEE BREAK

11.10-11.30 - Operational system for numerical marine meteorological forecasting: G. Korchev, Jocl Poitevan

11.30-11.50 - "Forecasting time wave conditions in the Black Sea" : A. Korcheva, J.M.

11.50-12.20 - Why to create distributed data base for Black Sea data : M. Popova, St. Haramiev

12.20-12.45 - Some of the main results the current eustasy investigation : G. Metreveli

13.00-14.30 - LUNCH

14.30-14.45 - On the existing predictive tools for the Black sea environment. State of the art and unresolved problems: Prof. Emil Stanev

14.45-15.15 - Abrasion and accumulation on the Bulgarian Sea shore in conditions of increase of sea level : Peichev, V.

15.15-15.45 - Wind-wave atlas of the Western part of Black Sea : Zh. Cherneva, Z. Belberov

15.45-16.00 - Vertical water exchange in the Black Sea Model and experimental results: E. Demirov

16.00-16.20 - COFFEE BREAK

16.20-16.35 - On the importance of the biogenic component in the sedimentation matter in the North-western Black sea : S. Moncheva, L. Mihova, A. Konsulov, A. Stoyanov

16.35-16.50 - The Danube Impact on the Western Black Sea Ecological State : A. Stoyanov

16.50-17.10 - Investigation on the dolomititation process in sea water: Ch. Balarew, G. Kirov, D. Rabadjieva

ANNEX VII

PILOT PROJECTS Nos. 1 AND 2

Black Sea GOOS: a Step Towards Observation and Prediction System (STOPS)

Black Sea Regional Committee Pilot Project 1

1. **Region:** Black Sea
2. **Participants:** Bulgaria, Georgia, Romania, Russian Federation, Turkey, Ukraine.
3. **Duration:** 2 years.
4. **Overall project goal:**

to improve and develop regional capabilities in operational oceanography including observational, predictive and services aspects of multidisciplinary applications.

5. **Specific project objectives:**

- to implement basic elements of operational network for observation, oceanographic data exchange, assimilation, forecasting, and issue of products for marine and ecological applications;
- to develop science plan for the Black Sea GOOS programme further development.

6. **Background:**

At present the Black Sea countries face severe ecological problems. Ecological situation in the sea is getting worse. One of the most important consequences of that is the eutrophication of sea waters. Risk of major ecological disasters is rapidly increasing because of fast development of oil and gas exploration and production in the region. Several acute problems are caused by sea level rise, which is most likely related to climate change. Sustainable development of the region requires adequate decision making on national and international levels and this is to be based upon adequate scientific support in all maritime activities. This is why development of GOOS in the region has no alternative.

The Black Sea has received considerable scientific attention in the past. Positive results in different areas of science and applications were obtained in the course of major research programmes sponsored by the IOC, GEF, NATO and other organizations. These activities include such programmes as COMSBLACK, EROS, regional component of GIPME, NATO-Tu waves.

Tu-Black Sea projects. Good capabilities exist in the region due to continuing operational work of the WMO World Weather Watch programme, and the further development of regional activities can be envisaged in the framework of the GCOS (Global Climate Observing System). Because of present economical situation within region an external international cooperation is necessary.

In several countries there are elements of presently unconnected observational networks, which are potentially useful for the GOOS services provision. However, they are not fully operational and benefits from their operation should be increased for all the countries. In addition to that several countries provide real time basic oceanographic services including marine forecasting. In general, the region has considerable expertise and scientific potential to gain benefits from participation in GOOS.

Nevertheless, there are some obstacles for the development of operational oceanography, which are connected to the following:

- lack of
- open sea observations,
- long-time series of basic elements,
- unified methodology and standardized equipment for oceanographic observations;
- insufficient and in-efficient data exchange between national observational networks.

As at present the Black Sea requires not only scientific but much more practical support, the eventual goal of initiating the GOOS activities in the region is to achieve concrete practically useful results in minimal possible time. This should be accomplished by enhancement and strengthening of the relevant existing national capabilities and their better use through international co-ordination and capacity building.

7. Pilot project activities:

Inventory development of existing national observational networks, data processing and predictive tools, models, and review of their scope and capabilities (data analysis and re-analysis, assimilation, modelling and model validation, methods and techniques of prediction, data presentation tools for various elements such as surface winds, wind waves, sea level, currents, pollution dispersion, biological elements, etc.)

