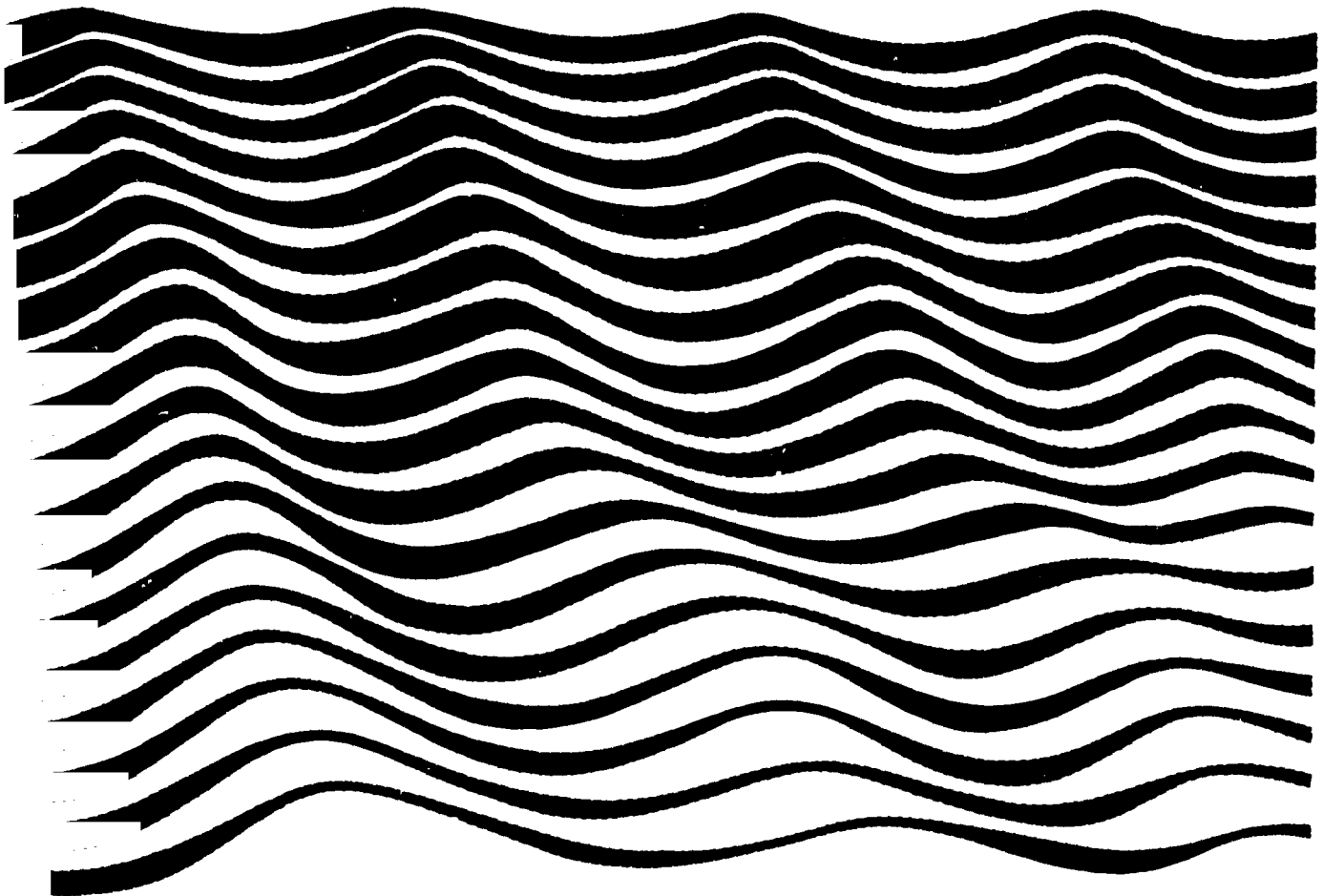


Coastal lagoon survey Etudes sur les lagunes côtières Encuesta sobre lagunas costeras

Prepared by the SCOR/Unesco *ad hoc*
Advisory Panel on Coastal Lagoons,
1976-1978

Enquete réalisée par le Groupe
consultatif *ad hoc* SCOR/Unesco sur
les lagunes côtières, 1976-1978

Preparada por el Grupo consultativo
especial SCOR/Unesco sobre lagunas
costeras, 1976-1978



UNESCO TECHNICAL PAPERS IN MARINE SCIENCE

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17	An intercomparison of some current meters, report on an experiment of Research Vessel Akademik Kurchatov, March-April 1970, by the Working Group on Current Velocity Measurements; sponsored by SCOR, IAPSO, Unesco	1974	WG 21
19	Marine Science Teaching at the University Level. Report of the Unesco Workshop on University Curricula - <i>Available in French, Spanish and Arabic</i>	1974	—
20	Ichthyoplankton. Report of the CICAR Ichthyoplankton Workshop <i>Also published in Spanish</i>	1975	—
21	An intercomparison of open sea tidal pressure sensors. Report of SCOR Working Group 27: "Tides of the open sea"	1975	WG 27
22	European sub-regional co-operation in oceanography. Report of a working group sponsored by the Unesco Scientific Co-operation Bureau for Europe and the Division of Marine Sciences	1975	—
23	An intercomparison of some current meters, III. Report on an experiment carried out from the Research Vessel Atlantis II, August-September 1972, by the Working Group on Continuous Velocity Measurements: sponsored by SCOR, IAPSO and Unesco	1975	WG 21
24	Seventh report of the joint panel on oceanographic tables and standards, Grenoble, 2-5 September 1975; sponsored by Unesco, ICES, SCOR, IAPSO	1976	WG 10
25	Marine science programme for the Red Sea: Recommendations of the workshop held in Bremerhaven, FRG, 22-23 October 1974; sponsored by the Deutsche Forschungsgemeinschaft and Unesco	1976	—
26	Marine sciences in the Gulf area - Report of a consultative meeting, Paris, 11-14 November 1975	1976	—
27	Collected reports of the joint panel on oceanographic tables and standards, 1964-1969	1976	WG 10
28	Eighth report of the joint panel on oceanographic tables and standards, Woods Hole, U.S.A., sponsored by Unesco, ICES, SCOR, IAPSO	1978	WG 10
29	Committee for the preparation of CLOFETA - Report of the first meeting, Paris, 16-18 janvier 1978	1979	—
30	Ninth report of the joint panel on oceanographic tables and standards, Unesco, Paris, 11-13 September 1978	1979	—

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PREFACE

This series, the *Unesco Technical Papers in Marine Science*, is produced by the Unesco Division of Marine Sciences as a means of informing the scientific community of recent developments in oceanographic research and marine science affairs.

Many of the texts published within the series result from research activities of the Scientific Committee on Oceanic Research (SCOR) and are submitted to Unesco for printing following final approval by SCOR of the relevant working group report.

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PREFACIO

La colección *Documentos Técnicos de la Unesco sobre Ciencias del Mar* es producción de la División de Ciencias del Mar de la Unesco y se propone informar a la comunidad científica internacional sobre los progresos recientes en la investigación oceanográfica, así como sobre cuestiones de actualidad en la esfera de las ciencias del mar.

La mayoría de los textos publicados en esta colección son resultado de las actividades del Comité Científico de Investigaciones Oceanográficas (SCOR) y han sido presentados a la Unesco para su publicación después de haber dado SCOR su aprobación a los informes de los pertinentes grupos de trabajo.

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PREFACE

Cette collection de *Documents techniques de l'Unesco sur les sciences de la mer* produite par la Division des sciences de la mer de l'Unesco, a pour objet d'informer la communauté scientifique de l'évolution récente de la recherche océanographique et des sciences de la mer.

De nombreux textes publiés dans cette collection sont le fruit des travaux de recherche du Comité scientifique pour les recherches océaniques (SCOR) et sont soumis à l'Unesco pour impression une fois que ce Comité a définitivement approuvé le rapport du Groupe de travail intéressé.

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1. INTRODUCTION

Coastal lagoons and delta systems are transitional littoral zones between the sea and the mainland brought about by the operation of complex physical laws. These environments are unique, primarily due to the peculiar conditions of their hydrodynamics and sedimentation. They are places of active accumulation and provide shelter situations, the effects of which are noticeable in the geochemical properties and nature of the sediments and their vast potential wealth of biological resources.

A general description of a coastal lagoon is a semi-enclosed body of water connected with the open sea by inlets through a system of barriers (physical, chemical, hydrodynamical). Coastal lagoons are among the most fertile littoral systems. They are encountered on the banks of estuaries, along coasts, in blind gulfs or in bays, under tropical, temperate and cold latitudes. Their diversity is shown in the wide-range of terms used to denote the geographical location of the studies included in the directory.

Water and material fluxes may be trapped within the lagoon or may flow into the open ocean, a major estuary or bay. These lagoon runoffs can significantly influence the local and regional environment and, together with current patterns and onshore fluxes of nutrients, help to determine the local offshore productivity.

While supporting many indigenous species of economic importance, coastal lagoons also provide spawning and nursery grounds for migratory species. A great number of species of fish, crustaceans and molluscs pass through coastal lagoons in the course of their life cycles. In many areas, lagoons offer very adequate conditions for the development of controlled production of marine organisms.

Lagoon deposits are often accessible sources for industrial use of basic materials such as salts and chemicals. When deep enough, lagoons provide protected areas for harbours and navigation channels. These facilities may contribute indirectly to the establishment of population centres and urbanization. In more remote areas, coastal lagoons can be valuable as ecological sanctuaries, or for tourism and recreation.

Historically, coastal lagoons have been used for fishing and breeding larval and adult forms of fishes, molluscs and crustaceans. Such human uses frequently have been very harmoniously integrated into traditional socio-economic contexts, for example in South East Asia.

In recent years, the justifiable desire to make intensive use of the living products and the non-living resources of these systems has given rise to many projects for the exploitation of coastal lagoons.

The scientific community concurs in stressing that in too many instances these projects are likely to do serious and lasting harm to a type of coastal environment which is essential to preserve. In many cases, rational exploitation of these often polluted zones can only be undertaken in concert with safeguarding operations designed to restore them to their pristine state. For instance, oyster, mussel and fish-farming cannot develop properly unless the environment is preserved from chemical contamination. Projects for economic development should be encouraged only when the natural ecological balance of the environment and its production potential are well understood and protected.

2. PURPOSE OF THE SURVEY

In 1974, at the request of the Unesco Division of Marine Sciences, the Scientific Committee on Oceanic Research (SCOR) set up a SCOR/Unesco ad hoc Advisory Panel on Coastal Lagoons⁽¹⁾ which was made responsible for examining the state of knowledge on lagoon systems in temperate and tropical regions. One of their recommendations was that a compilation of existing coastal lagoon research programmes was essential to development of a framework upon which future activities could be planned.

During the following two years, this Panel conducted a survey of the research programmes being carried out in laboratories and specialized institutions all over the world. Nearly 200 programmes - an unexpected result - were sent in and reviewed. Response to the survey is a clear indication of the expanding interest in coastal lagoon research.

The goal of the Panel's inquiry is to provide a compilation and evaluation of this interest, on the basis of information obtained by distribution of two documents: "SCOR/Unesco SCE/9/Circ.5" (forms I to III) and "SCOR/Unesco SCE/9/Circ.9" (form IV), samples of which are found in Annex I⁽²⁾. The first document listed major disciplines and 93 specific topics and asked project leaders to indicate those on which they were working. Space was also provided for other information, such as the name of the lagoon(s), a short description of the research, geographic location and major bibliographic references.

The first document was widely distributed between June 1976 and July 1977 to more than 400 research institutions, scientists and administrations, using a mailing list based on a directory of names and addresses prepared by the Panel.

A draft of a second letter covering the second document (form IV) was approved in February 1977 for distribution to all persons who had sent a reply. It was also sent as a reminder to those addresses who had not replied. Form IV requested more specific information on the geographic location of the coastal lagoon(s), including latitude, longitude and surface, scientific papers and reports available, as well as information on university-level training programmes. Recipients were asked to respond to the following question: What should be the mandate of a working group on coastal lagoon research and/or a working group on coastal lagoon management?

The SCOR/Unesco ad hoc Advisory Panel on Coastal Lagoons feels strongly that a primary objective of the survey should be to facilitate the exchange of information between scientists in different geographical locations who are engaged in similar and complementary research. For this reason, the research programmes and their scientific leaders have been included in this document. An attempt has been made to list in the directory all the professional staff cited in the responses received.

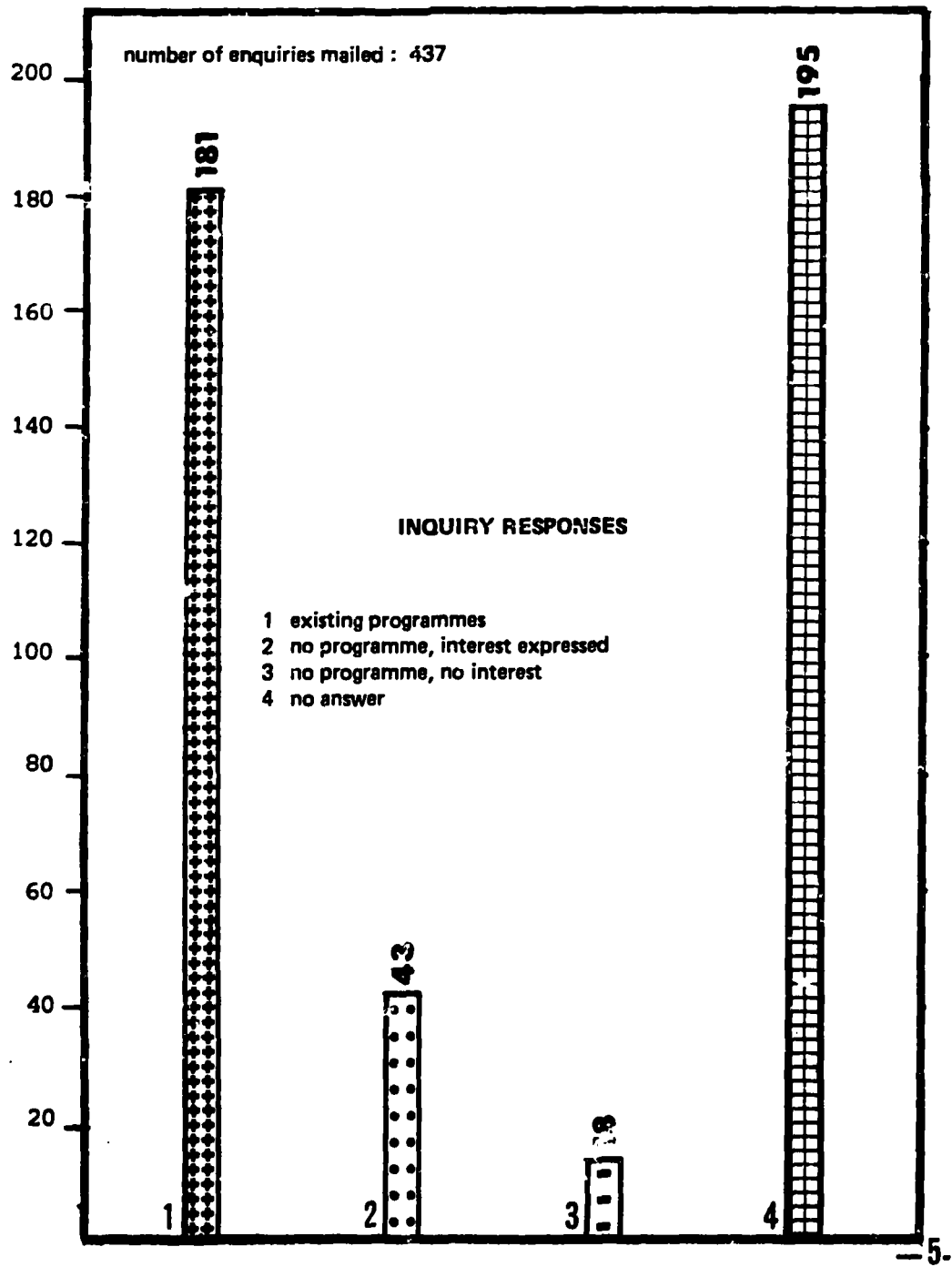
3. RESPONSES AND DISTRIBUTION (Figure 1)

A total number of 437 questionnaires were sent. By mid-May 1978, 242 had been returned. Of the responses received, 224 (92.6%) indicated research interest, with 181 (74.8%) ongoing programmes, and 43 (30.9%) responses indicated no programme for the present, but expressed interest in the topic. Eighteen (7.4%) of the responses were negative (no programme, no interest).

(1) Members of the Panel are as follows: A. Ayala-Castañares, B. D'Arglejan, P. Lasserre, C.I.O. Olaniyan and F.B. Phleger.

(2) See pages 30-41.

Figure 1



4. SUPPORTING BODY

The research programmes and projects on coastal lagoons are supported principally by public funds. A significant percentage of research is developed in academic institutions: universities and affiliated bodies. Most of this research is supported by governmental funds. Approximately 6% of the total number of research projects are developed under bilateral and multilateral co-operation. (See Figure 2.)

Figure 2: SUPPORTING BODY

Intergovernmental (both bi- and multilateral)	5.8%
Governmental (excluding academic institutions)	54.2%
Academic (governmental and private)	36.7%
Private firms, foundations	3.2%
Unclassified	0.6%

5. WORLD INTEREST AND LOGISTIC IMPLICATIONS

The development of research programmes throughout the world is dependent largely on existing educational infrastructures. The accompanying directory lists 181 coastal lagoon research programmes/projects under institutions and organizations with which they are associated. Fields of interest and status of the project leaders are also identified. Thus, the directory provides a measure of the amount and type of expertise available in the 52 countries represented in the survey. Analysis of the replies was based on the following areas:

- (A) Africa (excluding the Mediterranean and Red Sea).
- (B) Asia, South East Asia and the Pacific.
- (C) Europe (including the Mediterranean, Caspian Sea, Black Sea and Red Sea).
- (D) Latin America and the Caribbean.
- (E) North America.

The limits of the geographic regions mentioned above were chosen to correspond to major lagoon areas at different latitudes. The replies describing active lagoon research programmes (Figure 3) are distributed as follows:

Region A:	11 programmes (6.1%)
Region B:	30 programmes (16.7%)
Region C:	64 programmes (35.6%)
Region D:	49 programmes (27.2%)
Region E:	27 programmes (15.0%)

Developing countries are, as a group, beginning to establish research programmes with long-term interest. Some countries have treated the lagoon systems as a unit for planning comprehensive research programmes. Mexico, for example, is one of the most active. Seminars on coastal lagoons have been organized by the

Universidad Nacional Autonoma de Mexico (UNAM) in 1967 and 1977. This country (22 ongoing programmes included in this directory) has evolved a well-developed educational infrastructure for marine science, in support of coastal research.

Subregional workshops on marine sciences in the eastern Mediterranean, the Gulf area, the western Mediterranean, the South East Asia region, have all included coastal lagoons in their recommendations.

The nature of the scientific problems mentioned in this report calls for further research on the physics, geology, chemistry and biology of the coastal lagoons. Some of these problems could be solved in a relatively short time (e.g. two to three years), especially if they were approached on a co-ordinated international basis. Other programmes must be regarded as continuing indefinitely - e.g. the comparative ecology of similar paired lagoons at different latitudes. Thus the time scales involved ought not to be underestimated, if one takes into account the long-term interests and the relative lack in some countries of a well-developed educational infrastructure.

Replies to the SCOR/Unesco survey on coastal lagoons show that there is a sufficient nucleus of laboratories with a wide geographical spread to operate a minimum field programme. Other laboratories may be equipped to deal with narrowly specialized but important topics within the general objectives of the programmes. Another positive factor is that there already exists in the five regions active research schools and an undergraduate curriculum in which lagoon research training can be received.

The multidisciplinary seminar held under the auspices of Unesco, International Association of Biological Oceanography (IABO) and Duke University (Beaufort, N.C., U.S.A., 28 August-2 September 1978) exemplifies one of the ways to produce guidelines for future research within a framework of regional co-operation, as planned by Unesco. The report of this seminar will be issued as Unesco Technical Paper in Marine Science No.32 and distributed to all recipients of the present survey.

6. PROPOSALS FOR INTERNATIONAL CO-OPERATION

A majority of responses to form IV (see Annex I) reflects the opinion that working groups on coastal lagoon research and coastal lagoon management are highly desirable.

To the question "What should, in your view, be the mandate of:

- (a) A working group on coastal lagoon research?
- (b) A working group on coastal lagoon management"?

the general trend of responses is exemplified by that of S.W. Nixon (U.S.A.):

(a) Working group of coastal lagoon research

- "1. Apply the techniques of ecological systems analysis including numerical modelling to lagoon environments.
2. Emphasize the interactions of hydrographical, morphological and geological features of lagoons in influencing the ecological systems that have emerged.
3. Develop methods for carrying out experimental ecosystem research in replicate sections of lagoons or in paired natural lagoons - can useful lagoon microcosms be developed?"

(b) Working group on coastal lagoon management

- "1. Is it possible to analyse historical changes in lagoon ecology in terms of changes in land use within the lagoon watershed?
2. Use of lagoon microcosms to carry out experiments documenting the response of lagoon systems to various types of perturbations.
3. Examine the aquaculture potential of natural lagoon system."

Figure 3: Responses to questionnaire by country

EXISTING COASTAL LAGOON RESEARCH PROGRAMMES				INTEREST EXPRESSED
Australia	13	Malaysia	1	Algeria
Belgium	2	Mexico	22	Argentina
Benin	3	Netherlands	7	Greece
Bermuda	1	Netherland Antilles	1	Iran
Brazil	6	New Zealand	4	Korea, Rep.
Canada	1	Nicaragua	1	Libya
Colombia	5	Nigeria	3	Morocco
Costa Rica	5	Norway	2	Peru
Denmark	3	Panama	1	San Domingo
Ecuador	2	Papua New Guinea	1	Senegal
Egypt	2	Philippines	1	Syria
El Salvador	1	Portugal	1	Trinidad
Finland	1	Romania	1	United Arab Emirates
France	9	Saudi Arabia	1	Uruguay
Germany, Fed. Rep.	3	South Africa	2	Viet Nam
Guatemala	1	Spain	1	Yugoslavia
Honduras	1	Sri Lanka	1	
India	4	Sweden	1	
Indonesia	1	Tanzania	2	
Ireland	5	Thailand	3	
Israel	3	Tunisia	3	
Italy	8	Turkey	1	
Ivory Coast	2	United Kingdom	8	
Jamaica	2	U.S.A.	25	
Japan	1	Venezuela	4	
Kenya	1			

It is worth while to note that 92.0% of the project leaders who responded to form IV are interested in presenting one or several papers at an International Conference on Coastal Lagoons to be organized under the sponsorship of Unesco in 1980 or 1981.

7. TRENDS IN RESEARCH

A list of keywords describing ten major disciplines and 93 research topics was given in the original forms I and II (see Annex I). A specific classification: "general survey" (G.S.) was given by the reviewers to characterize replies dealing with descriptive site studies and giving environmental data (e.g. the "psysico-chemical parameters" measured by the biologists).

(a) Subject fields of experience (Figure 4)

For the 181 replies reviewed, "biology" is the most frequently cited major discipline with percentages ranging from 19.5% (Africa) to 28.0% (North America), and followed in decreasing order by: "G.S." (13.7%), chemistry (12.5%), aquaculture (10.5%), conservation (8.1%), geology (7.9%), modelling (6.5%), fisheries (5.7%), geography (2.6%) and engineering (1.4%). One should note that the low percentages found for "fisheries", "geography" and "engineering" do not represent the potential interest in these fields. The three last disciplines were not well-sampled in the inquiry.

Percentages of major disciplines (mean value)		
General survey	G.S.	13.7%
Geography	I	2.6%
Physics	II	6.3%
Geology	III	7.9%
Chemistry	IV	12.5%
Biology	V	24.8%
Aquaculture	VI	10.5%
Fisheries	VII	5.7%
Modelling	VIII	6.5%
Engineering	IX	1.4%
Conservation	X	8.1%

(b) Interrelationship between the ten major disciplines

Keywords defining one or two major disciplines were frequently selected by project leaders with other major disciplines. For example, the ecologists who indicated "biology" and "aquaculture" as major research interest had generally ticked other disciplines such as "chemistry", "physics", "modelling", etc. These interactions between major disciplines are tabulated in Figure 5. Interaction between major disciplines reflects the multidisciplinary nature of the problems involved in coastal lagoon research.