Restoration of (at least) minimal required open sea real-time or near real-time observational system (not less than one vessel for each participating country reporting in the SHIP code), study of possibilities for obtaining

reduced tariffs for marine observation reporting from ships and coastal stations.
Restoration of BATHY.TESAC observations in the Black Sea.
Time series measurements in defined polygons.
Modernization according to a existing standards of at least one coastal station in each participating country. Turkey can take the lead.
Initiation of Black Sea seal level monitoring programme in association with GLOSS with emphasize on coastal regions subject to flooding and sea level rise impact.
Improvement of regional data exchange and data management including oceanographic data rescue activities with emphasize on biological data. Turkey can take the lead.
Use of off-shore platforms for marine observations ("GOOS and offshore platforms" initiative).
Two workshops for development of the project science plan, setting up the project activities, and review of the progress.

8. Pilot project strategy:
Compliance with regional strategy for GOOS development. Use of experience of EuroGOOS, NEARGOOS and other existing oceanographic and environmental programmes.

9. Financial requirements (for the first year of the project):
Each participating country provides national input to accomplish activities listed under item 7. In addition, some investments are needed from external sources including

- IOC funds for the two workshops - 25 000 US$.
- equipment, communication means and other requirements - approximately - 75000 US$.

ASSESSMENT OF THE SEDIMENT FLUX IN BLACK SEA MECHANISMS OF FORMATION, TRANSFORMATION AND DISPERSION AND ECOLOGICAL SIGNIFICANCE

Black Sea Regional Committee Pilot Project 2

1. REGION: Black Sea

2. PARTICIPANTS: Bulgaria, Georgia, Romania, Russia, Turkey, Ukraine

3. DURATION: initial phase - 1 year, overall project 4 years

4. MAIN GOALS:

(1) Multidisciplinary investigation of the sediment flux, its time-space variability and identification of the key processes of transformation and sedimentation for assessment of the influence for the ecological status of the Black Sea ecosystem;

(2) Reconstruction of recent geological history as a basis for ecological forecasting.

5. OBJECTIVES:

The unique peculiarities of the Black Sea basin makes the general sedimentation models elaborated for other basins of the World Ocean inapplicable. Most of the data available, despite the large number, are restricted mainly to qualitative and quantitative aspects of investigation of the sediment matter, while the information about the nature of the processes and mechanisms are rather scarce. At the same time anthropogenic eutrophication and the related enhanced primary production have been identified as the key ecological problems of the Black Sea ecosystem. All these make the process-oriented studies of the sediment flux crucial to understanding the functioning of the Black Sea ecosystem. Besides, the investigations of paleoproductivity, origin of organic matter and sedimentation and pollution history are important issues for ecological forecasting.

6. MAIN ASPECTS

A. Qualitative and quantitative assessment of the different sources of sediment flux formation:

A.1. Investigation of the river input in the delta areas of the different geographic locations. Identification and quantitative assessment of the abiotic and biotic components and the importance of the anthropogenic input.
A.2. Assessment of the atmospheric (aerosol) input in the sediment flux (minerals, trace elements, anthropogenic pollutants, nutrients, etc.)
A.3. Assessment of the autochthonous components of the sediment flux (particulate organic matter). Mechanism of initiation and dynamics of the plankton blooms in relation to the interaction of the physical, chemical and biological factors.
B. Investigation of the nature and rates of the processes of sediment flux transformation:
B.1. In the biologically active surface layer.
B.2. At the interface (barrier) zones - river/sea; atmosphere/sea surface; the vertical gradients (picno-, halo-, thermocline).
B.3. At the water-sediment interface:
- utilisation, accumulation and up flux;
- effect on the benthic ecosystem deterioration;
- transition from the "fluffy layer" to the sediments.

C. Transport and mechanisms of sedimentation: hydrodynamic, lateral, vertical (aggregation - "sea snow", flocculation, biofiltration - pellets), gravitities, etc.
D. Study of the late Pleistocene to Holocene sediments for determining sedimentation rate, paleoproductivity, climate changes, origin of organic matter and pollution history.

7. THE APPROACH:

Field surveys:
- international cruises - 5
- "events" surveys to study extreme events - plankton blooms, upwelling, storms, etc.
- monitoring at selected polygons.