(c) Interrelationship within major disciplines: research topics

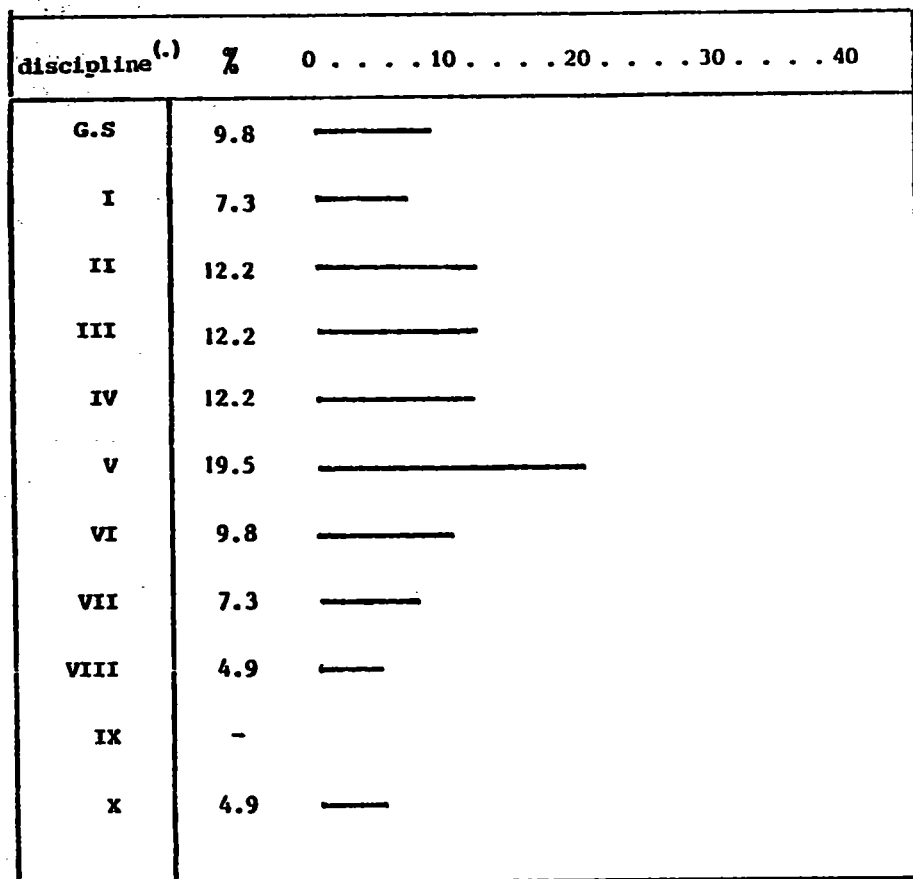
Project leaders selected research topics from a list totalling 93 keywords. The analysis of the selected topics is useful since it further documents the major research tendencies.

As an example, a review of research topics has been made when "biology" was the main research discipline listed. Thirty-six topics have been analysed (Figure 6). These research subjects included (1) organisms studied, (2) descriptive topics, and (3) systemic topics, including ecosystem modelling. The results are summarized in Figures 7-9.

Figure 4a :

Subject fields of experience

AFRICA (excluding the Mediterranean and Red Sea)



Number of inquiries received: 13

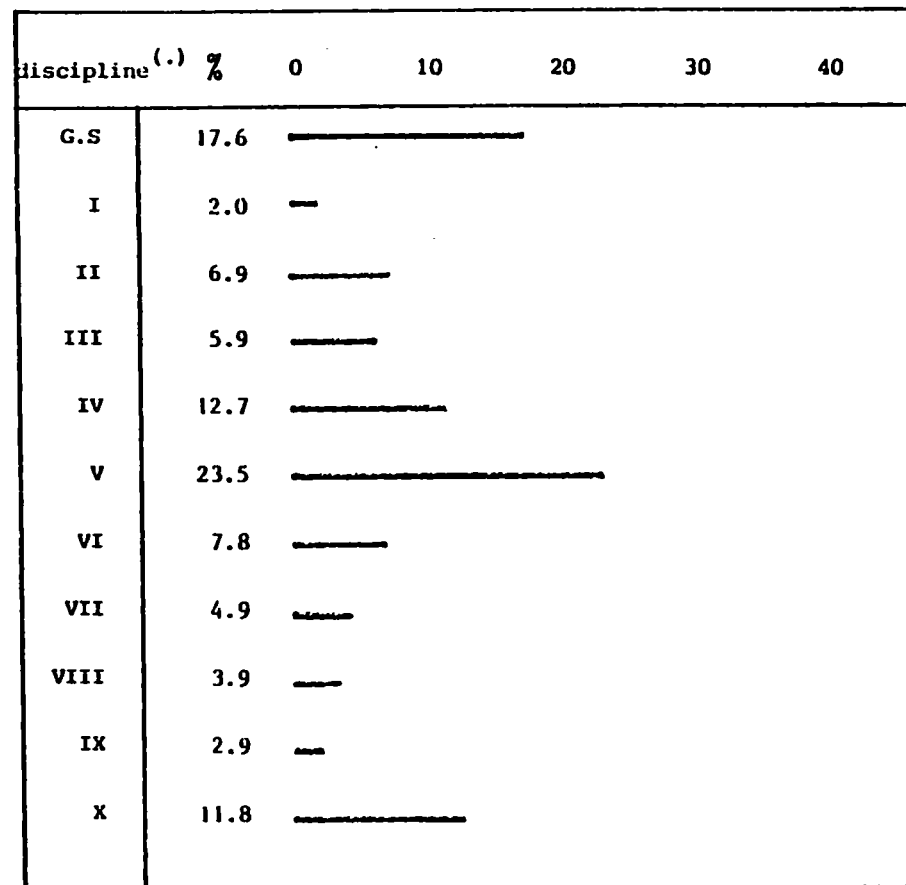
Countries:

Popular Republic of Benin (3), Ivory Coast (2), Kenya (1), Nigeria (3), South Africa (2), Tanzania (2).

Figure 4b :

Subject fields of experience

ASIA, S-E ASIA, THE PACIFIC



Number of inquiries received: 30

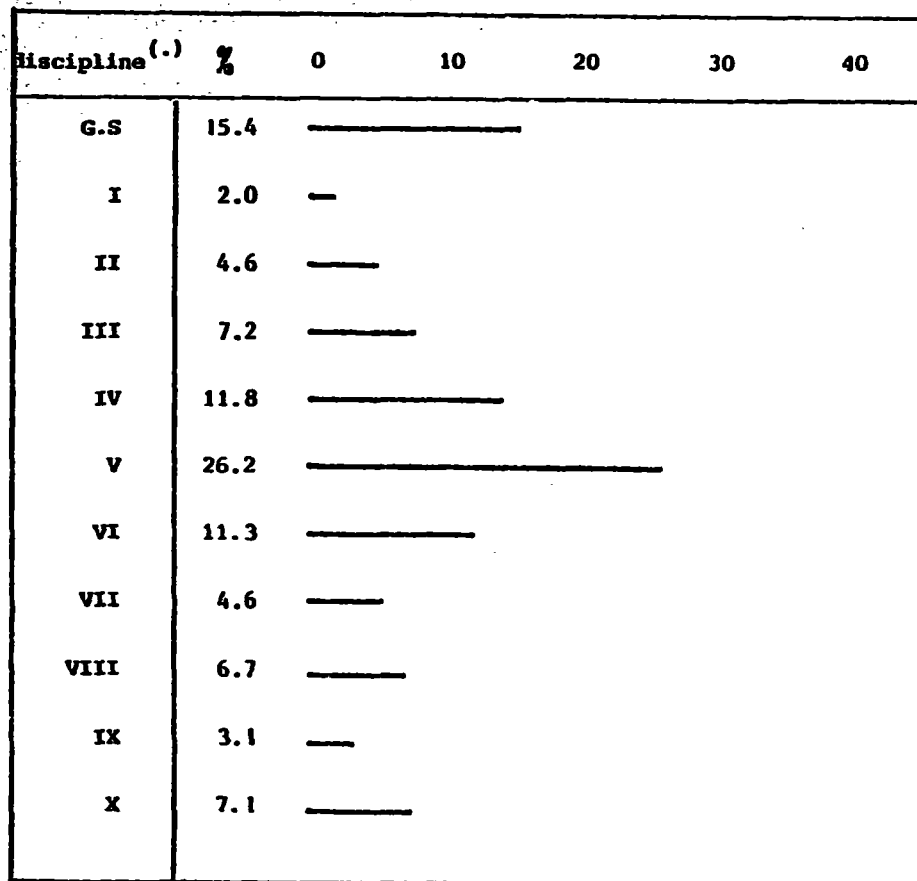
Countries:

Australia (13), India (4), Indonesia (1), Japan (1), Malaysia (1), New Zealand (4), Papua New Guinea (1), Philippines (1), Sri Lanka (1), Thailand (3)

Figure 4c :

Subject fields of experience

EUROPE (including the Mediterranean, Caspian Sea, Black Sea and Red Sea)



Number of inquiries received: 62

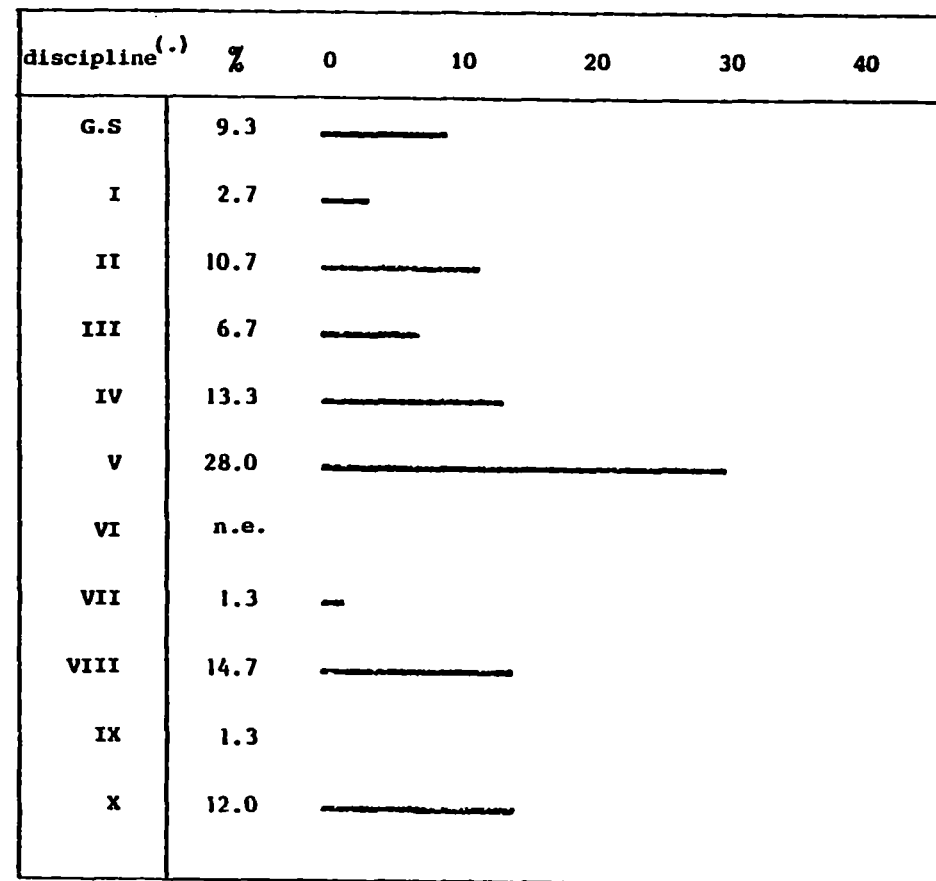
Countries:

Belgium (2), Denmark (3), Egypt (2), Finland (1),
 France (9), Germany, Fed. Rep. (3), Ireland (5),
 Israel (3), Italy (8), Netherlands (7), Norway (2),
 Portugal (1), Romania (1), Saudi Arabia (1),
 Spain (1), Sweden (1), Tunisia (3), Turkey (1),
 United Kingdom (8).

Figure 4d :

Subject fields of experience

NORTH AMERICA



Number of inquiries:

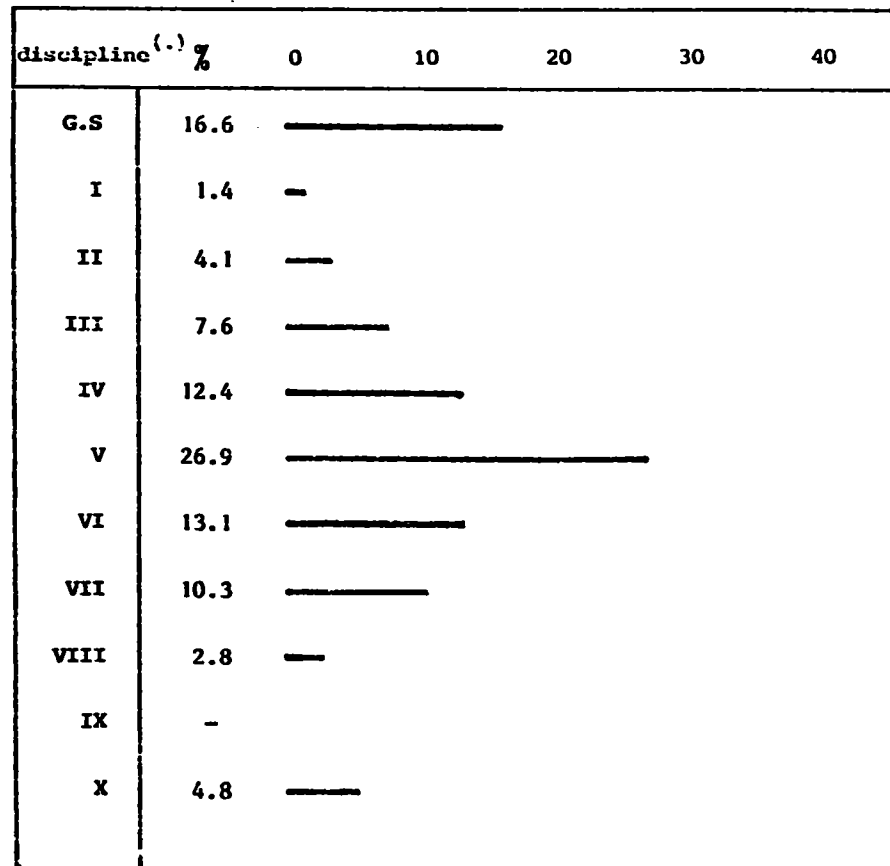
Countries:

Bermuda (1), Canada (1), U.S.A. (25).

Figure 4e :

Subject fields of experience

LATIN AMERICA & THE CARIBBEAN



Number of inquiries received: 49

Countries:

Brazil (6), Costa Rica (2), Colombia (5), Ecuador (2),
El Salvador (1), Guatemala (1), Honduras (1), Jamaica (2),
Mexico (22), Netherland Antilles (1), Nicaragua (1),
Panama (1), Venezuela (4).

Figure 5a: Interrelationship between ten major disciplines and "general survey" for Europe

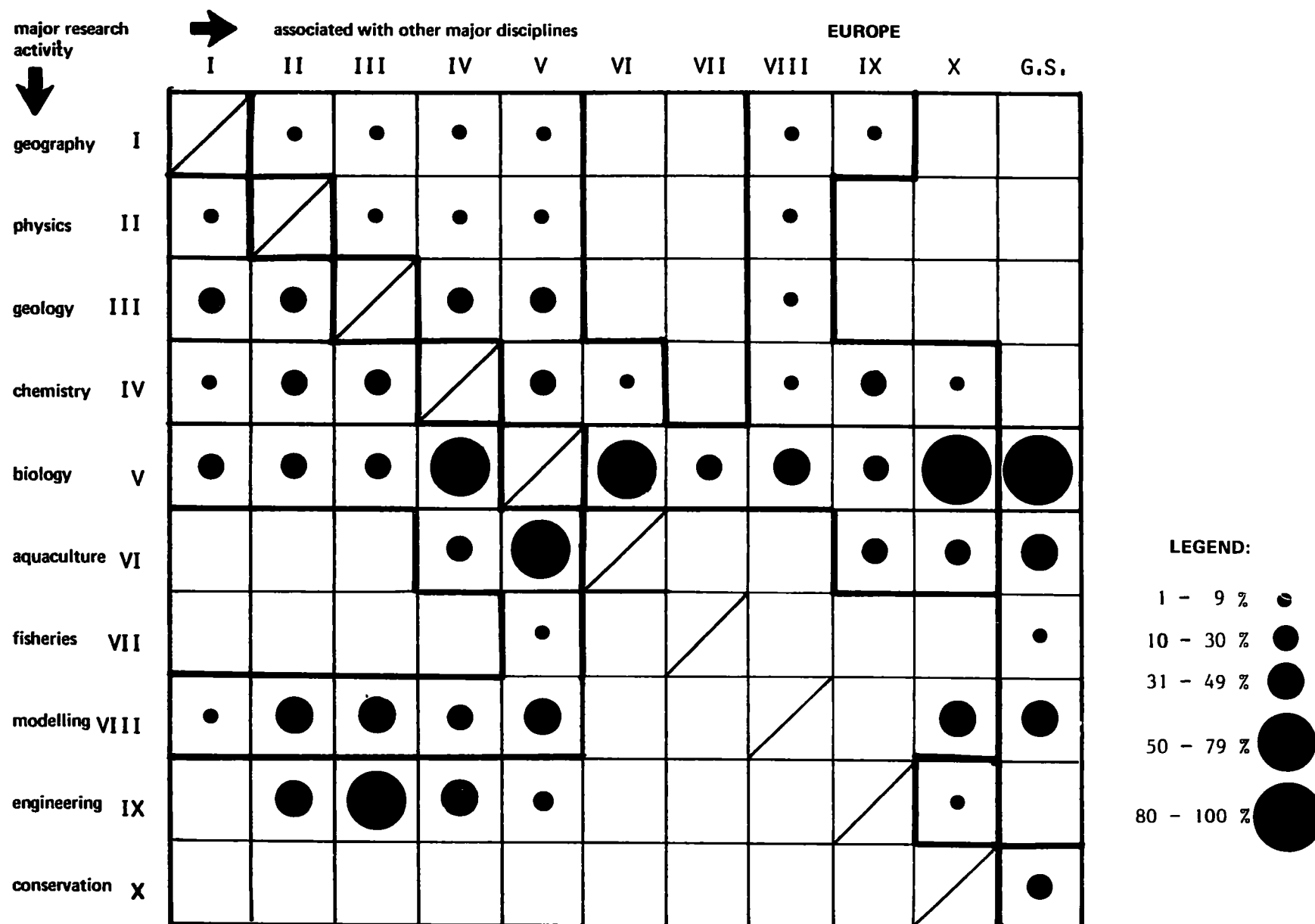


Figure 5b : Interrelationship between ten major disciplines and "general survey" for North America

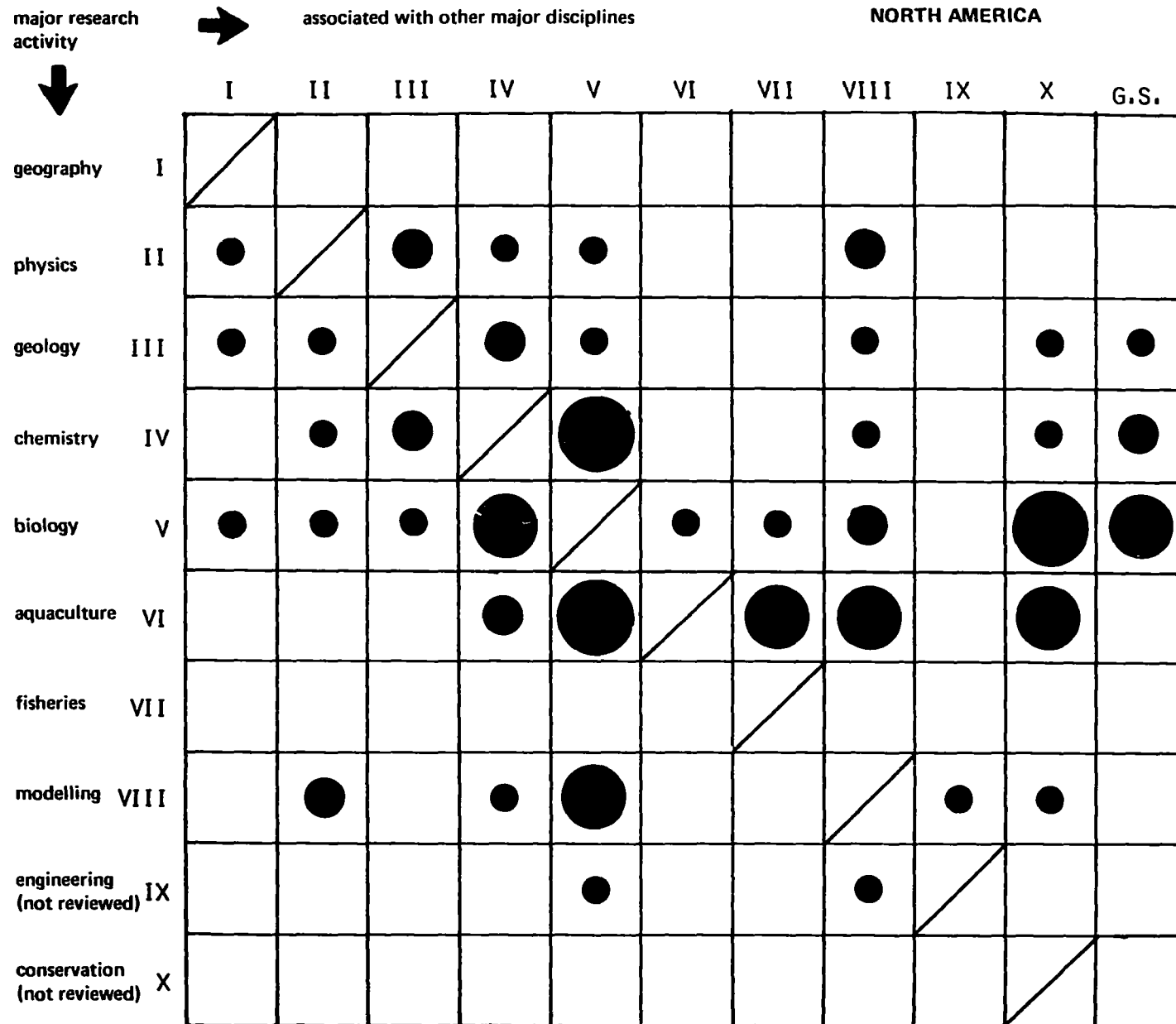


Figure 5c : Interrelationship between ten major disciplines and "general survey" for Asia - S.E. Asia - Pacific

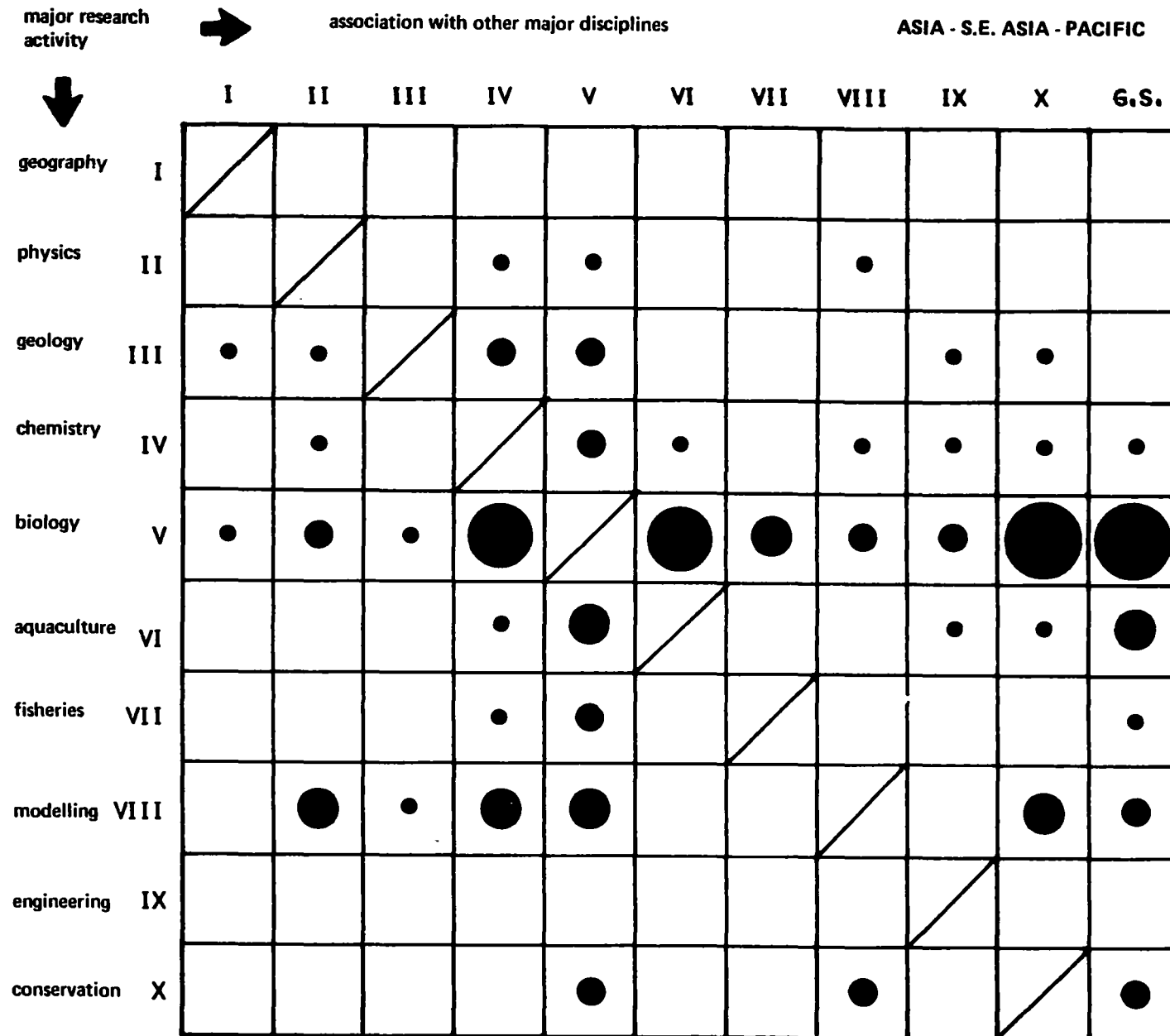


Figure 5d: Interrelationship between ten major disciplines and "general survey" for Latin America & Caribbean

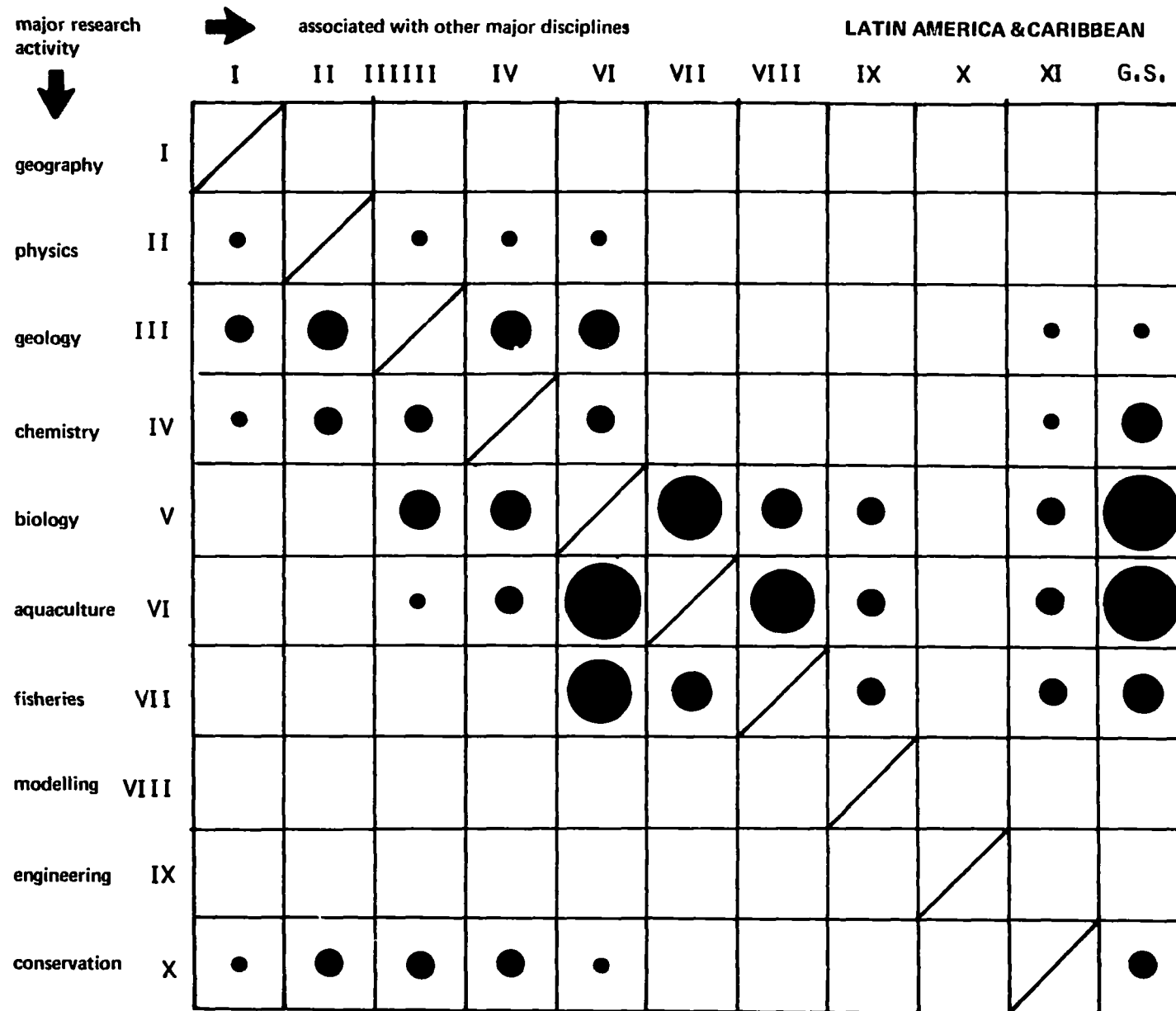


Figure 5e: Interrelationship between ten major disciplines and "general survey" for Africa

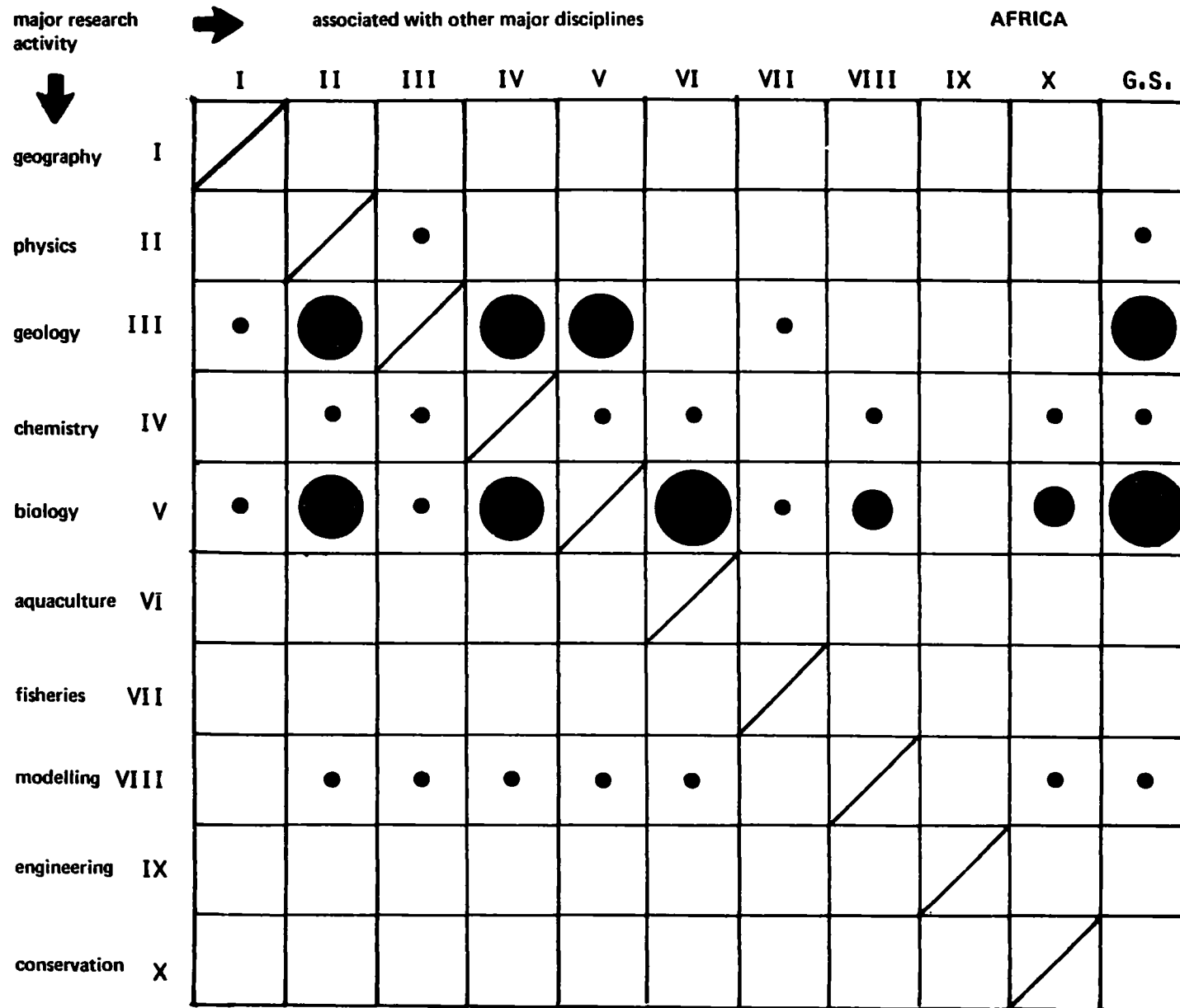


Figure 6 : A review of research topics included in the main research discipline "Biology"

<u>List of topics in the major discipline "Biology"</u>		
<u>group 1 :</u>	<u>group 2 :</u>	<u>group 3 :</u>
<u>type of organisms</u>	<u>descriptive topics</u>	<u>systemic topics</u>
phytoplankton	taxonomy	endocrinology
zooplankton	life history	genetics
meroplankton	embryology	population dynamics
microbenthos	serology	community structure
meiobenthos	pathology	food webs
macrobenthos	parasitology	physiological ecology
fishes	animal/sediment rel.	physiol. & biochemistry
bacteria	indicator species	nutrient cycling
microflora	standing crop	utilization organic mat.
halophytes	microbiology	metabolism
	detritus production	energy budgets
		productivity
		eutrophication
		effects of pollutants
		modelling

The top-ranked topics (frequency ranging from 100 - 60 %) in the three groups are the following:

group 1 : type of organisms

Africa	Asia	Pacific	Europe	Latin America	North America
•macrobenthos •fishes	phytopl. zoopl.	phytopl. macrobenth. halophytes fishes	macrob. fishes zoopl. phytopl. meiob.	phytopl. zoopl. macrob.	macrob. phytopl. zoopl. bacteria

group 2 : descriptive topics

Africa	Asia	Pacific	Europe	Latin America	North America
stand.crop	stand.crop	indic.sp. stand.cr. an./sed.r	an./sed.r. stand. cr. life hist. indic. sp.	stand.cr. life hist.	detritus stand.cr. an./sed.r indic.sp.

group 3 : systemic topics

Africa	Asia	Pacific	Europe	Latin America	North America
food webs	prod. pop.dyn. food.web	pop.dyn. com.str. prod.	pop.dyn. com. str. phys.ecol. energy bud utiliz. QM.	pop.dyn. pred. food web	com. str. prod. nutr. cycl. utiliz.O.M. pop. dyn. phys. ecol.

Figure 7 : - Selected research topics within the major discipline "Biology": type of organisms

(numbers of programmes reviewed in parentheses)

	(5)	(10)	(10)	(27)	(17)	(16)
frequency (per cent)	AFRICA	ASIA	PACIFIC	EUROPE	LATIN AMERICA	NORTH AMERICA
100 - 60 %	. macrobenthos . fishes	. phytoplankton . zooplankton	. phytoplankton . macrobenthos . halophytes . fishes	. macrobenthos . fishes . zooplankton . phytoplankton . meiobenthos	. phytoplankton . zooplankton . macrobenthos	. macrobenthos . phytoplankton . zooplankton . meiobenthos . bacteria
59 - 40 %	. zooplankton . meroplankton . bacteria	. macrobenthos . halophytes . fishes . bacteria	. zooplankton . bacteria . microflora . meiobenthos	. bacteria . microbenthos . microflora . halophytes	. fishes	. halophytes . fishes . microflora . microbenthos . meroplankton
39 - 20 %	. phytoplankton . meiobenthos	. meroplankton . meiobenthos	. meroplankton . microbenthos	. meroplankton	. microbenthos . halophytes	
inf. 20 %	. halophytes . microflora . microbenthos	. microbenthos . microflora			. meroplankton . microflora . bacteria . meiobenthos	

Figure 8 : - Selected research topics within the major discipline "Biology" : descriptive topics

(numbers of programmes reviewed in parentheses)

	(5)	(10)	(10)	(27)	(17)	(16)
frequency (per cent)	AFRICA	ASIA	PACIFIC	EUROPE	LATIN AMERICA	NORTH AMERICA
100 - 60 %	. standing crop	. standing crop	. indicator sp. . standing crop . anim./sed.rel.	. anim./sed.rel. . standing crop . life history . indic. spec.	. standing crop . life history	. detritus prod. . standing crop . anim./sed.rel. . indicator sp.
59 - 40 %	. anim./sed.rel. . indicator sp. . detritus prod.	. microbiology . detritus prod.	. microbiology . detritus prod.	. taxonomy . detritus prod. . microbiology	. taxonomy . anim./sed.rel. . detritus prod.	. microbiology . life history
39 - 20 %	. microbiology . life history	. taxonomy . life history . anim./sed.rel. . parasitology . serology/hem.	. taxonomy . life history	. embryology	. microbiology	. embryology . taxonomy
inf. 20 %	. taxonomy	. embryology . pathology	. embryology . pathology	. parasitology . pathology . serology/hem.	. embryology . pathology . parasitology . serol./hem.	. parasitology . pathology . serol./hem.

Figure 9 : Selected research topics within the major discipline "Biology" : systemic topics

(numbers of programmes reviewed in parentheses)

	(5)	(10)	(10)	(27)	(17)	(16)
frequency (percent)	AFRICA	ASIA	PACIFIC	EUROPE	LATIN AMERICA	NORTH AMERICA
100 - 60 %		.productivity .popul.dynamics .food webs	.popul.dynamics .community str. .productivity .food webs	.popul.dynamics .community str. .physiol.ecology .energy budget .productivity	.productivity .popul.dynamics .food webs	.community str. .productivity .nutrient cycling .utiliz.org. matter .physiol.ecology .food webs
59 - 40 %	.nutrient cycl. .energy budget .pollutants .food webs	.community str. .nutrient cycl. .eutrophication .physiol.ecology	.modelling .nutrient cycl.	.food webs .nutrient cycl. .eutrophication .pollutants .modelling	.nutrient cycl. .utilization OM .community str. .eutrophication	.eutrophication .popul. dynamics .metabolism .pollutants .modelling
39 - 20 %	.popul.dynamics .commun. struc. .utilization OM .eutrophication	.utilization OM .pollutants .modelling .physio.& bioch.	.utilization OM .pollutants .eutrophication .metabolism .physiol.ecology	.metabolism .genetics .physio.& bioch. .endocrinology	.physiol.ecology .energy budgets .pollutants .	.energy budgets .genetics .physiol.& bioch. .endocrinology
inf. 20 %	.modelling	.energy budgets .metabolism .endocrinology	.energy budgets		.physio.& bioch. .modelling	

(d) Affinity between topics (discipline "biology")

Trellis-diagrams (Figures 10-11) give, as an example, the affinity between: (a) the type of organisms studied; (b) the descriptive topics; and (c) the systemic topics.

Remark. Descriptive topics are considered here as structural parameters and systemic topics are considered as parameters of functioning.

In a newly developed programme, groups (a), (b) and (c) are loosely correlated. Conversely, the three groups are highly correlated in the most advanced programmes.

8. CONCLUDING REMARKS

In recent years, concern for preservation of the wet coastal ecosystems has caused a reappraisal of the value and resources of this environment which includes delta areas, coastal lagoons and estuaries (see for example, Project 5 of the Man and the Biosphere Programme).⁽¹⁾ The value of coastal lagoons as valuable sites for fisheries and mariculture is now widely recognized.

One of the major conclusions to be drawn from this coastal lagoon survey is that co-operation in research is indeed feasible given the scientific support available in many countries concerned. A general opinion, expressed in the survey by project leaders, is that our information on lagoon systems is not as good as it should be. It was also proposed that a central theme of future research should be the study of seasonal variations and, through international co-operation, the comparative analysis of spatial variations of lagoon ecosystems functioning.

A general aim of co-ordinated research programmes on coastal lagoons should be to arrive at a comprehensive outline taking into account as much information as possible. Emphasis could be placed on the flux of materials across the lagoons, the nature and properties of the sediments and the mechanisms of living productions as well as the demographic and adaptive features of the species. This calls for an emphasis on multidisciplinary consideration of coastal lagoons as ecological systems. There is a need to compare production, consumption and recycling of dissolved and particulate materials across system boundaries.

(1) Programme on Man and the Biosphere (MAB). International Working Group on Project 5. Ecological effects of human activities on the value and resources of lakes, marshes, rivers, deltas, estuaries and coastal zones. Final Report. MAB report series No.21. Unesco, 1975. 80 pp.

Fig. 10 Affinity between topics, within the major discipline "Biology" (trellis-diagram). Example of advanced research programme.

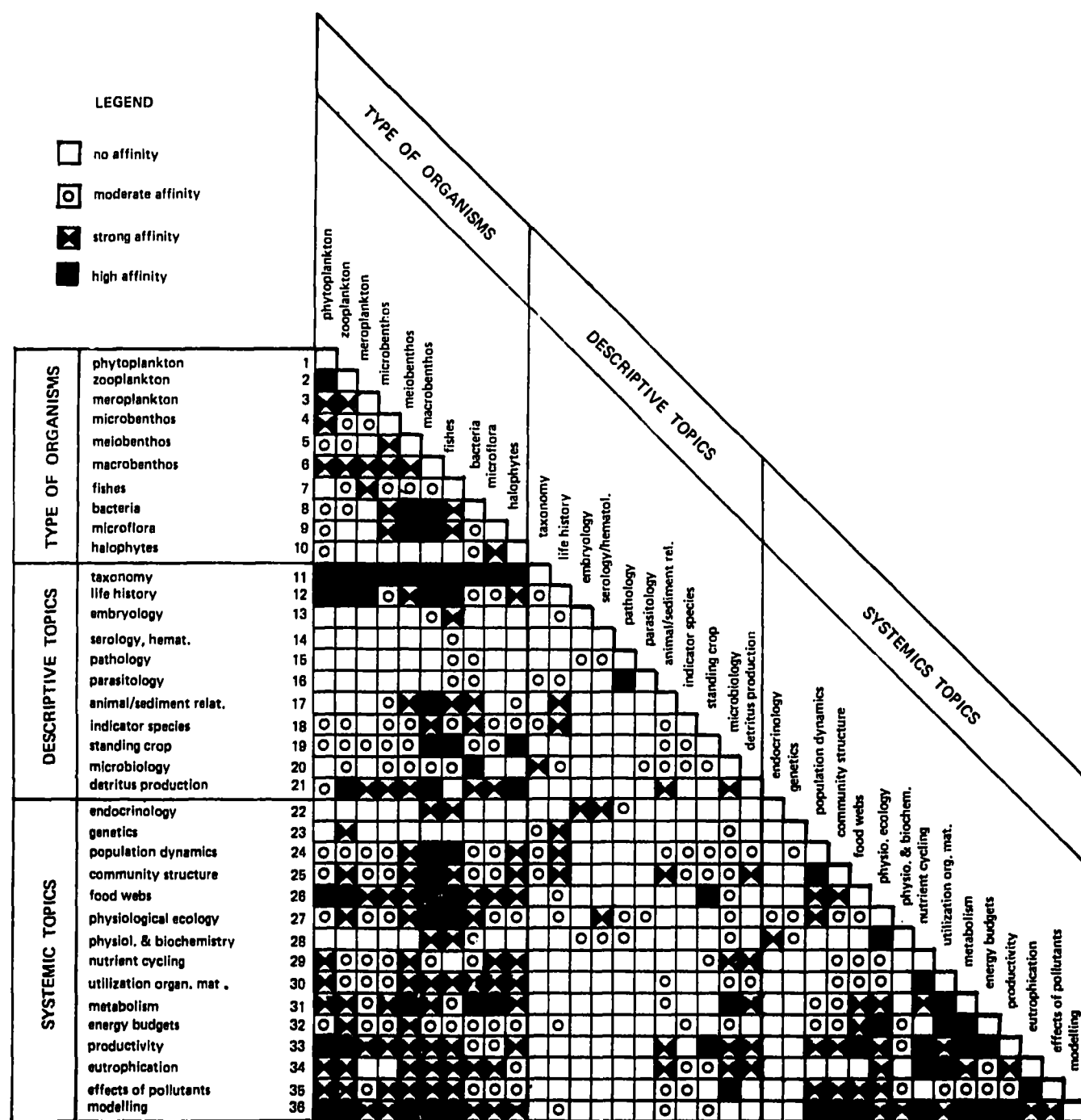
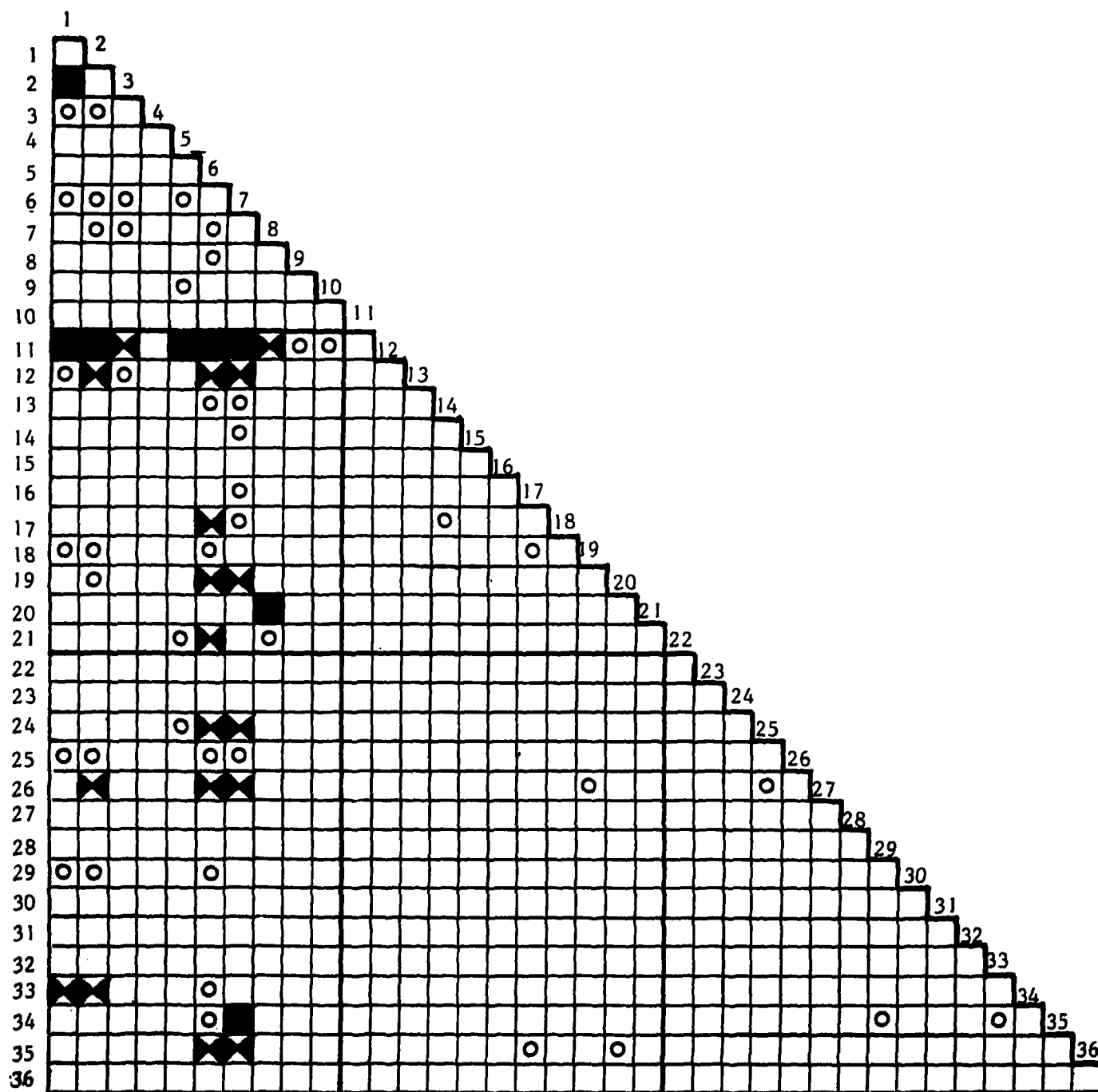


Fig. 11 Affinity between topics, within the major discipline "Biology"
(treillis-diagram). Example of new developed programme.



SCOR/Unesco Advisory Panel on Coastal Lagoons

INQUIRY ON EXISTING LAGOON^{*} RESEARCH PROGRAMMES

Geographical areas:

- ☐ AFRICA (excluding the Mediterranean and Red Sea)
- ☐ ASIA, SOUTHEAST ASIA AND THE PACIFIC
- ☐ EUROPE (including the Mediterranean, Caspian Sea,
Black Sea and Red Sea)
- ☐ LATIN AMERICA
- ☐ NORTH AMERICA
 - ☐ East Coast
 - ☐ West Coast

Institution or employer:

Address:

Name of Director:

Supporting or funding body:

^{*} Excluding coral reefs and atolls

PROJECT LEADER :

Name:

Title of position:

Professional address:

Key-words defining your major activities:
(Up to three key-words may be selected)

☐ Geography

☐ Physics

☐ Geology/Geophysics

☐ Chemistry/Geochemistry

☐ Biology

☐ Aquaculture

☐ Fisheries

☐ Modelling

☐ Engineering

☐ Conservation/Resources/Legislation

PROGRAMME/PROJECT

Title of Programme/Project:

Name(s) of Lagoon(s) :

Geographic Location :

Synthetic description of Lagoon System(s) :

Significant references :

Starting date of the Programme/Project:

Duration:

Sponsoring body(ies):

Other institutions co-operating in the Programme/Project:

Brief Description of your Programme/Project^{*}
(Use additional sheets if necessary)

(By filling in FORM II, you will help us in processing your reply)

^{*} In case your programme comprises several distinct sub-projects, please fill in or circulate FORM III.