Remote sensing

8. ACTIVITIES

Sampling to study the suspended and dissolved components of the sediment flux (CTD - rosette system, plankton nets, sediment traps, optic, acoustic, radioisotope and other relevant methods).
Sampling of the sediments (grabs, gravity corer, box corer, sonar scanner, high frequency seismic-acoustic methods, etc.) and study of their composition and geochronology.
In-situ and lab experiments to study the processes and the mechanisms of transformation and sedimentation of the inorganic and organic components of the sediment flux and their interactions.

9. CAPACITY BUILDING

It is anticipated that the implementation of this project will require:
1) Equipment for sampling (sediment traps, box-corers, multi-corers)
2) Personnel training programmes - inter calibration and workshops

10. DATABASE AND DATA EXCHANGE

Compilation of the existing data and establishment of database.

11. OUTPUTS:

Elaboration of a general model of the recent sedimentation pattern in Black Sea and assessment of the relative importance of the anthropogenic input.
Assessment of the organic load at the sea bottom and identification of the key factors for the hypoxia - benthic mortality mechanism in the shelf zone.
Assessment of the key pathways of pollutants dispersion in Black Sea.
Reconstruction of the recent geological evolution of the sediments in the Black Sea basin.

12. PILOT PROJECT STRATEGY

Compliance with regional strategy for JGOFS, LOICZ and GOOS Programmes.

13. FINANCIAL REQUIREMENTS

(the first year of the project)

Each participating country provides possible input from national sources.
Additional investment from external sources:

- IOC funds for training seminar	- 7 500 USD
- total funds for expedition	- 100 000 USD
IOC funds	- 35 000 USD
Other sources	- 65 000 USD
- Aerosol and sediment sampling equipment	- 50 000 USD

PROGRAMME
of International Expedition to the Black Sea

Introduction
An expedition is planned to study sediment fluxes and their evolution during recent geological history as well as to clarify the pollution history.

1. MAIN GOALS
The main goals of the expedition are the following:
1) Assessment of the vertical and horizontal fluxes of terrigenous matter and that ones of pollutants, connected with terrigenous sedimentary material in the sea regions located near the main sources of riverine material: Danube, Don - Kubanj, Inguri-Rioni-Chorokh.

2) Assessment of the fluxes of biogenic particulate material and that ones of total heterogenic suspended matter at the boundaries of the sea water column in the deep sea convergence and divergence zones.

3) Assessment of the fluxes of different pollutants: heavy metals, radionuclides, petroleum products, pesticides.

4) Study of detailed history of late Pleistocene - Holocene sedimentation as well as anthropogenic history of the basin recorded in sediment sections.

2. Participants
Bulgaria, Georgia, Romania, Russia, Turkey, Ukraine.

3. Tentative areas of Surveys (Fig. 1)

4. List of marine studies
- Aerosol sampling with synthetic (kapron) nets along the route of the vessel (may be atmospheric precipitation also);
- Sea water and suspended matter sampling with water bottles by filtration method and separation at the main boundaries at the water column; river - sea waters, zone of photosynthesis, thermo and halocline hydrogen sulphide boundary, near bottom waters - sea bed;
- Suspended matter collection at some boundaries of water column with the aid of the sedimentary traps and moored stations deployed for the sea expedition time;
- Collection of bottom sediment samples by box-corer, multicorer and gravity corer;
- Bottom relief studies.

5. Shore laboratory studies:

- Heavy metals in aerosol material suspended matter and bottom sediments;
- Radioisotopes (Th234, Pb210, Cs-137, Pu, etc.) in aerosol material, suspended matter and bottom sediments;
- Petroleum products, polyaromatic hydrocarbons, pesticides in aerosols, suspended matter and bottom sediments;
- Chemical, mineralogical and granulometrical composition of aerosol material, suspended matter and bottom sediments;
- Isotopic geochronology and biostratigraphy of bottom sediments.