SCOR/Unesco Advisory Panel on Coastal Lagoons
(Inquiry on Existing Lagoon Research Programmes)

SUBJECT FIELDS OF EXPERIENCE

Select as many key-words as necessary

GEOGRAPHY

- ☐ Cartography
- ☐ Morphology
- ☐ Climatology
- ☐ Demography
- ☐ Other (specify)

PHYSICS

- ☐ Meteorology
- ☐ Hydrodynamics
- ☐ Salinity/Temperature/Density variations
- ☐ Circulation and mixing relations
- ☐ Dynamics of turbulent boundary layers
- ☐ Radiation, light
- ☐ Interface energy exchange
- ☐ Optics
- ☐ Acoustics
- ☐ Mechanics
- ☐ Radioactivity, radionuclides
- ☐ Other (specify)

GEOLOGY AND GEOPHYSICS

- ☐ Cartography
- ☐ Geomorphology
- ☐ Geochronology
- ☐ Paleoenvironment
- ☐ Sediment transport and deposition
- ☐ Labelled tracers
- ☐ Radioactive tracers
- ☐ Nephelometry
- ☐ Seismic

- ☐ Mineralogy
- ☐ Other (specify)

CHEMISTRY AND GEOCHEMISTRY

- ☐ Composition of waters, water quality analysis
- ☐ Transport of sediments
- ☐ Sediment-water exchanges
- ☐ Cycling of metals
- ☐ Biodegradation
- ☐ Nutrient cycling
- ☐ Diagenesis of dissolved constituents
- ☐ Radioactive decay
- ☐ Radioelements
- ☐ Cycling of pollutants (specify)
- ☐ Other (specify)

BIOLOGY

Type of organisms

- ☐ Phytoplankton (specify) :
- ☐ Zooplankton " :
- ☐ Meroplankton " :
- ☐ Microbenthos " :
- ☐ Meiobenthos " :
- ☐ Macrobenthos " :
- ☐ Fishes " :
- ☐ Bacteria " :
- ☐ Microflora " :
- ☐ Halophytes " :
- ☐ Other groups " :

Topics

- ☐ Taxonomy
- ☐ Life history
- ☐ Embryology
- ☐ Endocrinology
- ☐ Serology, hematology
- ☐ Pathology
- ☐ Parasitology
- ☐ Genetics
- ☐ Population dynamics
- ☐ Ecology

- ☐ Community structure, maintenance and distribution
- ☐ Animal/sediment relationships
- ☐ Indicator species (water masses, pollution, etc.)
- ☐ Standing crop
- ☐ Food webs
- ☐ Physiological ecology (strategies of adaptation)
- ☐ Physiology and biochemistry (mechanisms of adaptation)
- ☐ Microbiology
- ☐ Nutrient cycling
- ☐ Detritus production
- ☐ Transfer and utilization of organic matter
- ☐ Metabolism
- ☐ Energy budgets
- ☐ Productivity
- ☐ Eutrophication
- ☐ Effects of pollutants (specify)
- ☐ Other (specify)

MODELLING

- ☐ Ecosystem models
- ☐ Other mathematical models (specify)

AQUACULTURE

Types of organisms

- ☐ Algae (specify) :
- ☐ Molluscs " :
- ☐ Crustaceans " :
- ☐ Fishes " :
- ☐ Other " :
- ☐ Production (Kg/ha) :

Culture methods

- ☐ Total surface
- ☐ Open systems (no feeding, no fertilization)
- ☐ Retention of young and adults in semi-enclosed lagoons

- ☐ Release and rearing in fertilized enclosures
- ☐ Stocking and rearing with fertilization and feeding
- ☐ Intensive cultivation with feeding
- ☐ Hatchery or pond siting and construction
- ☐ Pollutants and contaminants
- ☐ Other (specify)

ENGINEERING

- ☐ Barrier island stabilization
- ☐ Lagoon systems creation
- ☐ Management/Rehabilitation/Pollution
- ☐ Other (specify)

CONSERVATION/RESOURCES/LEGISLATION

- ☐ Laws and economics
- ☐ Resources and population
- ☐ Protection
- ☐ Recreation
- ☐ Other (specify)

SCOR/Unesco Advisory Panel on Coastal Lagoons
(Inquiry on Existing Lagoon Research Programmes)

SUB-PROJECT

TITLE OF SUB-PROJECT

Brief Description of Sub-Project

Major References

STAFF-IN CHARGE

Name :

Position:.....

Address:

.....

.....

Name :

Position:.....

Address:

.....

.....

Name :

Position:.....

Address:

.....

.....

Name :

Position:.....

Address:

.....

.....

Please use additional sheets if necessary

SCOR/Unesco Advisory Panel on Coastal Lagoons

INQUIRY ON EXISTING LAGOON RESEARCH PROGRAMMES

Geographical location of the lagoon, or lagoon system :

latitude:

longitude:

Total surface of the lagoon or lagoon system :

Recent literature and papers in press or current research reports:

Training programmes and facilities:

Do you have training programmes on coastal lagoon research ?

YES ☒ NO ☐

Are you willing to offer training facilities ?

YES ☒ NO ☐

(Is this a personal statement ☐ or an official statement from your Institution ☐ ?)

Do you wish to have your name included in a Directory of scientists working on coastal lagoon research ?

YES ☒ NO ☐

If yes, please give two of your major fields of interest :

.....

Other information :

What should, in your view, be the mandate of :

a) a Working Group on Coastal Lagoon Research ?

b) a Working Group on Coastal Lagoon Management ?

Would you be interested in presenting a paper at an
International Conference on Coastal Lagoons, organized
under the sponsorship of Unesco and SCOR, in 1978 or 1979?

YES NO

☐ ☐

Please send your reply to :

.....

With copy to : Division of Marine Sciences
Unesco
Place de Fontenoy
75700 Paris, France

1. INTRODUCTION

Les lagunes côtières et les deltas sont des zones littorales de transition entre la mer et la terre ferme, dont la formation est due à l'action de lois physiques complexes. Ce sont des milieux très particuliers, essentiellement en raison des conditions originales dans lesquelles s'y produisent les phénomènes d'hydrodynamique et de sédimentation. L'accumulation y est très active et il s'y crée des milieux protégés, d'où des effets sur les propriétés et la nature géochimique des sédiments et une très grande richesse potentielle en ressources biologiques.

Une lagune côtière est d'une manière générale une étendue d'eau semi-fermée et communiquant avec la mer libre par des passes ouvertes dans un ensemble de barrières (physiques, chimiques, hydrodynamiques). Les lagunes côtières comptent parmi les systèmes littoraux les plus fertiles. Elles se forment sur le rivage des estuaires, le long des côtes, dans les golfes fermés ou les baies, aussi bien sous les climats tropicaux que tempérés ou froids. La grande variété des termes utilisés pour désigner la situation géographique des systèmes lagunaires qui ont fait l'objet des études recensées dans le répertoire des programmes de recherches témoigne de leur diversité.

A leur arrivée dans la lagune, les courants d'eau et les flux d'alluvions peuvent, soit y stagner, soit s'écouler dans l'océan, un grand estuaire ou un golfe. Ces écoulements lagunaires peuvent influencer de manière sensible sur l'environnement local et régional et, en venant s'ajouter à l'action des courants marins et aux flux côtiers de substances nutritives, contribuer à déterminer la productivité littorale.

Les lagunes côtières qui abritent de nombreuses espèces indigènes économiquement importantes servent aussi de frayères et de zones de développement des larves à des espèces migratrices. De nombreuses espèces de poissons, de crustacés et de mollusques traversent les lagunes côtières au cours de leur cycle biologique. Dans un grand nombre de régions, les lagunes se prêtent tout à fait au développement d'une production contrôlée d'organismes marins.

Les dépôts sédimentaires du fond des lagunes contiennent souvent des matières premières de base telles que des sels ou des produits chimiques d'accès facile pour l'industrie. Lorsque leur profondeur est suffisante, les lagunes forment des zones abritées propices aux ports et aux chenaux de navigation. Ces facteurs peuvent être indirectement favorables à la création de centres de peuplement et à l'urbanisation. Dans les régions plus reculées, les lagunes côtières peuvent se prêter à la création de réserves écologiques ou d'activités de tourisme et de loisirs.

Au cours de l'histoire, les lagunes côtières ont été utilisées pour la pêche, ainsi que pour l'élevage et la culture des poissons, des mollusques et des crustacés. Ces formes d'exploitation étaient fréquemment intégrées de façon tout à fait harmonieuse au contexte socio-économique traditionnel, par exemple dans le Sud-Est asiatique.

Dans les années récentes, le désir justifié d'exploiter de manière intensive les produits biologiques et les ressources non biologiques de ces systèmes a donné naissance à de nombreux projets de mise en valeur des lagunes côtières.

Les milieux scientifiques s'accordent pour souligner que dans de trop nombreux cas, ces projets sont de nature à causer des dommages sérieux et durables à un type de milieu côtier dont la conservation est indispensable. Dans un grand nombre de ces zones - souvent polluées - une exploitation rationnelle doit s'accompagner de

l'application parallèle de mesures de sauvegarde destinées à les rétablir dans leur état primitif. C'est ainsi que l'ostréiculture, la mytiliculture et la pisciculture ne pourront se développer de manière satisfaisante que si l'environnement est protégé contre la contamination chimique. L'on ne devrait encourager les projets de développement économique que lorsque l'équilibre écologique naturel de l'environnement et son potentiel de production auront été bien compris et bien protégés.

2. BUT DE L'ETUDE

En 1974, à la demande de la Division des sciences de la mer de l'Unesco, le Comité scientifique de la recherche océanique (SCOR) a créé un Groupe consultatif ad hoc SCOR/Unesco sur les lagunes côtières/¹ chargé de faire le point des connaissances relatives aux systèmes lagunaires dans les régions tempérées et tropicales. Dans l'une de ses recommandations, ce Groupe avait jugé indispensable d'effectuer un recensement des programmes de recherches en cours sur les lagunes côtières avant de définir un cadre général dans lequel inscrire les activités à prévoir.

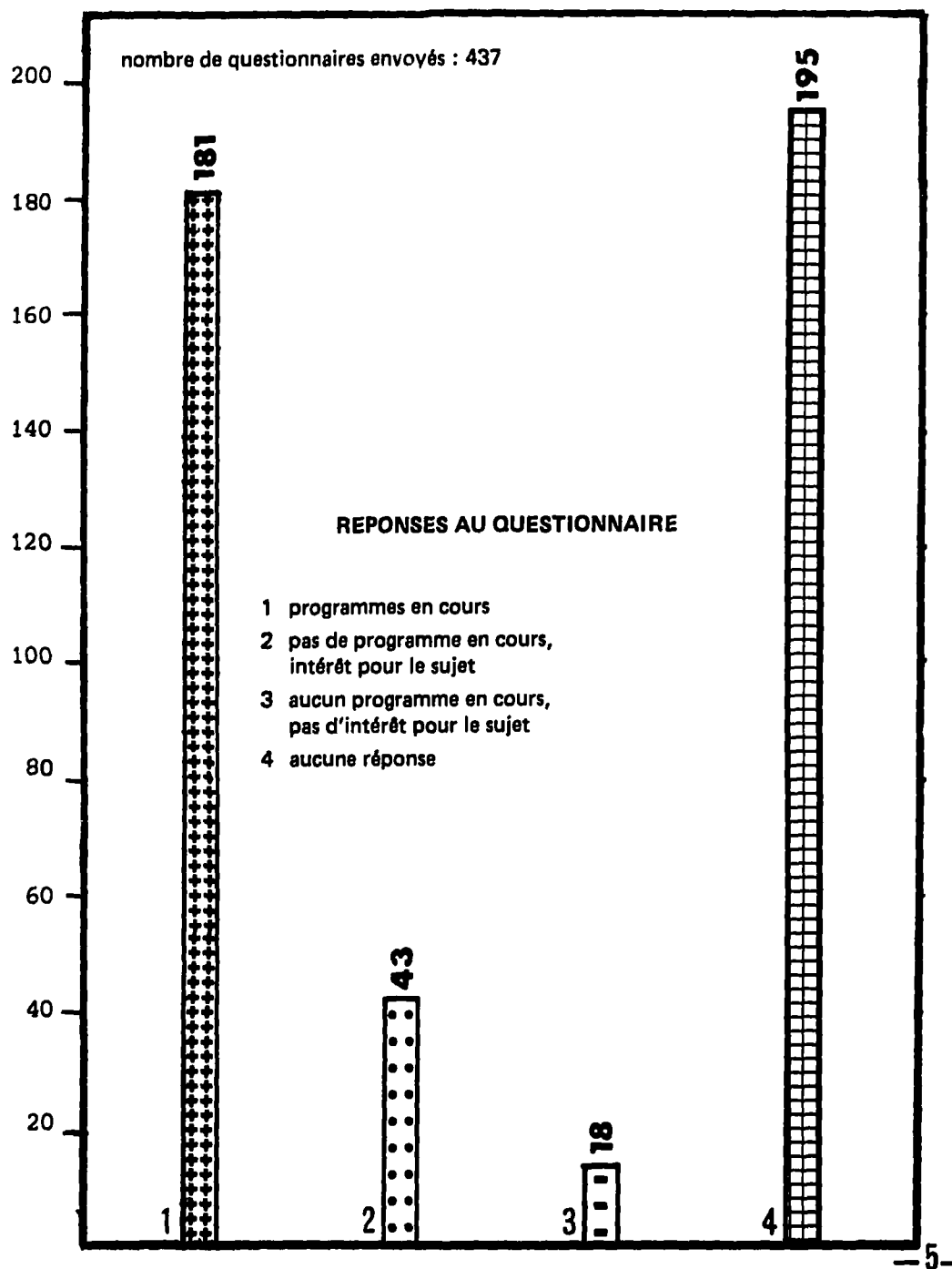
Dans les deux années qui suivirent, le Groupe procéda à une enquête sur les programmes de recherche entrepris par des laboratoires et des organismes spécialisés du monde entier. Près de 200 programmes - un résultat inattendu - furent ainsi recensés et examinés, et le nombre des réponses à cette enquête montre clairement l'intérêt croissant qui se manifeste pour la recherche sur les lagunes côtières.

L'étude menée par le Groupe a pour but de rassembler et d'évaluer ces marques d'intérêt, en prenant pour base les informations recueillies en réponse à deux questionnaires : "SCOR/Unesco SCE/9/Circ. 5" (formules I à III) et "SCOR/Unesco SCE/9/Circ. 9" (formule IV), dont le texte figure à l'Annexe I/². Dans le premier questionnaire, il était demandé aux directeurs de projets de cocher sur une liste de 93 thèmes d'étude répartis en grandes rubriques, celles sur lesquelles portent leurs travaux. Un espace était également laissé pour d'autres informations, telles que le nom de la (ou des) lagune(s), une brève description des recherches, la situation géographique et les principales références bibliographiques. Ce premier document fut largement diffusé entre juin 1976 et juillet 1977 à plus de 400 organismes de recherches, personnalités scientifiques et administrations figurant sur une liste d'envoi correspondant à un répertoire de noms et d'adresses établi par le Groupe.

Le texte de la lettre de couverture du second document (formule IV) destiné à être envoyé à toutes les personnes ayant répondu au premier questionnaire, mais adressé aussi à titre de rappel aux destinataires de ce premier document n'y ayant pas répondu, fut approuvé en février 1977. Dans cette formule IV, le Groupe demandait de plus amples informations sur la situation géographique de la ou des lagune(s), notamment sa latitude, sa longitude et sa superficie, sur les études et rapports scientifiques disponibles ainsi que sur les programmes de formation de niveau universitaire sur le sujet. Les destinataires étaient invités à répondre à la question suivante : quel devrait être le mandat d'un groupe de travail chargé de mener des recherches sur les lagunes côtières et/ou d'un groupe de travail sur l'aménagement des lagunes côtières ?

-
1. La composition de ce Comité est la suivante : A. Ayala-Castañares, B. D'Arglejan, P. Lasserre, C.I.O. Olaniyan et F.B. Phleger.
 2. Voir pages 30-41.

Figure 1



Le Groupe consultatif ad hoc SCOR/Unesco sur les lagunes côtières a pleinement conscience que l'un des objectifs essentiels de l'étude doit être de faciliter les échanges d'informations entre scientifiques de lieux différents, effectuant des recherches analogues et complémentaires. C'est pourquoi il a dressé dans le présent document la liste des programmes de recherches et de leurs directeurs scientifiques, tout en s'efforçant aussi d'y faire figurer les noms de tous les chercheurs cités dans les réponses reçues.

3. CONTENU ET REPARTITION PAR PAYS DES REPONSES AU QUESTIONNAIRE (Figure 1)

Un total de 437 questionnaires a été envoyé. A la mi-mai 1978, 242 questionnaires remplis avaient été retournés par les destinataires. Un intérêt pour ces recherches était manifesté dans 224 (92,6 %) réponses, intérêt non concrétisé dans 30,9 % des cas (43 réponses) et concrétisé par des programmes en cours dans 74,8 % des cas (181 réponses). Le nombre des réponses négatives s'élevait à 18 (7,4 %) (aucun programme en cours, pas d'intérêt pour ces recherches).

4. FINANCEMENT

Le financement des programmes et projets de recherches concernant les lagunes côtières est principalement public. Un pourcentage non négligeable des recherches est effectué dans des établissements d'enseignement : universités et instituts universitaires et leur financement est dans la plupart des cas assuré par l'Etat. Environ 6 % du nombre total des projets de recherches relèvent d'accords de coopération bilatéraux et multilatéraux (voir Figure 2).

Figure 2 : FINANCEMENT

organisme intergouvernemental (coopération bilatérale et multilatérale)	5,8 %
organisme public (à l'exclusion des établissements universitaires)	54,2 %
établissements universitaires (publics et privés)	36,7 %
sociétés privées, fondations	3,2 %
divers	0,6 %

5. INTERET DANS LE MONDE ET INCIDENCES LOGISTIQUES

Que des programmes de recherches soient entrepris dans le monde dépend dans une large mesure de la présence d'infrastructures universitaires. Le répertoire joint recense 181 programmes/projets de recherches relatifs aux lagunes côtières avec, en regard, les institutions et organismes dont ils relèvent. Les domaines d'intérêt particuliers et la situation professionnelle des directeurs de projets sont également indiqués. Ce répertoire donne ainsi une vue d'ensemble du nombre et du type de spécialistes que comptent les 52 pays couverts par l'enquête. Les réponses ont été analysées sur la base de la répartition suivante en zones géographiques :

- (A) Afrique (à l'exclusion de la Méditerranée et de la mer Rouge)
- (B) Asie, Asie du Sud-Est et Pacifique
- (C) Europe (y compris la Méditerranée, la mer Caspienne, la mer Noire et la mer Rouge)

- (D) Amérique latine et Caraïbes
- (E) Amérique du Nord

Ces zones géographiques ci-dessus ont été délimitées de manière à ce que chacune corresponde à une des grandes zones lagunaires existant sous les diverses latitudes. Les réponses faisant état de programmes de recherches actifs sur les lagunes (Figure 3) se répartissent comme suit :

- région A : 11 programmes (6,1 %)
- région B : 30 programmes (16,7 %)
- région C : 64 programmes (35,6 %)
- région D : 49 programmes (27,2 %)
- région E : 27 programmes (15,0 %)

Dans l'ensemble, les pays en développement commencent à entreprendre des programmes de recherches dans une perspective à long terme. Dans certains pays, les systèmes lagunaires sont devenus un poste inscrit dans la planification des programmes généraux de recherche. Le Mexique est, en la matière, un des pays les plus actifs et l'Universidad Nacional Autonoma de Mexico (UNAM) a organisé des séminaires sur les lagunes côtières en 1967 et 1977. Ce pays (qui a 22 programmes en cours figurant dans le répertoire) a établi, dans le domaine des sciences de la mer, une infrastructure d'enseignement bien étoffée dont bénéficie la recherche sur les zones côtières.

Des réunions de travail sur les sciences de la mer se sont tenues à l'échelon subrégional dans les zones de la Méditerranée orientale, du Golfe, de la Méditerranée occidentale, et du Sud-Est asiatique et, chaque fois, des recommandations concernant les lagunes côtières ont été approuvées.

De par leur caractère, les problèmes scientifiques soulevés dans le présent rapport exigent des recherches plus approfondies sur la physique, la géologie, la chimie et la biologie des lagunes côtières. Certains pourront être résolus en un laps de temps relativement court (de l'ordre de deux à trois ans), en particulier si leur étude est abordée sur la base d'une action coordonnée au niveau international. D'autres programmes, comme l'étude écologique comparée de deux lagunes semblables situées sous des latitudes différentes, devront en revanche se poursuivre indéfiniment. Il convient donc de ne pas sous-estimer la longueur des délais qui seront nécessaires, notamment si l'on tient compte du fait que l'intérêt pour cette question est parfois une perspective à long terme et que certains pays ne disposent que d'une infrastructure d'enseignement relativement insuffisante.

Les réponses à l'enquête SCOR/Unesco sur les lagunes côtières montrent qu'il existe assez de laboratoires suffisamment bien répartis dans le monde pour mener à bien un programme minimum de recherches sur le terrain. D'autres laboratoires pourraient être équipés pour traiter de sujets plus étroitement spécialisés mais néanmoins importants entrant dans le cadre général des objectifs du programme. Un autre facteur positif est qu'il existe déjà, dans les cinq régions, des établissements de recherches en activité ainsi qu'un programme d'études universitaires du premier cycle au titre duquel une formation dans le domaine de la recherche sur la lagune peut être impartie.

Le séminaire multidisciplinaire qui s'est tenu sous les auspices de l'Unesco, de l'Association internationale d'océanographie biologique (AIOB) et de la Duke University (Beaufort, N.C., Etats-Unis d'Amérique) du 28 août au 2 septembre 1978,

a montré comment peuvent notamment être élaborés des principes directeurs concernant les recherches à mener dans le cadre d'une coopération régionale, telles que les conçoit l'Unesco. Le compte rendu de ce séminaire sera publié dans la série des Documents techniques de l'Unesco sur les sciences de la mer sous le n° 32 et diffusé à toutes les personnes consultées lors de la présente enquête.

6. PROPOSITIONS EN VUE D'UNE COOPERATION INTERNATIONALE

Les réponses au questionnaire IV (voir Annexe 1) montrent que la création de groupes de travail sur les recherches relatives aux lagunes côtières et sur l'aménagement des lagunes côtières est, de l'avis de la majorité, hautement souhaitable.

A la question : "Quel devrait être, à votre avis, le mandat :

- (a) d'un groupe de travail sur les recherches relatives aux lagunes côtières ?
- (b) d'un groupe de travail sur l'aménagement des lagunes côtières ?"

les intéressés ont tendance à donner une réponse analogue à celle de S.W. Nixon (Etats-Unis) :

(a) Groupe de travail sur les recherches relatives aux lagunes côtières

- "1. Appliquer aux environnements lagunaires les techniques d'analyse des systèmes écologiques, y compris l'établissement de modèles numériques ;
2. Mettre en évidence l'influence des interactions des caractéristiques hydrographiques, morphologiques et géologiques des lagunes sur les systèmes écologiques ainsi créés.
3. Mettre au point des méthodes de recherche expérimentale sur les écosystèmes qui seront appliquées à des reproductions de parties de lagunes ou à un groupe de deux lagunes naturelles - est-il possible de créer des microcosmes lagunaires à cet effet ?"

(b) Groupe de travail sur l'aménagement des lagunes

- "1. Est-il possible d'analyser les variations dans le temps de l'écologie des lagunes à partir des changements intervenus dans le mode d'exploitation des terres à l'intérieur du bassin versant des lagunes ?
2. Utiliser des microcosmes lagunaires pour effectuer des expériences destinées à mettre en évidence la réaction des systèmes lagunaires à divers types de perturbations.
3. Etudier le potentiel des systèmes lagunaires naturels dans le domaine de l'aquaculture."

On remarquera que 92,0 % des directeurs de projets ayant répondu au questionnaire IV sont disposés à présenter une ou plusieurs communications lors d'une Conférence internationale sur les lagunes côtières qui serait organisée sous les auspices de l'Unesco en 1980 ou 1981.

Figure 3 : REPARTITION PAR PAYS DES REPONSES AU QUESTIONNAIRE

**PAYS AYANT ENTREPRIS DES PROGRAMMES DE RECHERCHES
SUR LES LAGUNES COTIERES**

Afrique du Sud	2	Israël	3
Allemagne, Rép. féd. d'	3	Italie	8
Antilles néerlandaises	1	Jamaïque	2
Arabie saoudite	1	Japon	1
Australie	13	Kenya	1
Belgique	2	Malaisie	1
Bénin	3	Mexique	22
Bermudes	1	Nicaragua	1
Brésil	6	Nigéria	3
Canada	1	Norvège	2
Colombie	5	Nouvelle-Zélande	4
Costa Rica	5	Panama	1
Côte d'Ivoire	2	Papouasie-Nouvelle- Guinée	1
Danemark	3	Pays-Bas	7
Egypte	2	Philippines	1
El Salvador	1	Portugal	1
Equateur	2	Roumanie	1
Espagne	1	Royaume-Uni	8
Etats-Unis d'Amérique	25	Sri Lanka	1
Finlande	1	Suède	1
France	9	République-Unie de Tanzanie	2
Guatemala	1	Thaïlande	3
Honduras	1	Tunisie	3
Inde	4	Turquie	1
Indonésie	1	Venezuela	4
Irlande	5		

PAYS AYANT EXPRIME UN INTERET POUR CES RECHERCHES

Algérie
Argentine
Corée, Rép. de
République dominicaine
Emirats arabes unis
Grèce
Iran
Libye
Maroc
Pérou
Sénégal
Syrie
Trinité-et-Tobago
Uruguay
Viet Nam
Yugoslavie

7. TENDANCES DE LA RECHERCHE

Une liste de mots clés répartissant 93 thèmes d'étude en 10 grandes disciplines figurait dans les formules I et II (voir Annexe I). A cette liste, les responsables de l'analyse des réponses ont ajouté une rubrique spéciale : "étude générale" (EG) dans laquelle ils ont classé les réponses dont le sujet était limité à une étude descriptive des sites et à l'envoi de données sur l'environnement (par exemple, les "paramètres physico-chimiques" mesurés par les biologistes).

(a) Choix des sujets d'étude (Figure 4)

Dans les 181 réponses examinées, la discipline la plus fréquemment citée est la "biologie" - avec des pourcentages allant de 19,5 % (Afrique) à 28,0 % (Amérique du Nord) - suivie, par ordre décroissant, de l'"étude générale" (EG) (13,7 %), la chimie (12,5 %), l'aquaculture (10,5 %), la conservation (8,1 %), la géologie (7,9 %), la construction de modèle (6,5 %), la pêche (5,7 %), la géographie (2,6 %) et les sciences de l'ingénieur (1,4 %). Il convient de noter que les faibles pourcentages relevés pour la pêche, la géographie et les sciences de l'ingénieur ne reflètent pas l'intérêt potentiel réel pour ces domaines d'étude, ces trois dernières disciplines ayant été insuffisamment détaillées dans le questionnaire.

Pourcentages correspondant aux disciplines principales (valeurs moyennes)

Etude générale	E.G.	13,7 %
Géographie	I	2,6 %
Physique	II	6,3 %
Géologie	III	7,9 %
Chimie	IV	12,5 %
Biologie	V	24,8 %
Aquaculture	VI	10,5 %
Pêche	VII	5,7 %
Construction de modèles	VIII	6,5 %
Sciences de l'ingénieur	IX	1,4 %
Conservation	X	8,1 %

(b) Interrelations entre les dix disciplines principales

Les directeurs de projets ne se sont généralement pas contentés de cocher les mots clés figurant dans une ou deux des grandes rubriques. Ainsi, les écologistes qui ont indiqué que la "biologie" et l'"aquaculture" étaient leurs thèmes de recherche principaux ont généralement aussi coché les cases relevant d'autres disciplines telles que la "chimie", la "physique", la "construction de modèles", etc. Un tableau (Figure 5) illustre ces interactions entre les disciplines principales, lesquelles témoignent du caractère multidisciplinaire des problèmes que pose la recherche sur les lagunes côtières.

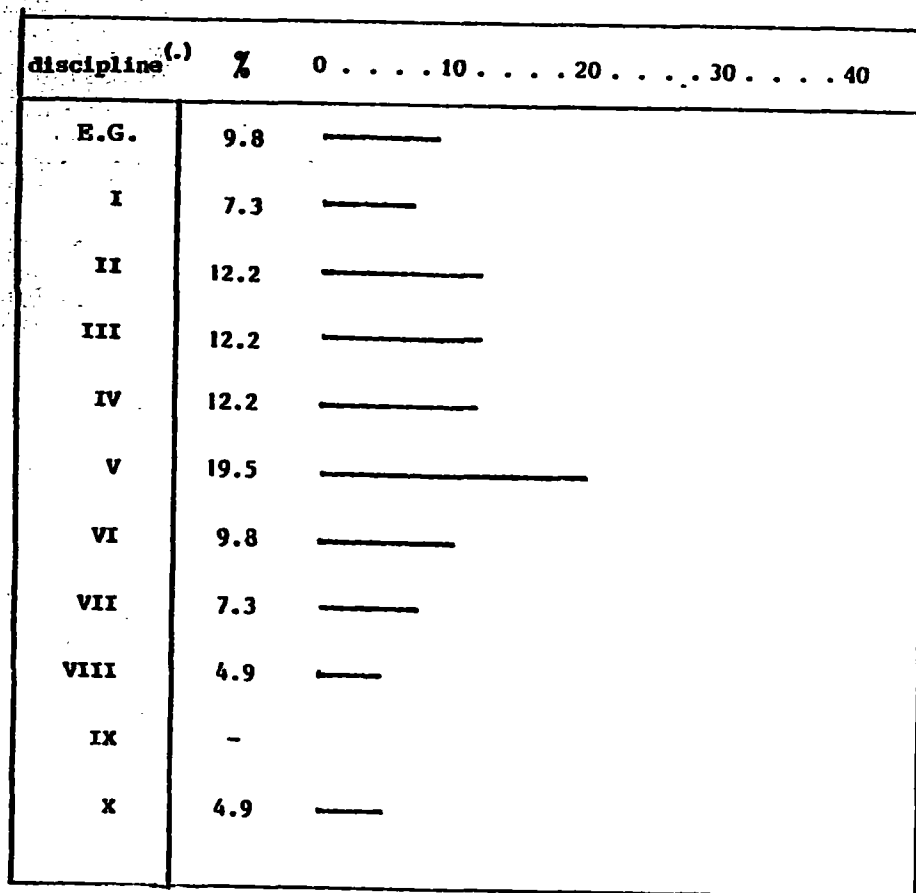
(c) Interrelations au sein des disciplines principales : thèmes de recherches

Les directeurs de projets avaient à choisir entre 93 mots clés. L'analyse de leur choix est instructive, car elle renseigne sur les grandes tendances de la recherche.

Figure 4a :

Sujets d'étude

AFRIQUE (à l'exclusion de la Méditerranée et de la mer Rouge)



Nombre de réponses reçues : 13

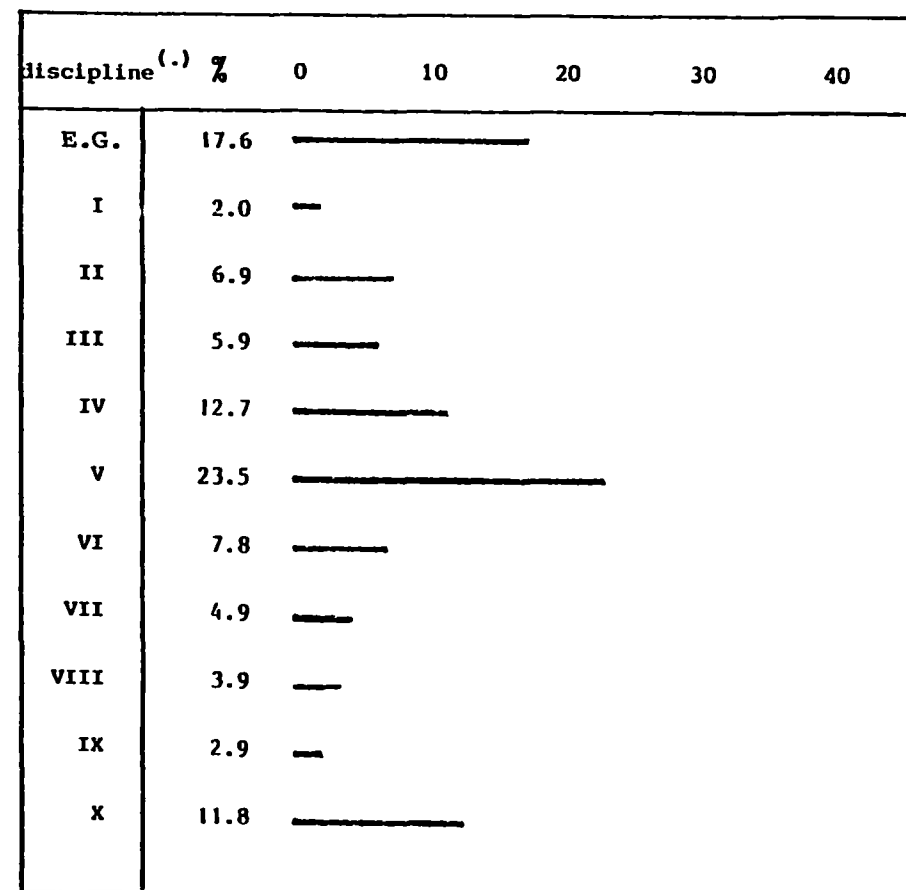
Pays :

Afrique du Sud (2), Bénin, Rép. pop. du (3),
Côte d'Ivoire (2), Kenya (1), Nigéria (3),
Tanzanie (2).

Figure 4b :

Sujets d'étude

ASIE, ASIE DU SUD-EST, PACIFIQUE



Nombre de réponses reçues : 30

Pays :

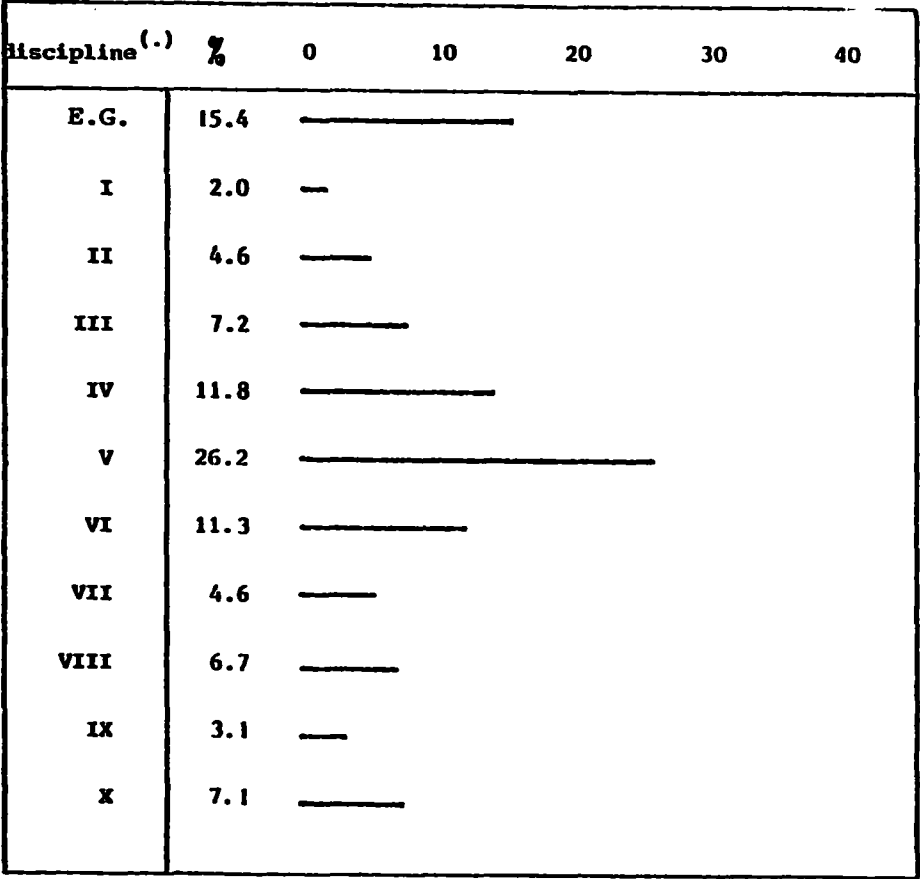
Australie (13), Inde (4), Indonésie (1),
Malaisie (1), Nouvelle-Zélande (4), Papouasie-
Nouvelle-Guinée (1), Philippines (1), Sri Lanka (1),
Thaïlande (3).

Figure 4c :

Sujets d'étude

EUROPE (y compris la Méditerranée, la mer Caspienne, la mer Noire et la mer Rouge)

52



Nombre de réponses reçues : 62

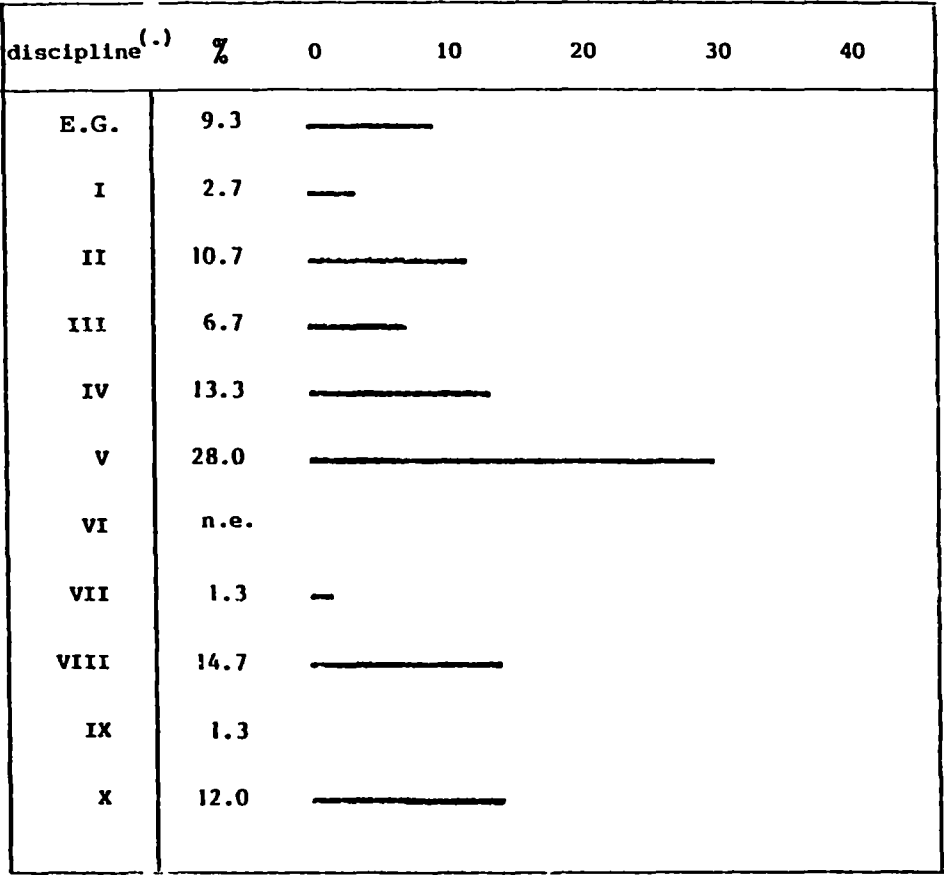
Pays :

Allemagne, Rép. féd. d' (3), Arabie saoudite (1), Belgique (2), Danemark (3), Egypte (2), Espagne (1), Finlande (1), France (9), Irlande (5), Israël (3), Italie (8), Norvège (2), Pays-Bas (7), Portugal (1), Roumanie (1), Royaume-Uni (8), Suède (1), Tunisie (3), Turquie (1).

Figure 4d :

Sujets d'étude

AMERIQUE DU NORD



Nombre de réponses reçues : 27

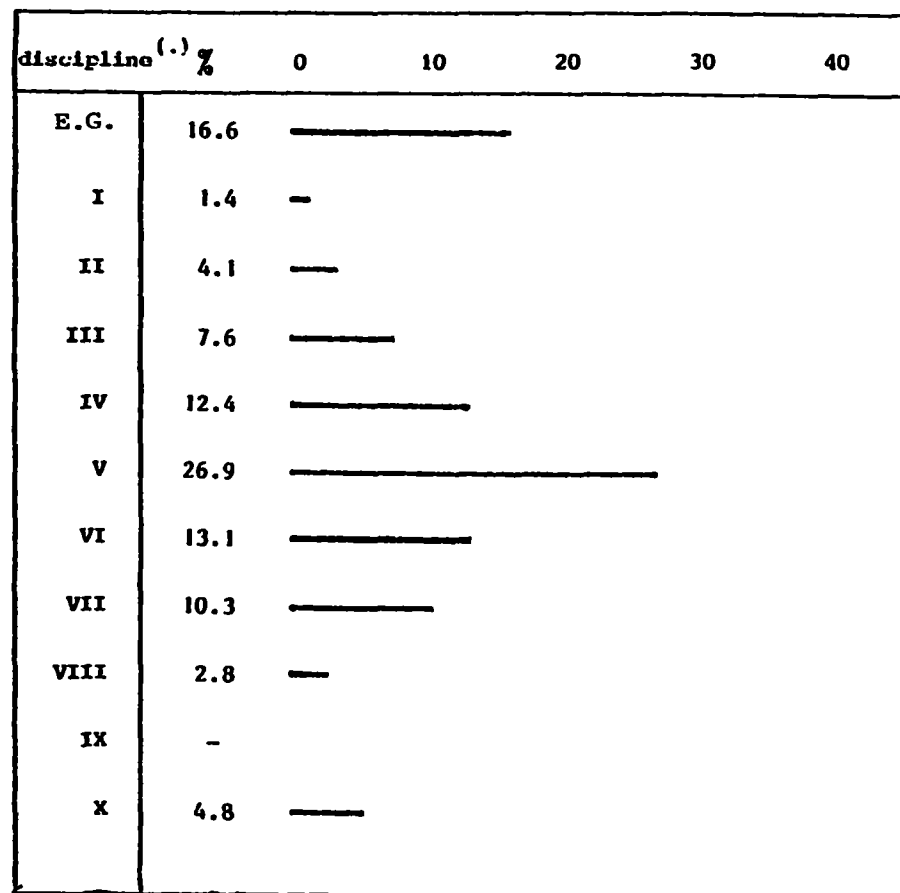
Pays :

Bermudes (1), Canada (1), Etats-Unis d'Amérique (25).

Figure 4e :

Sujets d'étude

AMERIQUE LATINE ET CARAIBES



Nombre de réponses reçues : 49

Pays :

Antilles néerlandaises (1), Brésil (6), Colombie (5),
Costa Rica (2), El Salvador (1), Equateur (2), Guatemala (1),
Honduras (1), Jamaïque (2), Mexique (22), Nicaragua (1),
Panama (1), Venezuela(4).

Figure 5a : Interrelations entre les dix disciplines principales et l'“étude générale” pour l'Europe

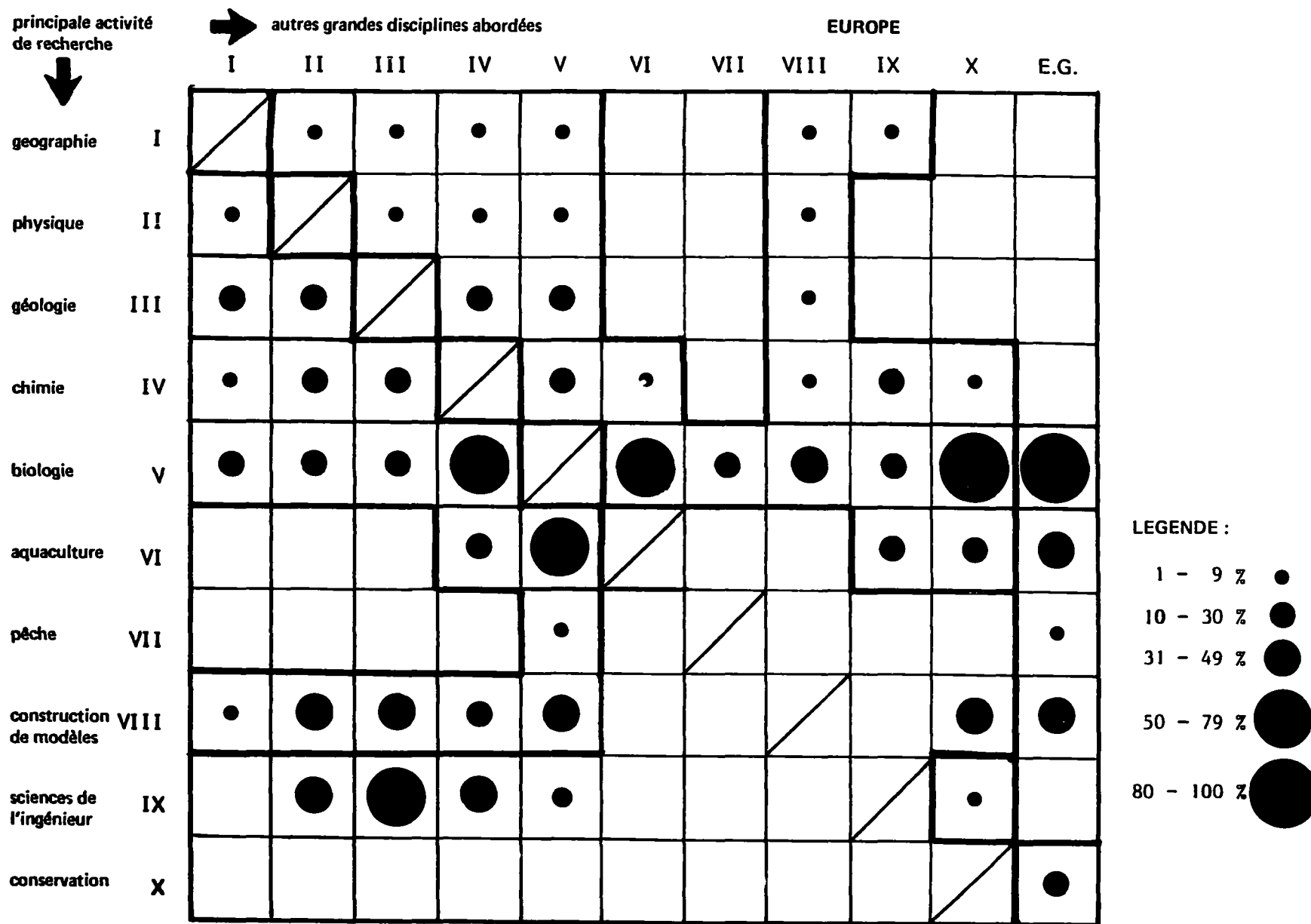


Figure 5b : Interrelations entre les dix disciplines principales et l' "étude générale" pour l'Amérique du Nord

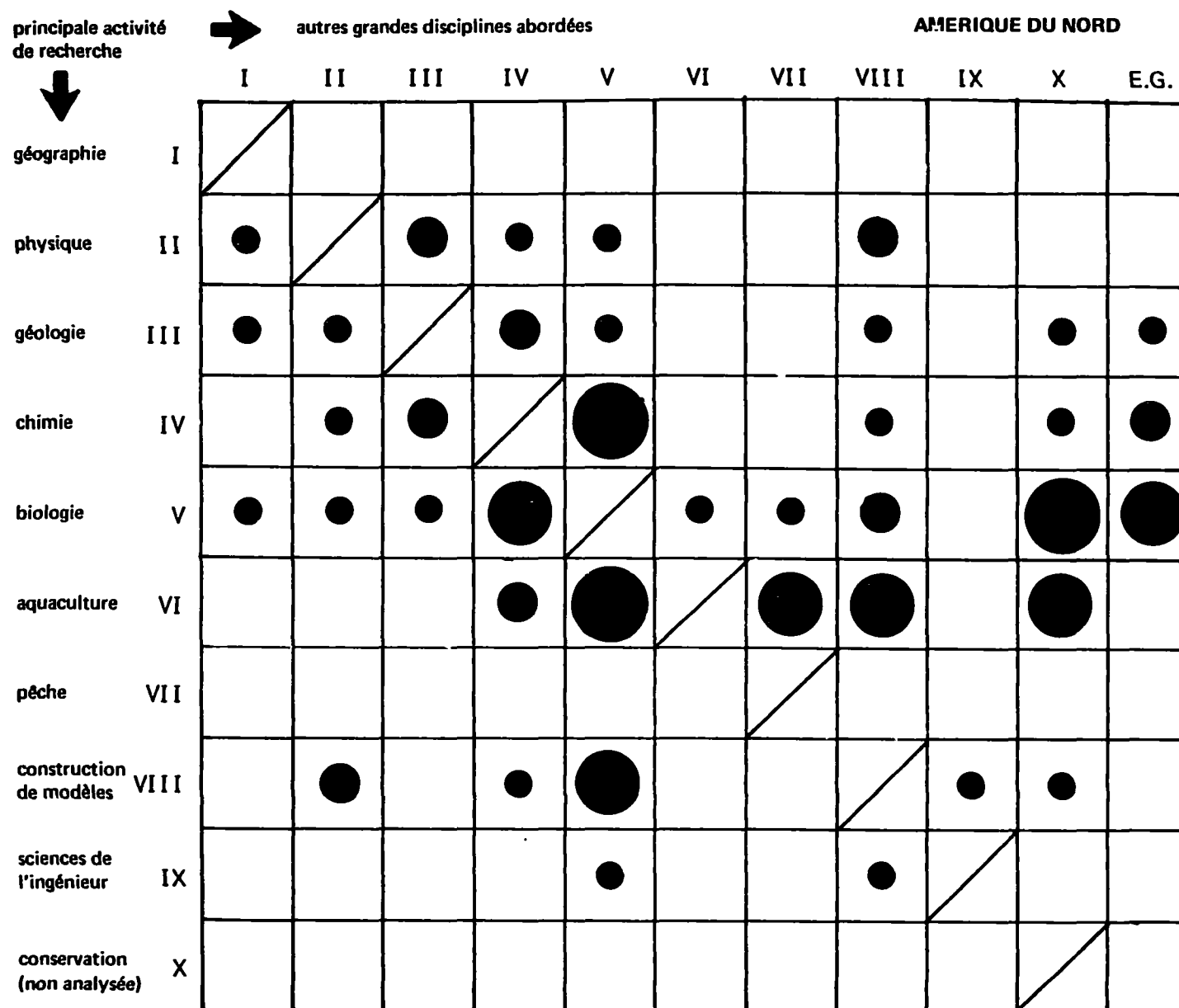


Figure 5c : Interrelations entre les dix disciplines principales et l' "étude générale" pour l'Asie, l'Asie du Sud-Est et le Pacifique