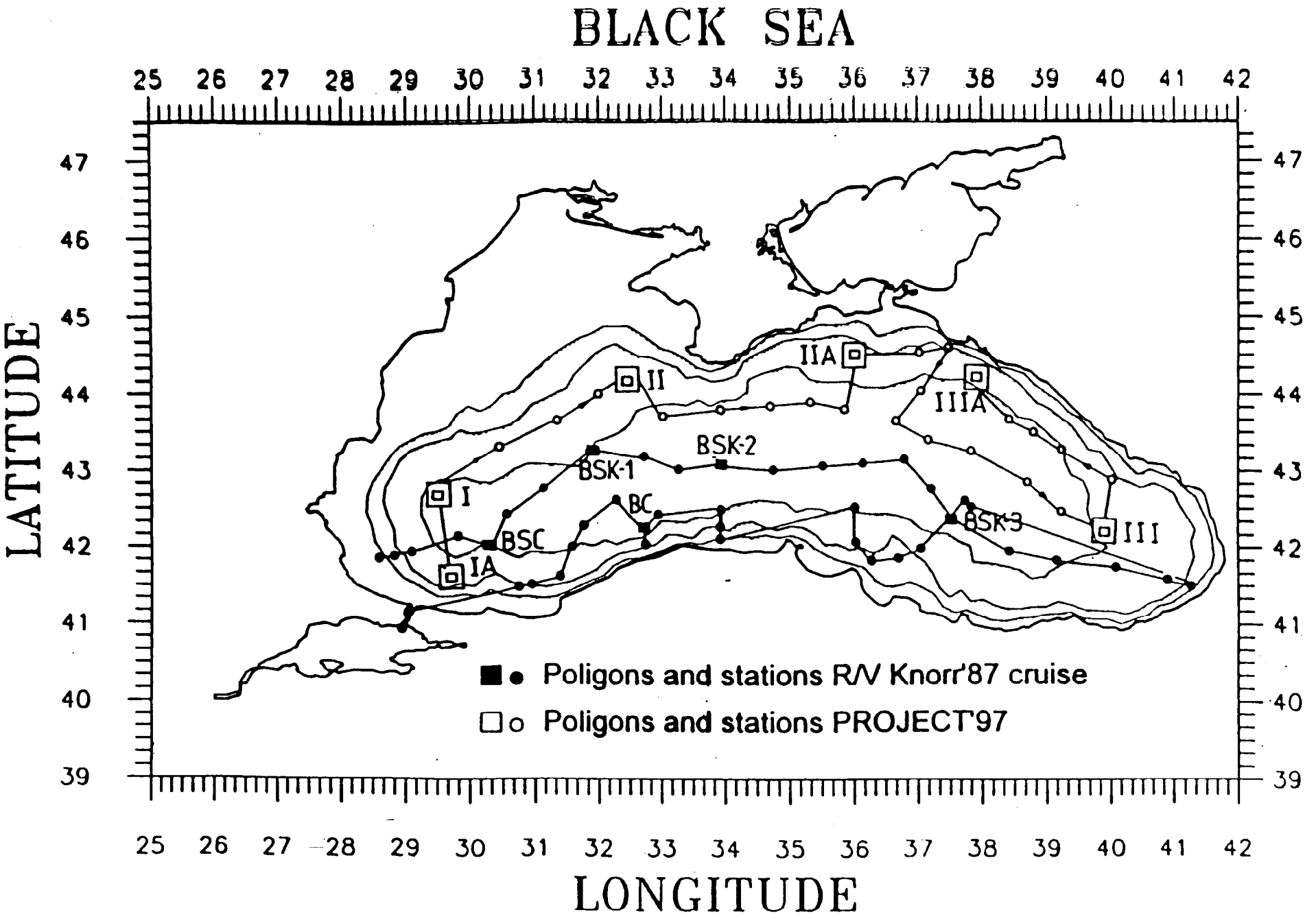
6. Preliminary results:

Report of the expedition and initial report of the expedition for publication

7. Meetings

- Pre-cruise meeting of co-chiefs and key persons of the cruise will be held in Varna or Sevastopol in March 1997 to discuss the final version of the scientific programme and to check the preparation of the expedition.

- Post-cruise meeting: Discussions of the results of shore laboratory studies and draft initial report are the aim of the post-cruise meeting in Istanbul in October 1997.


BLACK SEA
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Poligons and stations R/V Knorr'87 cruise
Poligons and stations PROJECT'97

Contribution of participants to the development of the Black Sea Regional Committee Project 2

(preliminary information)

Country	Direct financial support	Equipment for marine studies (1st cruise)	Laboratory studies	Data exchange	Studies in the national waters
Bulgaria	no	sampling equipment	yes	yes	yes
Georgia	no	no	yes	yes	yes
Romania	no	no	yes	yes	yes
Russia	no	sampling equipment in full scale	in full scale	yes	yes
Turkey	no	Ship and sampling equipment	yes	yes	yes
Ukraine	no	Ship and STD-system current meters, etc.		yes	yes