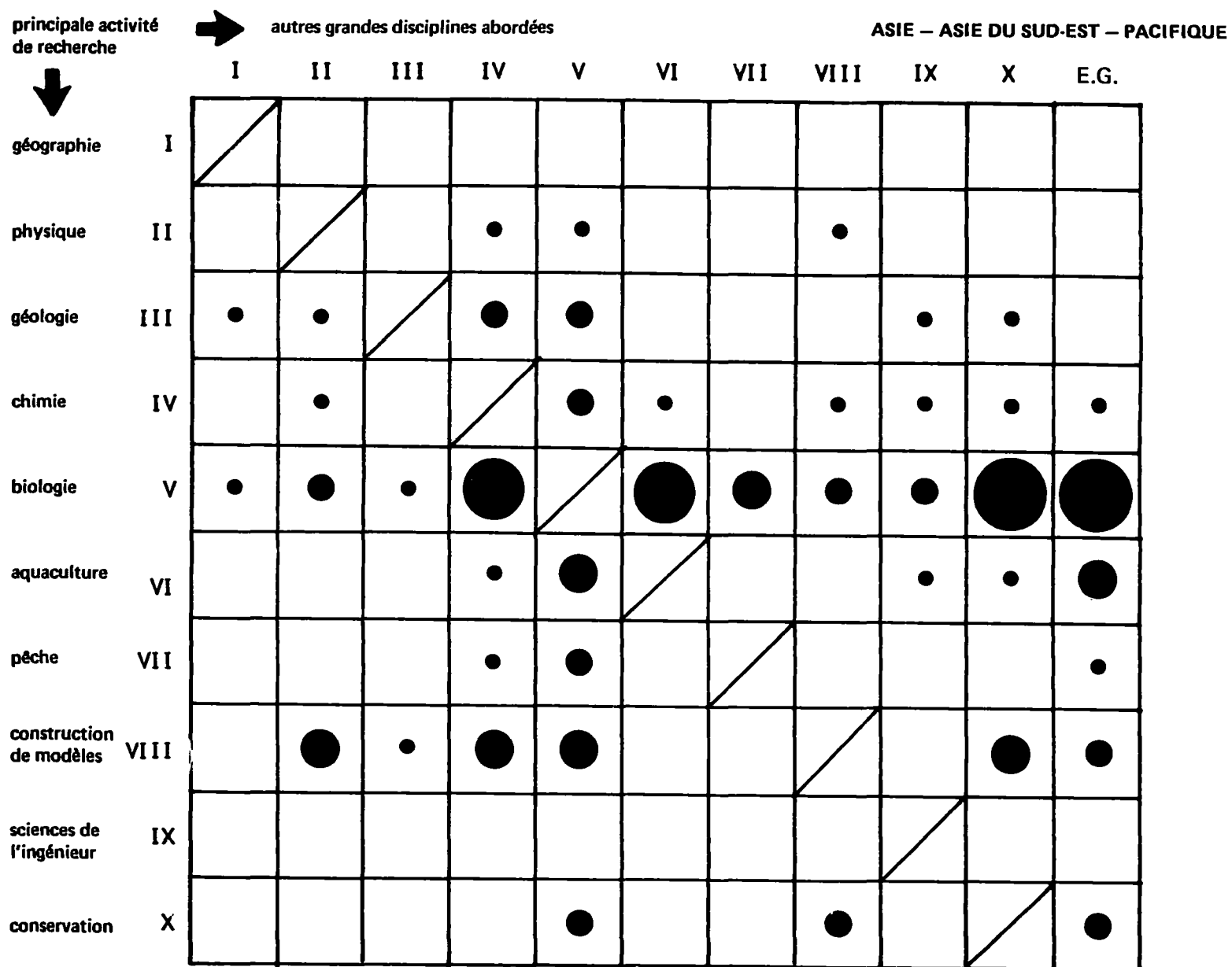


Figure 5d : Interrelations entre les dix disciplines principales et l' "étude générale" pour l'Amérique latine et les Caraïbes

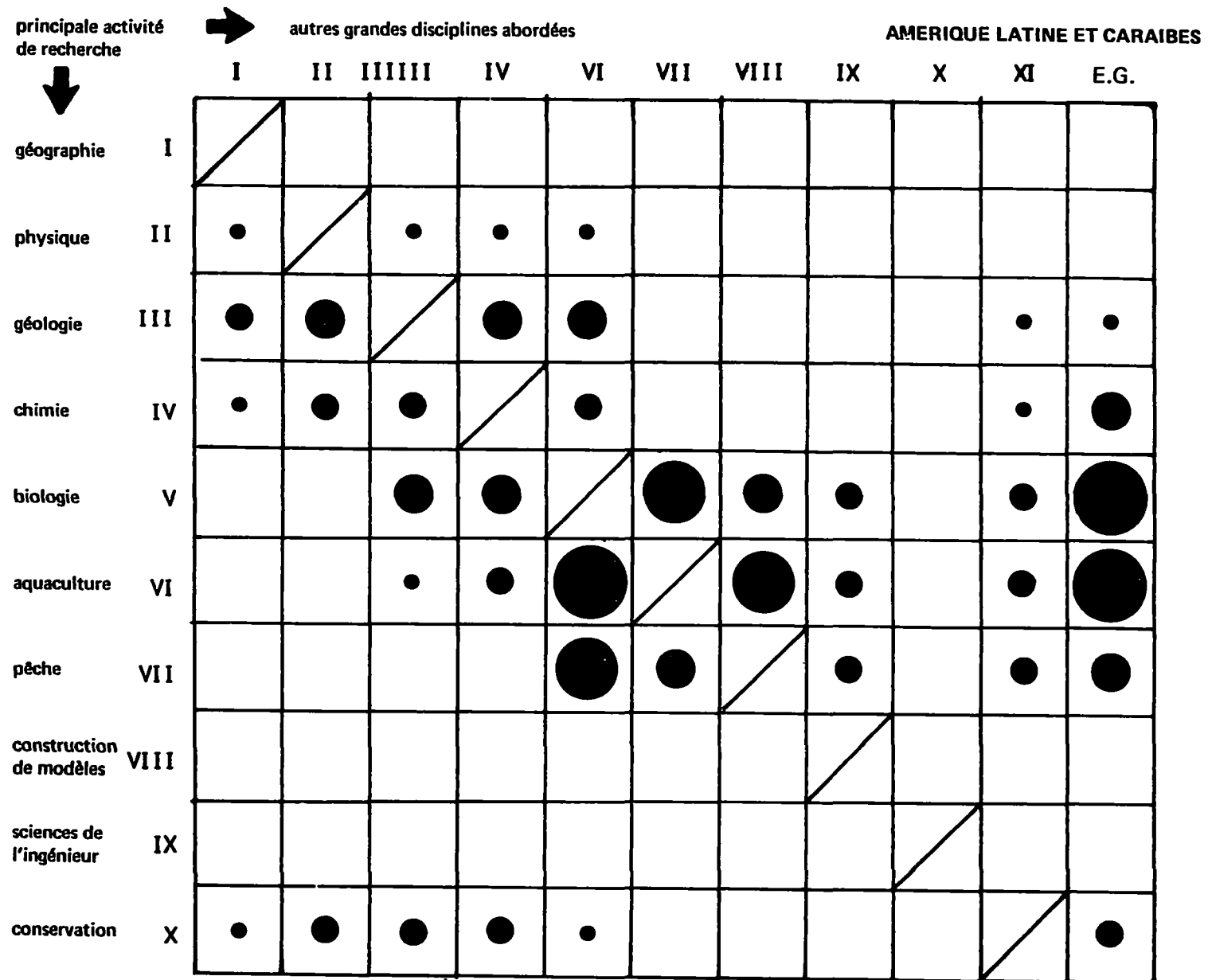


Figure 5a : Interrelations entre les dix disciplines principales et l'“étude générale” pour l'Afrique

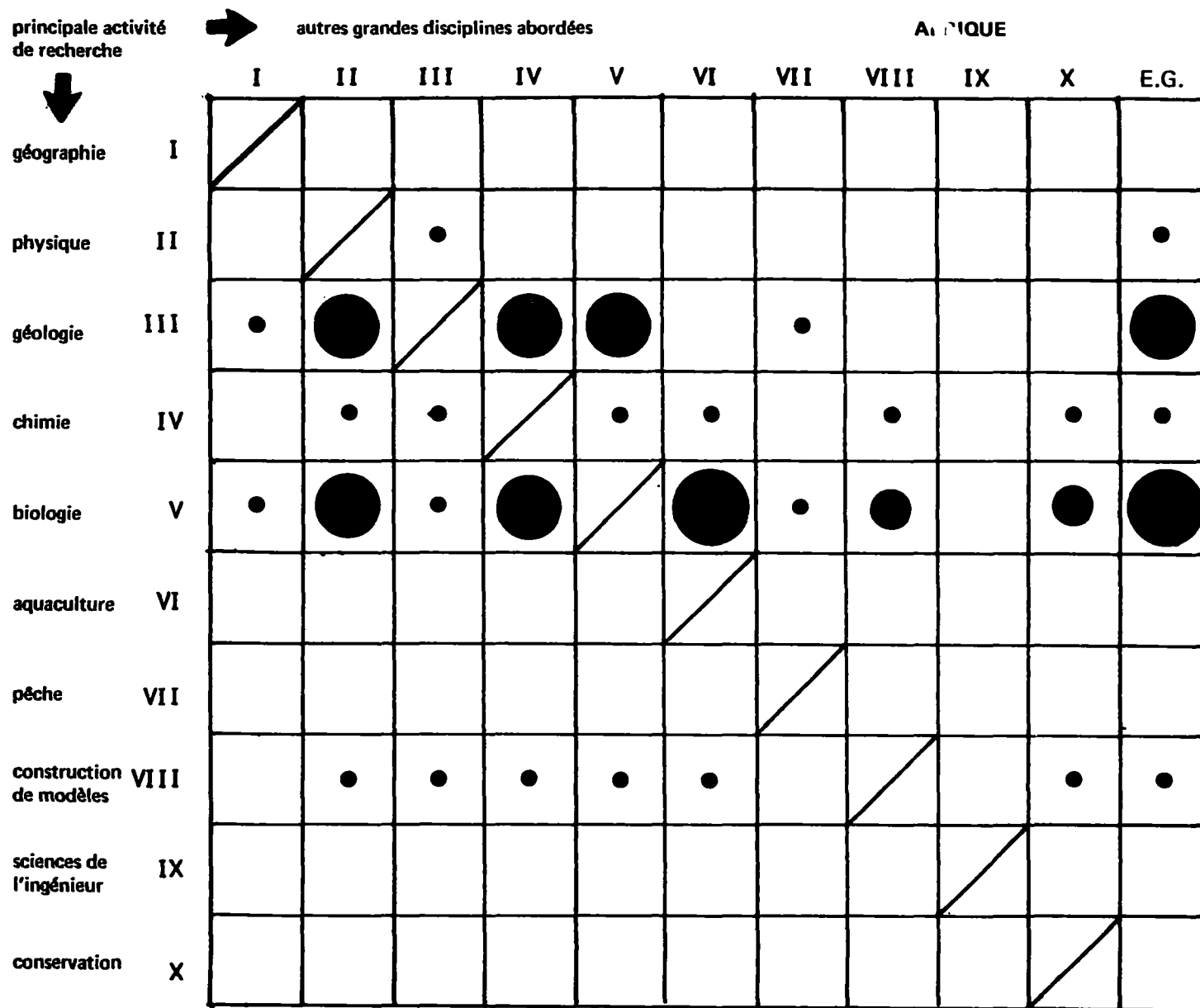


Figure 6 : Récapitulation des thèmes de recherche figurant sous la rubrique "biologie"

Liste des sujets d'étude figurant sous la rubrique "biologie"

groupe 1 :	groupe 2 :	groupe 3 :
<u>études d'organismes</u>	<u>études descriptives</u>	<u>études de systèmes</u>
phytoplancton	taxonomie	endocrinologie
zooplancton	cycle biologique	génétique
meroplancton	embryologie	dynamique des populations
microbenthos	sérologie	structure des communautés
meiobenthos	pathologie	chaînes alimentaires
macrobenthos	parasitologie	écologie physiologique
poissons	relations animaux-sédiments	physiologie et biochimie
bactéries	espèces indicatrices	cycle des substances nutritives
microflore	biomasse	utilisation des matières organiques
halophytes	microbiologie	métabolisme
	production de matières détritiques	bilan énergétique
		productivité
		eutrophisation
		effets des polluants
		construction de modèles

Les sujets les plus fréquemment cités (fréquence de 100 à 60 %) dans les trois groupes sont les suivants :

groupe 1 : études d'organismes

AFRIQUE	ASIE	PACIFIQUE	EUROPE	AMERIQUE LATINE	AMERIQUE DU NORD
macrobenthos poissons	phytoplancton zooplancton	phytoplancton macrobenthos halophytes poissons	macro- benthos poissons zooplancton phyto- plancton meiobenthos	phytoplancton cycle bio- logique macrobenthos	macrobenthos phytoplancton zooplancton bactéries

groupe 2 : études descriptives

AFRIQUE	ASIE	PACIFIQUE	EUROPE	AMERIQUE LATINE	AMERIQUE DU NORD
biomasse	biomasse	espèces indicat. biomasse rel. anim.- sédim.	rel. anim.- sédim. biomasse cycle bio- logique espèces indicat.	biomasse cycle bio- logique	matières détritiques biomasse rel. anim.- sédim. espèces indicatrices

groupe 3 : études de systèmes

AFRIQUE	ASIE	PACIFIQUE	EUROPE	AMERIQUE LATINE	AMERIQUE DU NORD
chaînes alimentaires	productivité dynamique des popu- lations	dynamique des populations structure des communautés productivité	dynamique des popu- lations structure des com- munautés écologie physio- logique bilan énergé- tique utilisation des mat. organiques	dynamique des populations productivité chaînes ali- mentaires	structure des communautés productivité cycle des substances nutritives utilisation des matières orga- niques dynamique des populations écologie physio- logique

A titre d'exemple, on a analysé les thèmes de recherches choisis lorsque le domaine d'étude principal indiqué était "la biologie". Cette analyse a porté sur 36 thèmes de recherche (Figure 6) répartis en trois groupes : (1) les organismes étudiés, (2) les études descriptives et (3) les études de systémies, y compris la construction de modèles d'écosystèmes. Les résultats de cette analyse sont résumés dans les Figures 7 à 9.

(d) Affinités entre les thèmes de recherches (discipline "biologie")

Les diagrammes en treillis des Figures 10 et 11 montrent, à titre d'exemple, les rapports d'affinité existant entre (a) l'étude des types d'organismes, (b) les études descriptives et (c) les études de systémies.

Remarque. Les études descriptives sont considérées ici comme des paramètres décrivant la structure et les études de systèmes comme des paramètres décrivant le fonctionnement.

La corrélation entre les groupes a), b) et c) est faible dans le cas des programmes nouvellement mis en place ; elle est au contraire forte dans le cas des programmes les plus anciens.

8. CONCLUSIONS

Durant ces dernières années, le souci de préserver les écosystèmes côtiers humides a amené à reconsidérer la valeur et les ressources de ces milieux parmi lesquels on range les zones de deltas, les lagunes côtières et les estuaires (voir, par exemple, le Projet 5 du Programme sur l'homme et la biosphère¹), et l'intérêt des lagunes côtières pour la pêche et la mariculture est maintenant largement reconnu.

L'une des principales conclusions à tirer de l'enquête menée sur les lagunes côtières est que l'infrastructure scientifique dont disposent un grand nombre des pays intéressés devrait leur permettre de coopérer à des recherches dans ce domaine. Toutefois, de l'avis général des directeurs de projets ayant répondu à l'enquête, la connaissance des lagunes côtières n'est pas aussi complète qu'elle devrait l'être. Par ailleurs, il a été proposé de retenir pour thèmes essentiels de recherches futures l'étude des variations saisonnières et l'analyse comparée des variations dans l'espace du fonctionnement global des écosystèmes lagunaires, analyse qui devrait faire l'objet d'une coopération internationale.

Les programmes de recherches coordonnés sur les lagunes côtières devrait notamment avoir pour but d'en donner une description générale, qui tienne compte du plus grand nombre possible d'informations. On s'attacherait par exemple à étudier les flux d'alluvions traversant les lagunes, la nature et les propriétés des sédiments, les mécanismes de productions biologiques ainsi que les caractéristiques démographiques et adaptatives des espèces. Il faudrait à cet effet aborder l'étude des lagunes côtières considérées comme des systèmes écologiques sous un angle multidisciplinaire et comparer la production, la consommation et le recyclage des matières dissoutes et des particules en suspension d'un système à l'autre.

1. Programme sur l'homme et la biosphère (MAB). Groupe de travail international sur le Projet 5 : Effets écologiques des activités humaines sur la valeur et les ressources des lacs, marais, cours d'eau, deltas, estuaires et zones côtières. Rapport final. Rapport n° 21, série des rapports du MAB. Unesco, 1975. 88 pages.

Figure 7 : Thèmes de recherche choisis figurant sous la rubrique "biologie" : études d'organismes
 (le chiffre entre parenthèses indique le nombre de programmes analysés)

fréquence (en pour- centage)	(5) AFRIQUE	(10) ASIE	(10) PACIFIQUE	(27) EUROPE	(17) AMERIQUE LATINE	(16) AMERIQUE DU NORD
100-60 %	macrobenthos poissons	phytoplancton zooplancton	phytoplancton macrobenthos halophytes poissons	macrobenthos poissons zooplancton phytoplancton meiobenthos	phytoplancton zooplancton macrobenthos	macrobenthos phytoplancton zooplancton meiobenthos bactéries
59-40 %	zooplancton meroplancton bactéries	macrobenthos halophytes poissons bactéries	zooplancton bactéries microflore meiobenthos	bactéries microbenthos microflore halophytes	poissons	halophytes poissons microflore microbenthos meroplancton
39-20 %	phytoplancton meiobenthos	meroplancton meiobenthos	meroplancton microbenthos	meroplancton	microbenthos halophytes	
moins de 20 %	halophytes microflore microbenthos	microbenthos microflore			meroplancton microflore bactéries meiobenthos	

Figure 8 : Thèmes de recherche figurant sous la rubrique "biologie" : études descriptives
(le chiffre entre parenthèses indique le nombre de programmes analysés)

	(5)	(10)	(10)	(27)	(17)	(16)
fréquence (en pour- centage)	AFRIQUE	ASIE	PACIFIQUE	EUROPE	AMERIQUE LATINE	AMERIQUE DU NORD
100-60 %	biomasse	biomasse	espèces indicat. biomasse rel. anim.-sédim.	rel. anim.-sédim. biomasse cycle biologique espèces indicat.	biomasse cycle biologique	production de matières détritiques biomasse rel. anim.-sédim. espèces indicat.
59-40 %	rel. anim.-sédim. espèces indicat. production de matières détritiques	microbiologie production de matières détritiques	microbiologie production de matières détritiques	taxonomie production de matières détritiques microbiologie	taxonomie rel. anim.-sédim. production de matières détritiques	microbiologie cycle biologique
39-20 %	microbiologie cycle biologique	taxonomie cycle bio- logique rel. anim.- sédim. parasitologie sérologie- hématologie	taxonomie cycle bio- logique	embryologie	microbiologie	embryologie taxonomie
moins de 20 %	taxonomie	embryologie pathologie	embryologie pathologie	parasitologie pathologie sérologie- hématologie	embryologie pathologie parasitologie sérologie- hématologie	parasitologie pathologie sérologie- hématologie

Figure 9 : Thèmes de recherche figurant sous la rubrique "biologie" : études de systèmes
(le chiffre entre parenthèses indique le nombre de programmes analysés)

	(5)	(10)	(10)	(27)	(17)	(16)
fréquence (en pour- centage)	AFRIQUE	ASIE	PACIFIQUE	EUROPE	AMERIQUE LATINE	AMERIQUE DU NORD
100-60 %		productivité dynamique des populations chaînes ali- mentaires	dynamique des populations structure des communautés productivité chaînes ali- mentaires	dynamique des populations structure des communautés écologie physio- logique bilan éner- gétique productivité	productivité dynamique des populations chaînes ali- mentaires	structure des communautés productivité cycle des subst. nutritives utilisation des mat. organiques écologie physio- logiques chaînes ali- mentaires
59-40 %	cycle des subst. nutritives bilan énergétique polluants chaînes alimen- taires	structure des communautés cycle des subst. nutritives eutrophisation écologie physiologique	construction de modèles cycle des subst. nutritives	chaînes ali- mentaires cycle des subst. nutritives eutrophisation polluants construction de modèles	cycle des subst. nutritives utilisation des mat. organiques structure des communautés eutrophisation	eutrophisation dynamique des populations métabolisme polluants construction de modèles
39-20 %	dynamique des populations structure des communautés utilisation des mat. organiques eutrophisation	utilisation des mat. organiques polluants construction de modèles physiologie et biochimie	utilisation des mat. organiques polluants eutrophisation métabolisme écologie physio- logique	métabolisme génétique physiologie et biochimie endocrinologie	écologie physio- logique bilan énergétique polluants	bilan énergétique génétique physiologie et biochimie endocrinologie
moins de 20 %	construction de modèles	bilan énergé- tique métabolisme endocrinologie	bilan énergé- tique		physiologie et biochimie construction de modèles	

Fig. 10 : Affinités entre les thèmes de recherche relevant de la rubrique "biologie"
(diagramme en treillis). Exemple d'un programme de recherches approfondies.

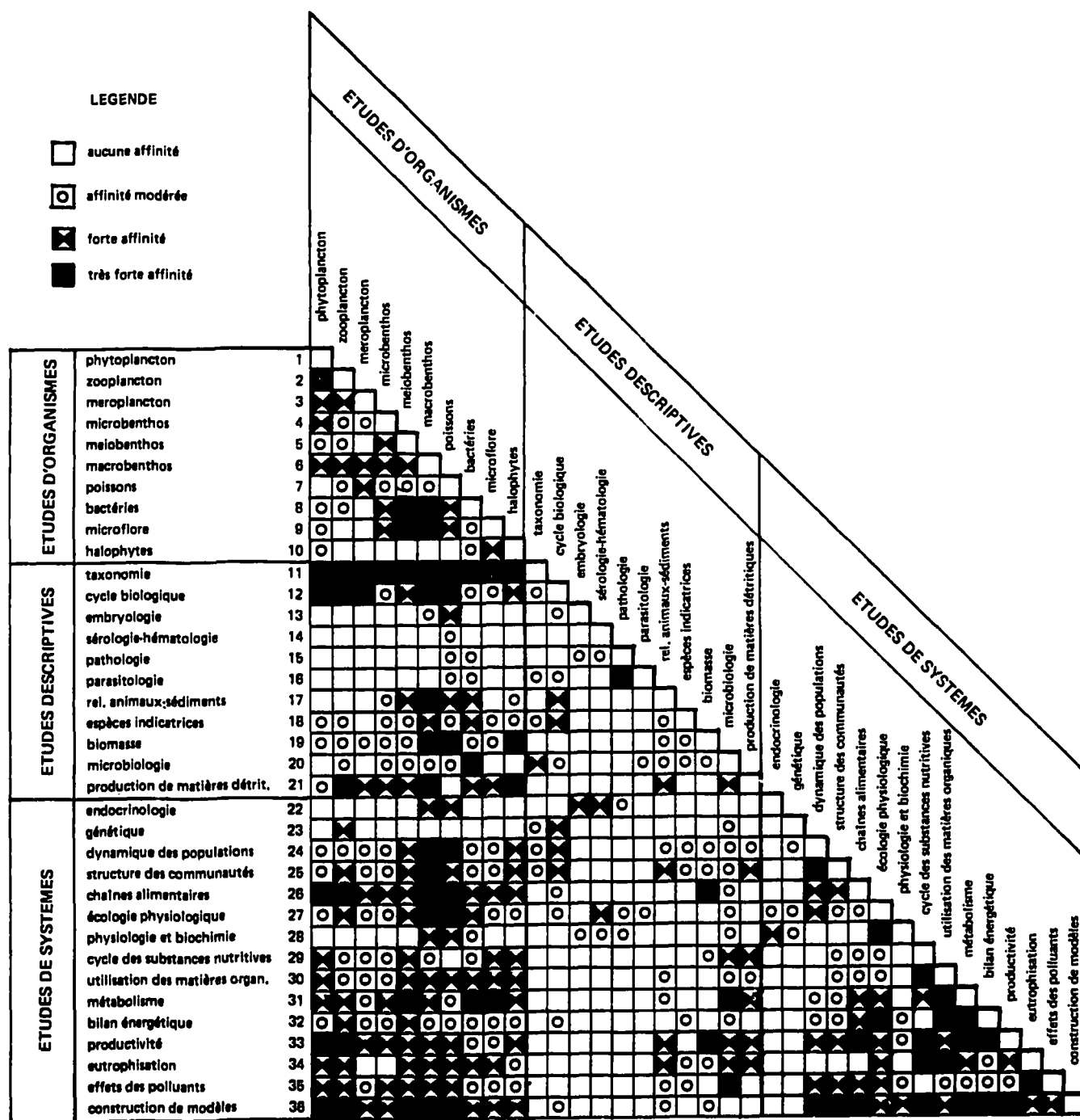
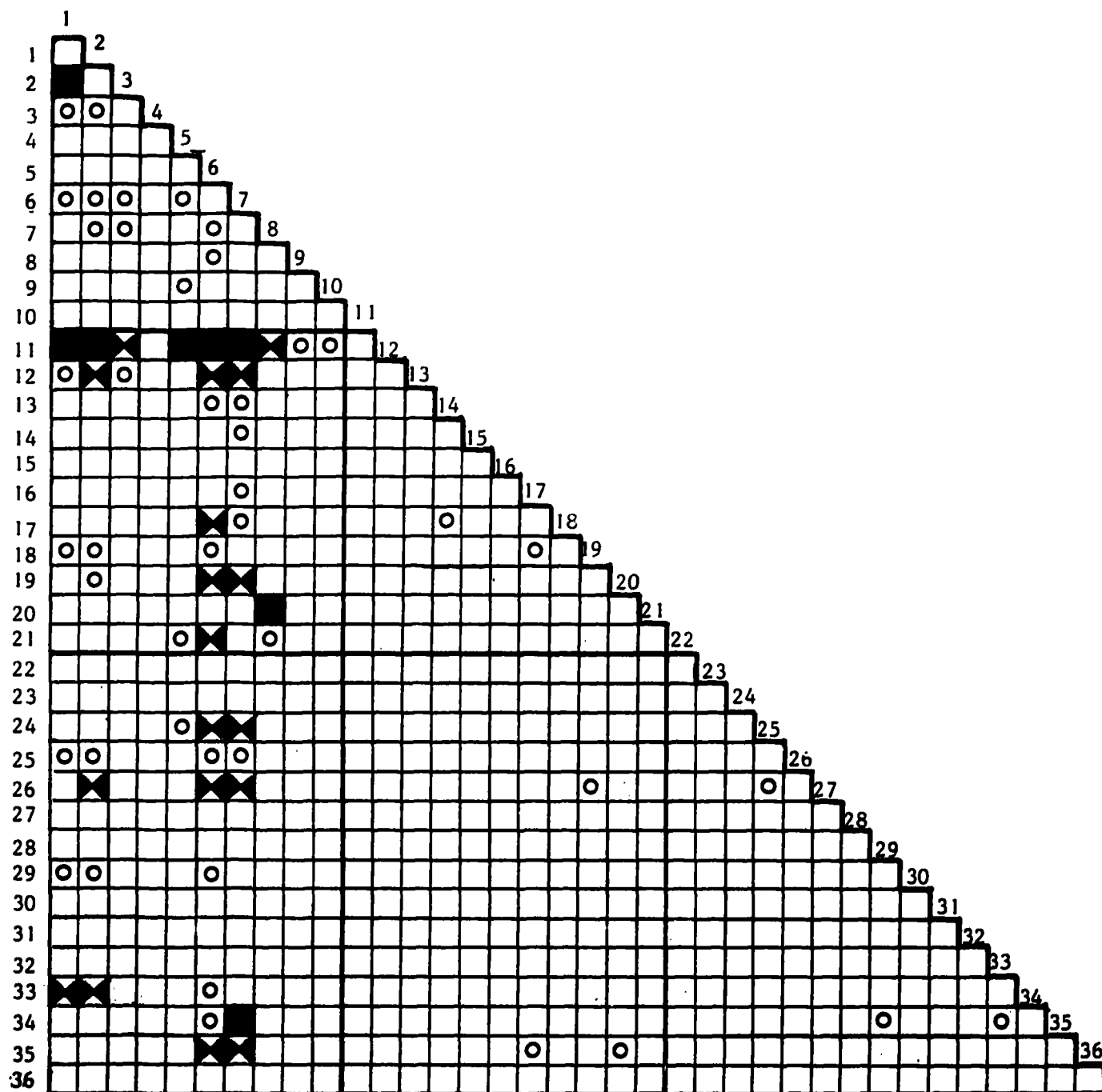


Fig. 11 : Affinités entre les thèmes de recherche relevant de la rubrique "biologie"
(diagramme en treillis). Exemple d'un programme de recherches nouveau.



1. INTRODUCCION

Las lagunas costeras y los deltas constituyen zonas de transición del litoral entre el mar y la tierra firme que obedecen a la acción de complejas leyes físicas. Cada uno de ellos constituye un medio ambiente único, sobre todo en virtud de las condiciones especiales de su hidrodinámica y sedimentación. Son lugares de acumulación activa y presentan situaciones de abrigo, cuyos efectos se perciben en las propiedades geoquímicas y la naturaleza de los sedimentos y en su elevada riqueza potencial de recursos biológicos.

En una descripción general, una laguna costera es una masa de agua semicerrada y conectada con el mar abierto por entradas a través de un sistema de barreras (físicas, químicas, hidrodinámicas). Las lagunas costeras figuran entre los sistemas litorales más fértiles. Se las encuentra en la ribera de los estuarios, a lo largo de las costas, en los golfos ciegos o en las bahías, en latitudes tropicales templadas y frías. Puede apreciarse su diversidad por la cantidad de términos que se usan para denotar la ubicación geográfica de los estudios que figuran en el directorio.

El agua y los materiales aluviales pueden quedar atrapados en la laguna o salir a las aguas abiertas del océano, de un estuario importante, o de una bahía. Las escorrentías de una laguna pueden influir de manera importante en el medio ambiente local y regional y junto con los sistemas de corrientes y los flujos costeros de nutrientes contribuyen a determinar la productividad local de las aguas costeras.

Las lagunas costeras albergan muchas especies locales de importancia económica y también sirven como lugares de desove y cría para las especies migratorias. En su ciclo vital, muchas especies de peces, crustáceos y moluscos pasan por las lagunas costeras. En muchas zonas las lagunas proporcionan condiciones muy propicias para desarrollar la producción controlada de organismos marinos.

Los depósitos de las lagunas constituyen a menudo, fuentes accesibles de materiales básicos (sales y otros productos químicos) para uso industrial. Cuando tienen la profundidad suficiente, las lagunas pueden albergar puertos y canales navegables. Por estas circunstancias, pueden contribuir en forma indirecta al asentamiento de centros de población y urbanización. En las zonas remotas, las lagunas costeras pueden constituir santuarios ecológicos o servir para el turismo y el recreo.

Desde hace muchos siglos se emplean las lagunas costeras para la pesca y la cría de formas larvales y adultas de peces, moluscos y crustáceos. Dichos usos humanos se han integrado a menudo en forma sumamente armoniosa con los contextos tradicionales socioeconómicos, por ejemplo, en el Asia sudoriental.

En los últimos años, el deseo justificado de explotar de manera intensiva los productos vivos y recursos no vivientes de dichos sistemas ha dado origen a muchos proyectos de explotación de las lagunas costeras.

La comunidad científica ha señalado en forma unánime que muchas veces dichos proyectos podrían ocasionar daños graves y permanentes a un tipo de medio ambiente costero que es indispensable preservar. Muchas veces, la explotación racional de estas zonas a menudo contaminadas sólo puede llevarse a cabo si se ejecutan al mismo tiempo operaciones de salvaguardia destinadas a restaurar su estado original. Por ejemplo, la cría de ostras, mejillones y peces no se puede desarrollar en forma adecuada, si no se preserva el medio ambiente de la contaminación química. Los proyectos de desarrollo económico deberían iniciarse sólo cuando el equilibrio natural ecológico del medio ambiente y su potencial de producción se comprenden y protegen en forma adecuada.

2. OBJETO DEL ESTUDIO

En 1974, a petición de la División de Ciencias del Mar de la Unesco, el Comité Científico de Investigaciones Oceánicas (SCOR) estableció un grupo consultivo especial SCOR/Unesco sobre lagunas costeras¹⁾ al que se confió la tarea de examinar el estado de los conocimientos relativos a los sistemas de lagunas en las regiones templadas y tropicales. Entre otras, el Grupo recibió la recomendación de compilar los programas existentes de investigación de lagunas costeras como paso esencial para desarrollar el marco en el que pudieran planificarse las futuras actividades.

En los dos años que siguieron, el Grupo examinó los programas de investigación que se llevaban a cabo en los laboratorios e instituciones especializadas de todo el mundo. Hecho sorprendente, se recibieron cerca de 200 programas para su estudio. Este resultado constituye un claro indicio del creciente interés que se manifiesta por la investigación de las lagunas costeras.

La encuesta que llevó a cabo el Grupo tiene por objeto compilar y evaluar este interés sobre la base de la información recogida por medio de los documentos: "SCOR/Unesco SCE/9/Circ.5" (formularios I a III) y "SCOR/Unesco SCE/9/Circ.9" (form. IV), que figuran en el Anexo I²⁾. El primer documento enumeró las disciplinas principales y 93 temas específicos, pidiendo a los directores de los proyectos que indicaran en cuáles temas y disciplinas estaban trabajando. También se requirieron otras informaciones, como el nombre de la(s) laguna(s), una breve descripción de la investigación, la ubicación geográfica y las principales referencias bibliográficas. El primer documento fue enviado entre junio de 1976 y julio de 1977 a más de 400 instituciones de investigación, científicos y administraciones sobre la base de una lista de nombres y direcciones preparada por el Grupo.

En febrero de 1977 se aprobó el segundo documento (formulario IV) y se envió a todas las personas que habían respondido, y también a las que no habían respondido, como recordatorio. El formulario IV pedía informaciones más específicas sobre la ubicación geográfica de las lagunas costeras, incluyendo latitud y longitud, superficie, referencias de los documentos e informes científicos disponibles, así como datos relativos a los programas de formación de nivel universitario. También se pedía que se respondiera a la siguiente pregunta: ¿Cuál debería ser el mandato de un grupo de trabajo de investigación de lagunas costeras y/o de un grupo de trabajo sobre el ordenamiento de lagunas costeras?

El Grupo consultivo especial SCOR/Unesco sobre lagunas costeras, estima que uno de los resultados fundamentales del presente estudio debe ser el incremento de la circulación de informaciones entre los científicos que en diversos lugares llevan a cabo investigaciones análogas y complementarias. Por este motivo han sido incluidos en este documento los programas de investigación y sus directores científicos. Se ha procurado incluir en el directorio a todo el personal profesional mencionado en las respuestas recibidas.

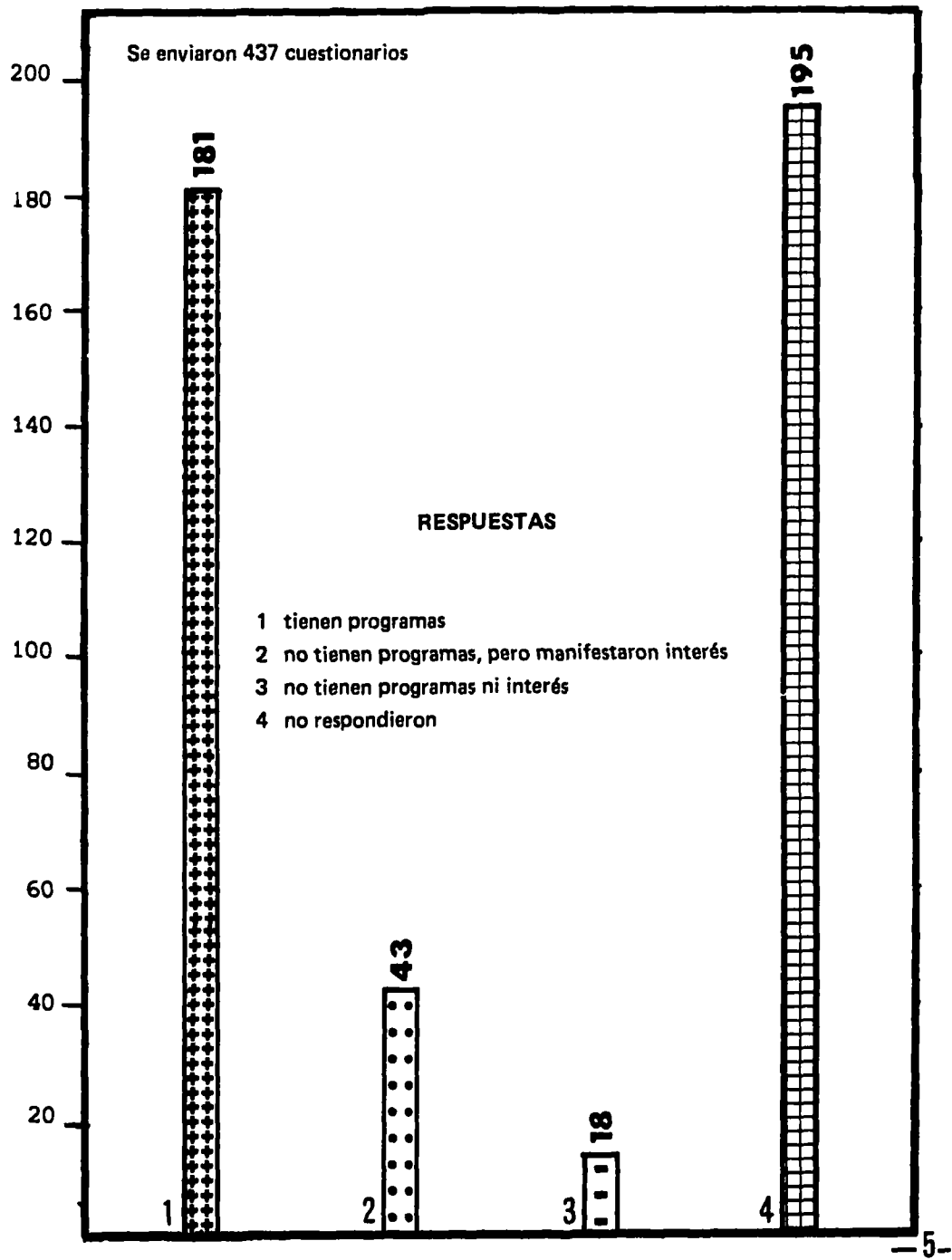
3. RESPUESTAS Y DISTRIBUCION (Figura 1)

Se enviaron en total 437 cuestionarios. A mediados de mayo de 1978 se habían recibido de vuelta 242 de los cuales 224 (92,6%) indicaban interés en la investigación: (74,8%) tenían programas en curso y 43 (30,9%) no los tenían, pero expresaban su interés por el tema. Las restantes 18 respuestas (7,4%) eran negativas (no tenían programas en curso ni interés).

1) Son miembros del Grupo: A. Ayala-Castañares, B. D'Arglejan, P. Lasserre, C.I.O. Olaniyan y F.B. Phleger.

2) Ver páginas 30-41.

Figura 1



4. ORIGEN DE LOS FONDOS

Los programas y proyectos de investigación de lagunas costeras se financian sobre todo con fondos públicos. Un porcentaje considerable de las investigaciones se llevan a cabo en las instituciones universitarias y sus órganos afiliados y reciben en su mayoría fondos gubernamentales. Un 6% aproximadamente de los proyectos de investigación se llevan a cabo sobre la base de una cooperación bilateral o multilateral (véase la Figura 2).

Figura 2: ORIGEN DE LOS FONDOS

Organo intergubernamental (bi o multilateral)	5,8%
Organo gubernamental (excluidas las universidades)	54,2%
Universidades (estatales y privadas)	36,7%
Firmas privadas, fundaciones	3,2%
Organo no especificado	0,6%

5. INTERES MUNDIAL E IMPLICACIONES LOGISTICAS

El desarrollo de los programas de investigación en el mundo depende en gran medida de las infraestructuras educativas existentes. El directorio anexo incluye 181 programas/proyectos de investigación de lagunas costeras, clasificándolos de acuerdo con las instituciones y organizaciones a las que están asociados. También se mencionan los temas de interés y la jerarquía de los directores de los proyectos. De este modo, el directorio pone en evidencia el nivel y tipo de conocimientos técnicos que poseen los 52 países estudiados. Las respuestas fueron analizadas sobre la base de la siguiente distribución regional:

- A) Africa (excluidos el Mediterráneo y el Mar Rojo).
- B) Asia, Asia sudoriental y el Pacífico.
- C) Europa (incluyendo los mares Mediterráneo, Caspio, Negro y Rojo).
- D) América Latina y el Caribe.
- E) América del Norte.

Las mencionadas regiones geográficas fueron establecidas de manera que correspondieran a las principales zonas de lagunas de las diferentes latitudes. Las respuestas relativas a los programas activos de investigación de lagunas (Figura 3) se distribuyen de la siguiente manera:

Región A : 11 programas (6,1%)
Región B : 30 programas (16,7%)
Región C : 64 programas (35,6%)
Región D : 49 programas (27,2%)
Región E : 27 programas (15,0%)

Como grupo, los países en desarrollo comienzan a establecer programas de investigación con un interés a largo plazo. Algunos países consideran los sistemas de lagunas como una unidad de planeamiento de programas globales de investigación.

México, por ejemplo, es uno de los más activos. La Universidad Nacional Autónoma de México (UNAM) organizó en 1967 y en 1977 sendos seminarios sobre las lagunas costeras. Dicho país (con 22 programas en curso que figuran en el presente directorio) ha desarrollado una amplia infraestructura educativa de ciencias del mar en apoyo de las investigaciones costeras.

Los seminarios subregionales de ciencias del mar en el Mediterráneo oriental, la zona del Golfo, el Mediterráneo occidental y la región del Asia sudoriental, se han ocupado todos en sus recomendaciones de las lagunas costeras.

La índole de los problemas científicos mencionados en el presente informe requiere una investigación adicional en torno a la física, la geología, la química y la biología de las lagunas costeras. Algunos de estos problemas podrían resolverse en un tiempo relativamente corto (por ejemplo, en dos o tres años), sobre todo si se estudiaran en forma internacionalmente coordinada. En cambio, se debe considerar que otros programas tienen una duración indefinida: por ejemplo, la ecología comparada de dos lagunas similares en latitudes diferentes. Por este motivo, no habría que descuidar el factor cronológico, ya que se trata de intereses a largo plazo y que muchos países carecen de una infraestructura educativa bien desarrollada.

Las respuestas enviadas al cuestionario SCOR/Unesco sobre lagunas costeras ponen en evidencia que se cuenta con un núcleo suficiente de laboratorios geográficamente bien distribuidos para llevar a cabo un programa mínimo sobre el terreno. Se podrían equipar otros laboratorios que se ocuparían de cuestiones especializadas -pero importantes- que contribuyen a los objetivos generales de los programas. Otro aspecto positivo es que ya existen en las cinco regiones escuelas de investigación y programas de estudios universitarios que permiten obtener la formación necesaria para la investigación de las lagunas.

El seminario multidisciplinario celebrado bajo los auspicios de la Unesco, la Asociación Internacional de Oceanografía Biológica (AIOB) y la Universidad de Duke (Beaufort, N.C., Estados Unidos de América, 28 de agosto - 2 de septiembre de 1978) pone de manifiesto cómo se pueden establecer las directrices de las investigaciones futuras en el marco de una cooperación regional de acuerdo con los planes de la Unesco. El informe del seminario se publicará en la serie Documentos Técnicos de la Unesco sobre Ciencias del Mar con el Nº 32 y se enviará a todos los destinatarios del presente estudio.

6. PROPUESTAS DE COOPERACION INTERNACIONAL

La mayoría de las respuestas al formulario IV (véase el Anexo I) son muy favorables a la creación de grupos de trabajo sobre la investigación y el ordenamiento de las lagunas costeras.

A la pregunta, "¿Cuál debería ser a su juicio el mandato de:

- a) un grupo de trabajo de investigación de lagunas costeras?,
- b) un grupo de trabajo sobre ordenamiento de lagunas costeras?",

se recibieron respuestas cuyo tenor puede ejemplificarse en las siguientes palabras de S.W. Nixon (Estados Unidos de América):

a) Grupo de trabajo de investigación de lagunas costeras

- "1. Aplicar al estudio del medio ambiente de las lagunas las técnicas de análisis de los sistemas ecológicos, incluyendo modelos numéricos.
2. Ocuparse especialmente de la interacción de los factores hidrográficos, morfológicos y geológicos en la formación de los sistemas ecológicos de las lagunas.

3. Elaborar métodos para realizar investigaciones experimentales de los ecosistemas en secciones controladas de las lagunas, o en lagunas naturales análogas; ¿se pueden preparar microcosmos de lagunas que sean de utilidad?"

b) Grupo de trabajo sobre ordenamiento de lagunas costeras

- "1. ¿Se pueden estudiar los cambios históricos de la ecología de las lagunas a través de las diversas formas de utilización del terreno en la cuenca?
2. Utilizar microcosmos de lagunas para realizar experimentos que ilustren la respuesta de los sistemas de lagunas a los diversos tipos de perturbaciones.
3. Estudiar el potencial de acuicultura en los sistemas naturales de lagunas."

Figura 3: RESPUESTAS AL CUESTIONARIO, POR PAISES¹⁾

<u>Programas en curso</u> <u>para la investigación de las lagunas costeras</u>				<u>Expresaron interés</u>
Australia	13	Malasia	1	Argelia
Bélgica	2	México	22	Argentina
Benín	3	Países Bajos	7	Grecia
Bermudas	1	Antillas Neerlandesas	1	Irán
Brasil	6	Nueva Zelanda	4	República de Corea
Canadá	1	Nicaragua	1	Libia
Colombia	5	Nigeria	3	Marruecos
Costa Rica	5	Noruega	2	Perú
Dinamarca	3	Panamá	1	República Dominicana
Ecuador	2	Papua Nueva Guinea	1	Senegal
Egipto	2	Filipinas	1	Siria
El Salvador	1	Portugal	1	Trinidad y Tabago
Finlandia	1	Rumania	1	Emiratos Arabes Unidos
Francia	9	Arabia Saudita	1	Uruguay
Alemania, Rep. Fed.	3	Sudáfrica	2	Viet Nam
Guatemala	1	España	1	Yugoslavia
Honduras	1	Sri Lanka	1	
India	4	Suecia	1	
Indonesia	1	Tanzania	2	
Irlanda	5	Tailandia	3	
Israel	3	Túnez	3	
Italia	8	Turquía	1	
Costa de Marfil	2	Reino Unido	8	
Jamaica	2	EE.UU.	25	
Japón	1	Venezuela	4	
Kenya	1			

1) Por razones prácticas, se mantiene el orden alfabético del original inglés.

Cabe señalar que el 92% de los directores de proyectos que respondieron al formulario IV están interesados en presentar uno o más documentos a la Conferencia Internacional sobre Lagunas Costeras que se celebrará en 1980 ó 1981 bajo los auspicios de la Unesco.

7. TENDENCIAS DE LAS INVESTIGACIONES

En los formularios originales I y II (véase el Anexo I) se presentó una lista de palabras clave relativas a diez clases o disciplinas principales y 93 temas específicos de investigación. Al examinar las respuestas, se creó una clase más: "estudio general" (GS), en la que se incluyeron los estudios descriptivos de lugares y de obtención de datos ambientales (por ejemplo, los "parámetros fisicoquímicos" medidos por los biólogos).

a) Esferas temáticas experimentales (Figura 4)

En las 181 respuestas examinadas, la biología es la disciplina principal citada con mayor frecuencia, con porcentajes que van de 19,5% (África) a 28,0% (América del Norte); en orden decreciente le siguen: G.S. (13,7%), química (12,5%), acuicultura (10,5%), conservación (8,1%), geología (7,9%), elaboración de modelos (6,5%), pesca (5,7%), geografía (2,6%) e ingeniería (1,4%). Las cifras obtenidas para la pesca, la geografía y la ingeniería no representan el interés potencial que existe por estas materias, ya que la encuesta no llevó a cabo un muestreo adecuado de estas tres disciplinas.

Disciplinas principales (porcentajes medios)		
Estudio general	G.S.	13,7%
Geografía	I	2,6%
Física	II	6,3%
Geología	III	7,9%
Química	IV	12,5%
Biología	V	24,8%
Acuicultura	VI	10,5%
Pesca	VII	5,7%
Elaboración de modelos	VIII	6,5%
Ingeniería	IX	1,4%
Conservación	X	8,1%

b) Interrelación entre las diez principales disciplinas

Al elegir palabras clave para definir una o dos disciplinas principales, los directores de los proyectos indicaron también con frecuencia otros temas de interés. Así, los ecólogos cuya investigación tiene como interés principal la "biología" y la "acuicultura", marcaron también otros temas como "química", "física", "elaboración de modelos", etc. Las interacciones entre las disciplinas principales se presentan en la figura 5; reflejan la índole multidisciplinaria de los problemas de investigación de las lagunas costeras.

c) Interrelaciones dentro de las disciplinas principales: temas específicos de investigación

Los directores de los proyectos utilizaron la lista de 93 palabras clave que designan los temas específicos de investigación. El análisis de las respuestas permite conocer más a fondo las principales tendencias de la investigación en el mundo.

Como ejemplo, se presenta en la Figura 6 un análisis de los temas específicos marcados bajo el tema principal "biología". Fueron analizados 36 temas específicos, que se clasifican según: 1) los organismos estudiados, 2) los temas descriptivos, y 3) los temas sistémicos, incluyendo la elaboración de modelos de ecosistemas. Los resultados se resumen en las Figuras 7-9.

d) Afinidad entre los temas específicos

En diagramas de Trellis, las Figuras 10 y 11 muestran, como ejemplo, para la disciplina "biología", las afinidades existentes entre: a) el tipo de organismo estudiado, b) los temas descriptivos, y c) los temas sistémicos.

Observación - Los temas descriptivos se consideran aquí como parámetros estructurales y los temas sistémicos se consideran como parámetros de funcionamiento.

En la etapa inicial de un programa, los grupos a), b) y c) presentan escasa correlación. En los programas más avanzados, los tres grupos presentan mayor correlación.

8. OBSERVACIONES FINALES

En los últimos años, el deseo de preservar los ecosistemas húmedos costeros ha despertado un interés nuevo por los valores y recursos de dicho medio ambiente que comprende los deltas, las lagunas costeras y los estuarios (véase, por ejemplo, el Proyecto 5 del Programa sobre El Hombre y la Biosfera¹). En la actualidad se reconoce ampliamente el valor de las lagunas costeras para la pesca y la maricultura.

El estudio de las lagunas costeras permite sacar una conclusión importante: que se pueden llevar a cabo investigaciones cooperativas sobre la base de los recursos científicos disponibles en muchos países interesados. En la encuesta, la mayoría de los directores de los proyectos estimó que cabe mejorar la información relativa a las lagunas costeras. Propusieron, además, como tema central de las investigaciones futuras, estudiar las variaciones estacionales, y llevar a cabo, mediante la cooperación internacional, un análisis comparado de la variación espacial de los ecosistemas de lagunas en pleno funcionamiento.

Los programas de investigación coordinada de las lagunas costeras deberían lograr un enfoque global que tenga en cuenta la mayor cantidad de informaciones. Se deberían investigar en especial el flujo de materiales en las lagunas, la naturaleza y propiedades de los sedimentos y los mecanismos de la producción de seres vivos, así como los rasgos demográficos y adaptativos de las especies. Para ello, hace falta un enfoque multidisciplinario de las lagunas costeras como sistemas ecológicos. También se deberían comparar la producción, el consumo y la circulación de las partículas y los materiales disueltos en relación con los límites de los diversos sistemas.

1) Programa sobre el Hombre y la Biosfera (MAB). Grupo Internacional de trabajo sobre el Proyecto 5. Informe Final: "Ecological effects of human activities on the value and resources of lakes, marshes, rivers, deltas, estuaries and coastal zones". "Effets écologiques des activités humaines sur la valeur et les ressources des lacs, marais, cours d'eau, deltas, estuaires et zones côtières". Serie de informes del MAB No 21. Unesco, 1975, 80 p.

Figura 4a :

Esferas temáticas

AFRICA (excluyendo los mares Mediterráneo y Rojo)

disci- plina (.)	%	0 10 20 30 40
G.S	9.8	_____
I	7.3	_____
II	12.2	_____
III	12.2	_____
IV	12.2	_____
V	19.5	_____
VI	9.8	_____
VII	7.3	_____
VIII	4.9	_____
IX	-	
X	4.9	_____

Número de respuestas recibidas : 13

Países :

República Popular de Benin (3), Costa de Marfil (2),
Kenya (1), Nigeria (3), Sudáfrica (2), Tanzania (2).

Figura 4b :

Esferas temáticas

ASIA, ASIA SUDORIENTAL, OCEANO PACIFICO

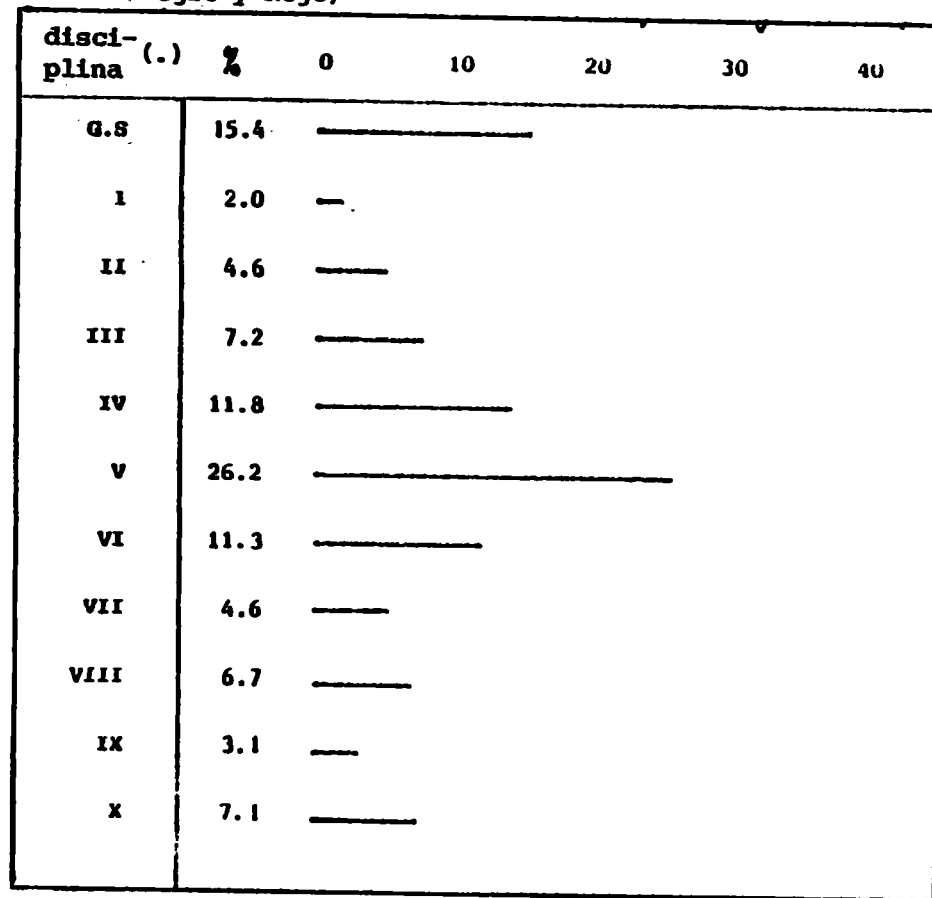
disci- plina (.)	%	0 10 20 30 40
G.S	17.6	_____
I	2.0	_____
II	6.9	_____
III	5.9	_____
IV	12.7	_____
V	23.5	_____
VI	7.8	_____
VII	4.9	_____
VIII	3.9	_____
IX	2.9	_____
X	11.8	_____

Número de respuestas recibidas : 30

Países :

Australia (13), India (4), Indonesia (1), Japón (1),
Malasia (1), Nueva Zelandia (4), Papua Nueva Guinea
(1), Filipinas (1), Sri Lanka (1), Tailandia (3).

Figura 4c :

Esferas temáticasEUROPA (incluyendo los mares Mediterráneo, Caspio,
Negro y Rojo)

Número de respuestas recibidas : 62

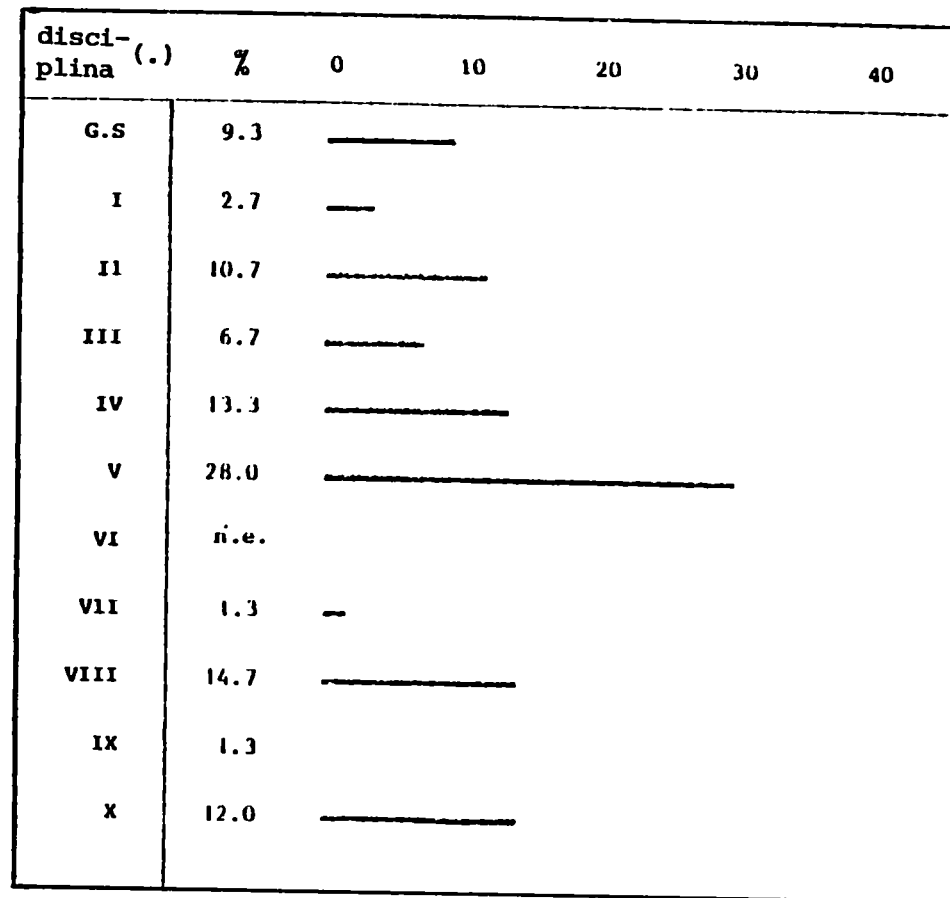
Países :

Bélgica (2), Dinamarca (3), Egipto (2), Finlandia (1),
Francia (9), Rep. Fed. de Alemania (3), Irlanda (5),
Israel (3), Italia (8), Países Bajos (7), Noruega (2),
Portugal (1), Rumania (1), Arabia Saudita (1), España (1),
Suecia (1), Túnez (3), Turquía (1), Reino Unido (8).

Figura 4d :

Esferas temáticas

AMERICA DEL NORTE



Número de respuestas recibidas : 27

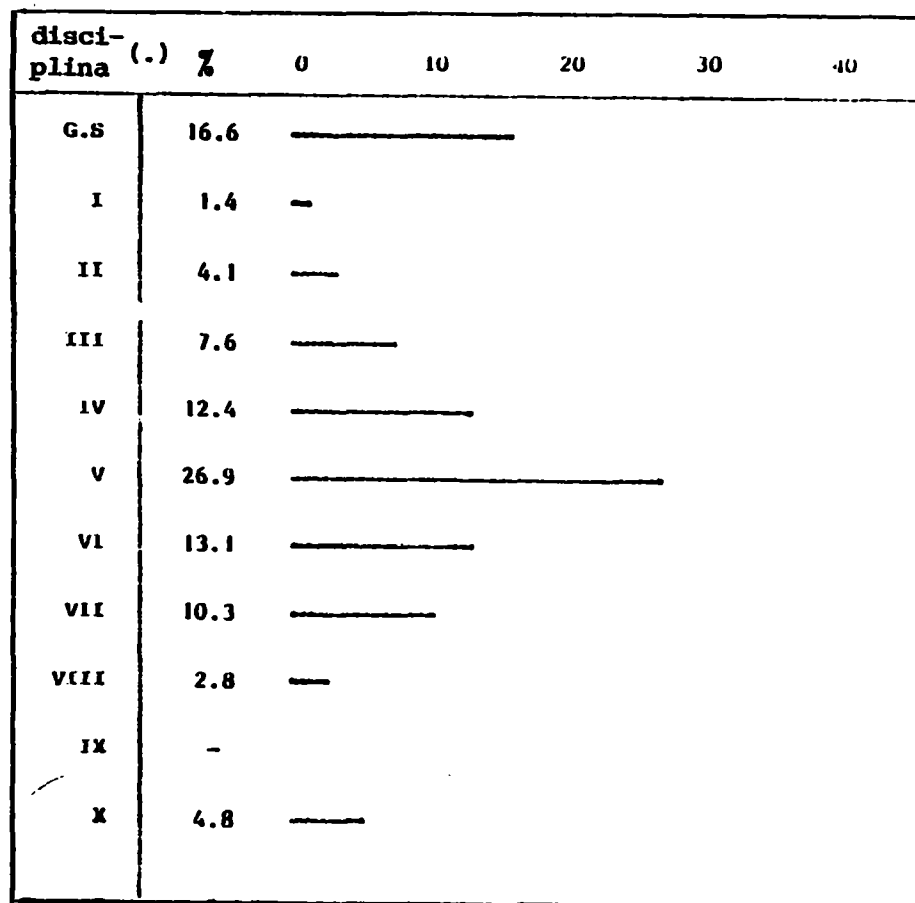
Países :

Bermudas (1), Canadá (1), Estados Unidos de
América (25).

Figura 4e :

Esferas temáticas

AMERICA LATINA Y EL CARIBE



Número de respuestas recibidas : 49

Países :

Brasil (6), Costa Rica (2), Colombia (5), Ecuador (2),
El Salvador (1), Guatemala (1), Honduras (1), Jamaica (2),
México (22), Antillas Neerlandesas (1), Nicaragua (1),
Panamá (1), Venezuela (4).

Figura 5a: Interrelaciones entre las diez disciplinas principales y el "estudio general", en los países de Europa

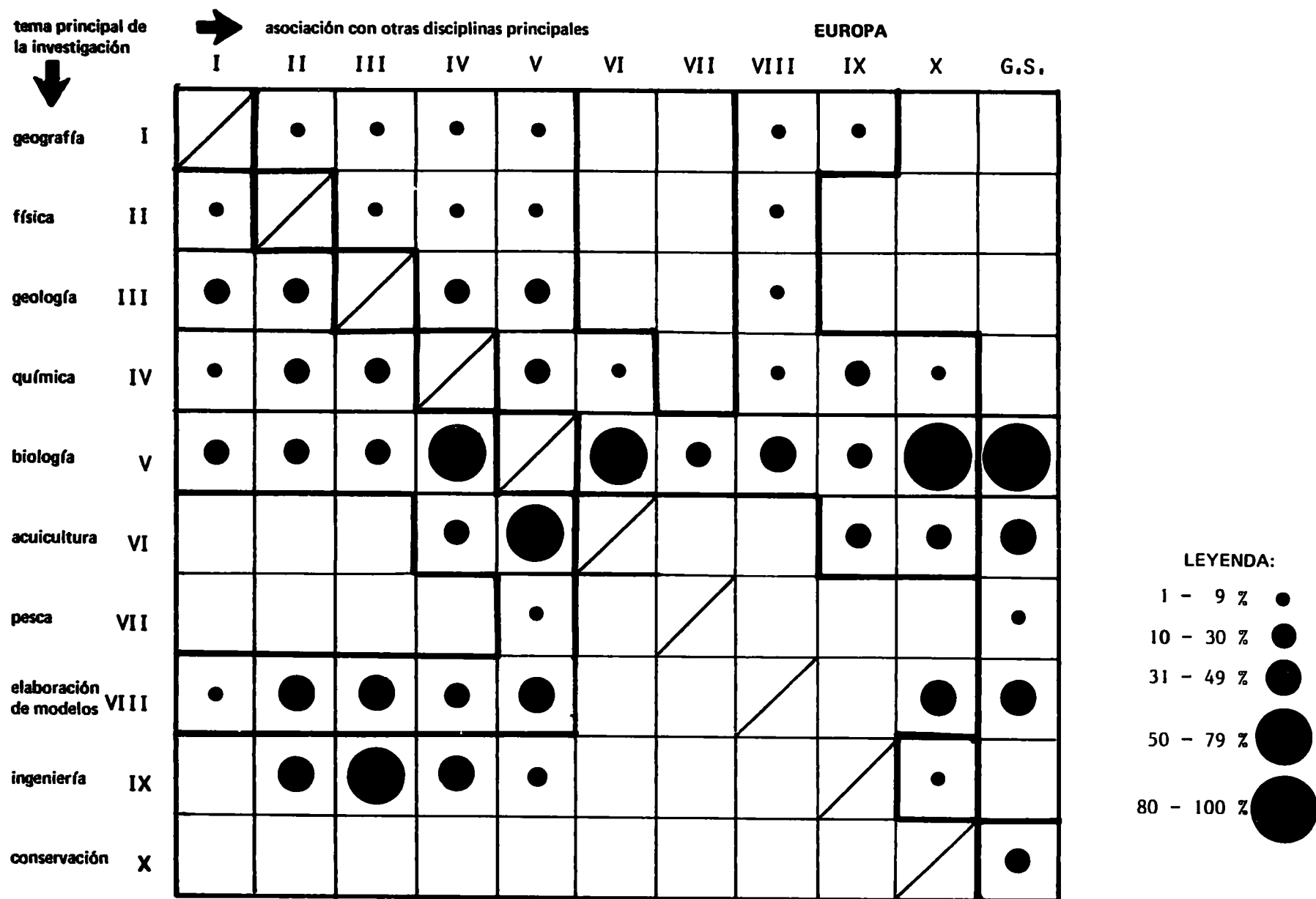


Figura 5b: Interrelaciones entre las diez disciplinas principales y el "estudio general", en los países de América del Norte

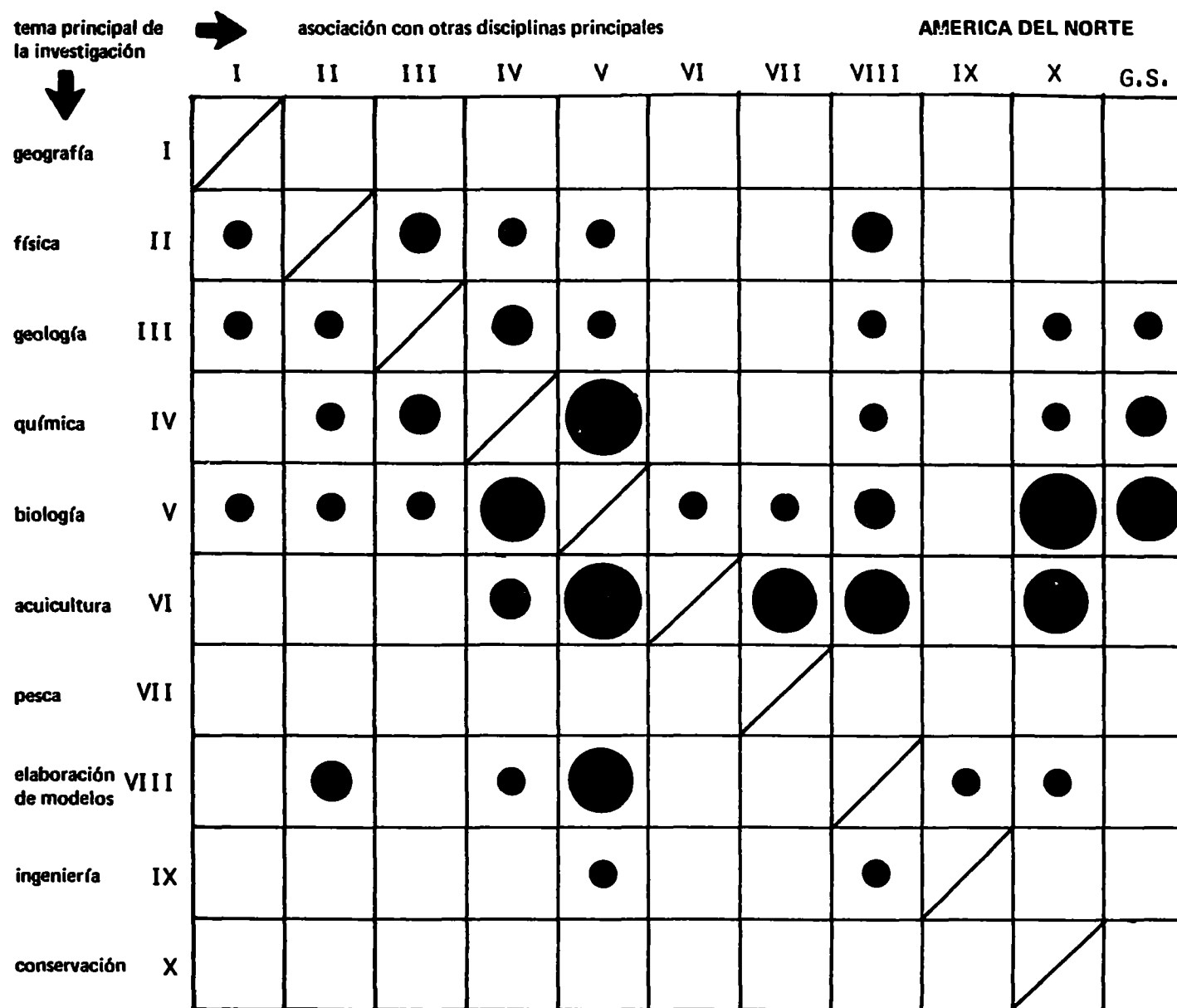


Figure 5c: Interrelaciones entre las diez disciplinas principales y el "estudio general", en los países de Asia, Asia sudoriental y el Océano Pacífico

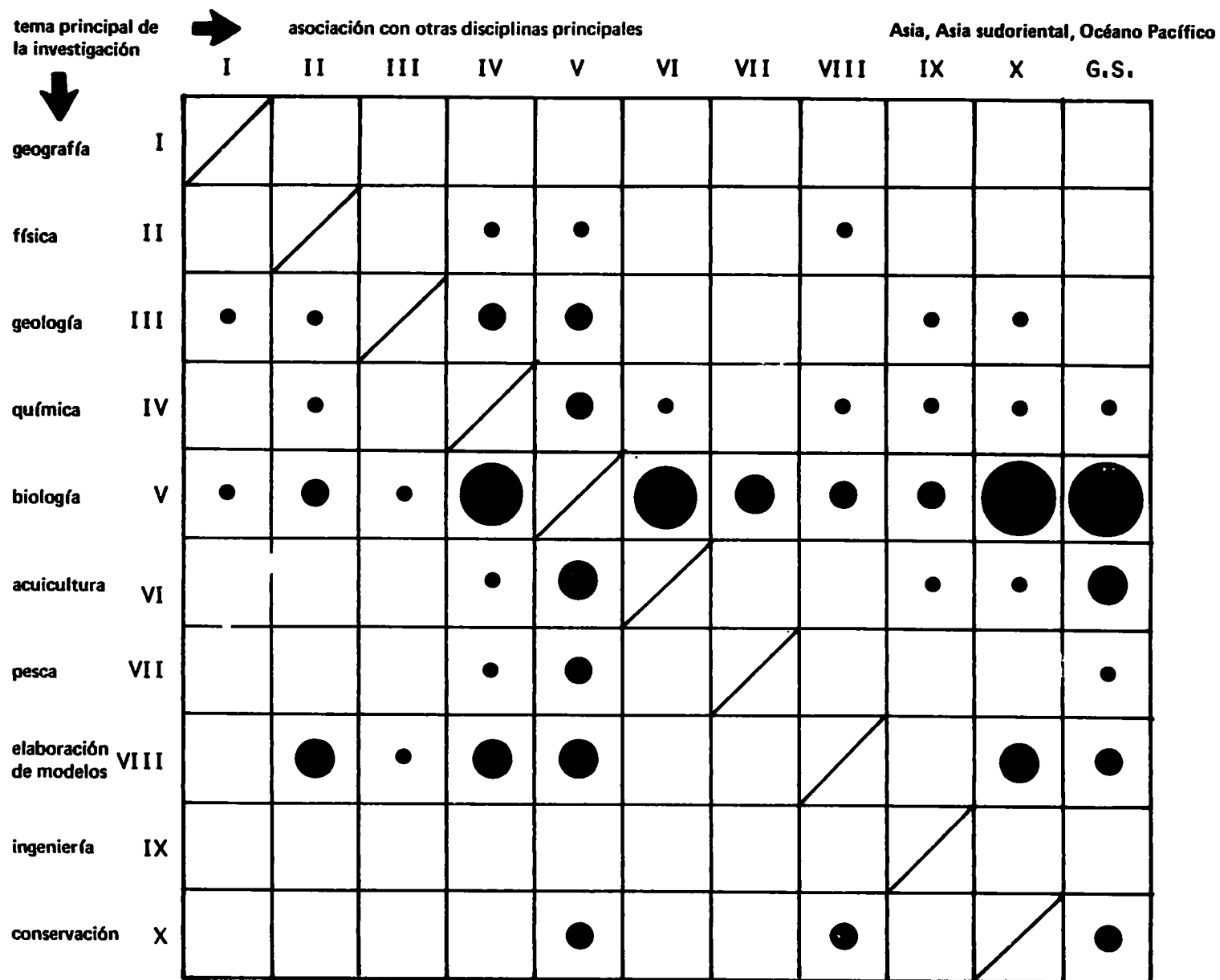


Figura 5d: Interrelaciones entre las diez disciplinas principales y el "estudio general", en los países de América Latina y el Caribe

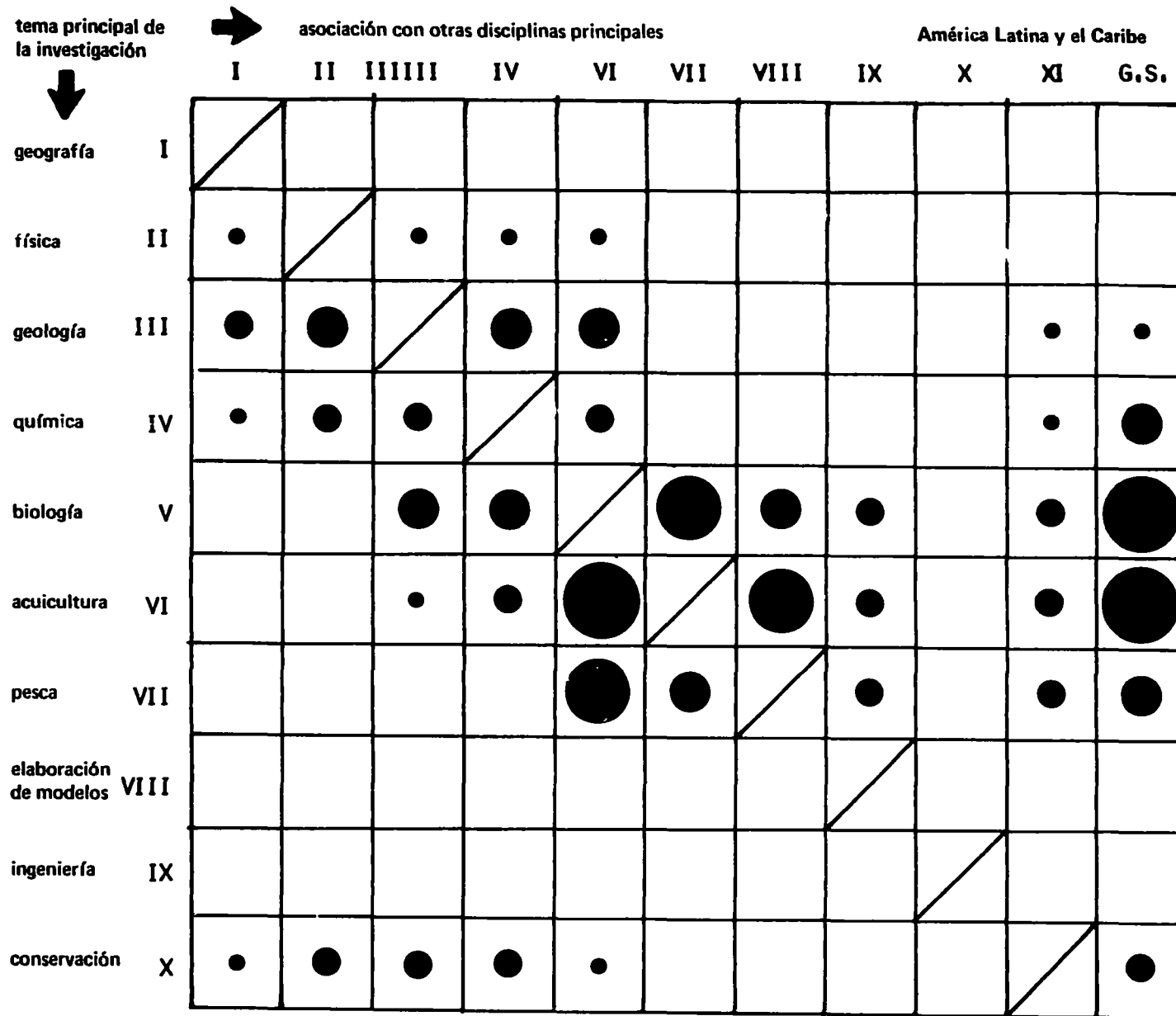


Figura 5a: Interrelaciones entre las diez disciplinas principales y el "estudio general", en los países de Africa

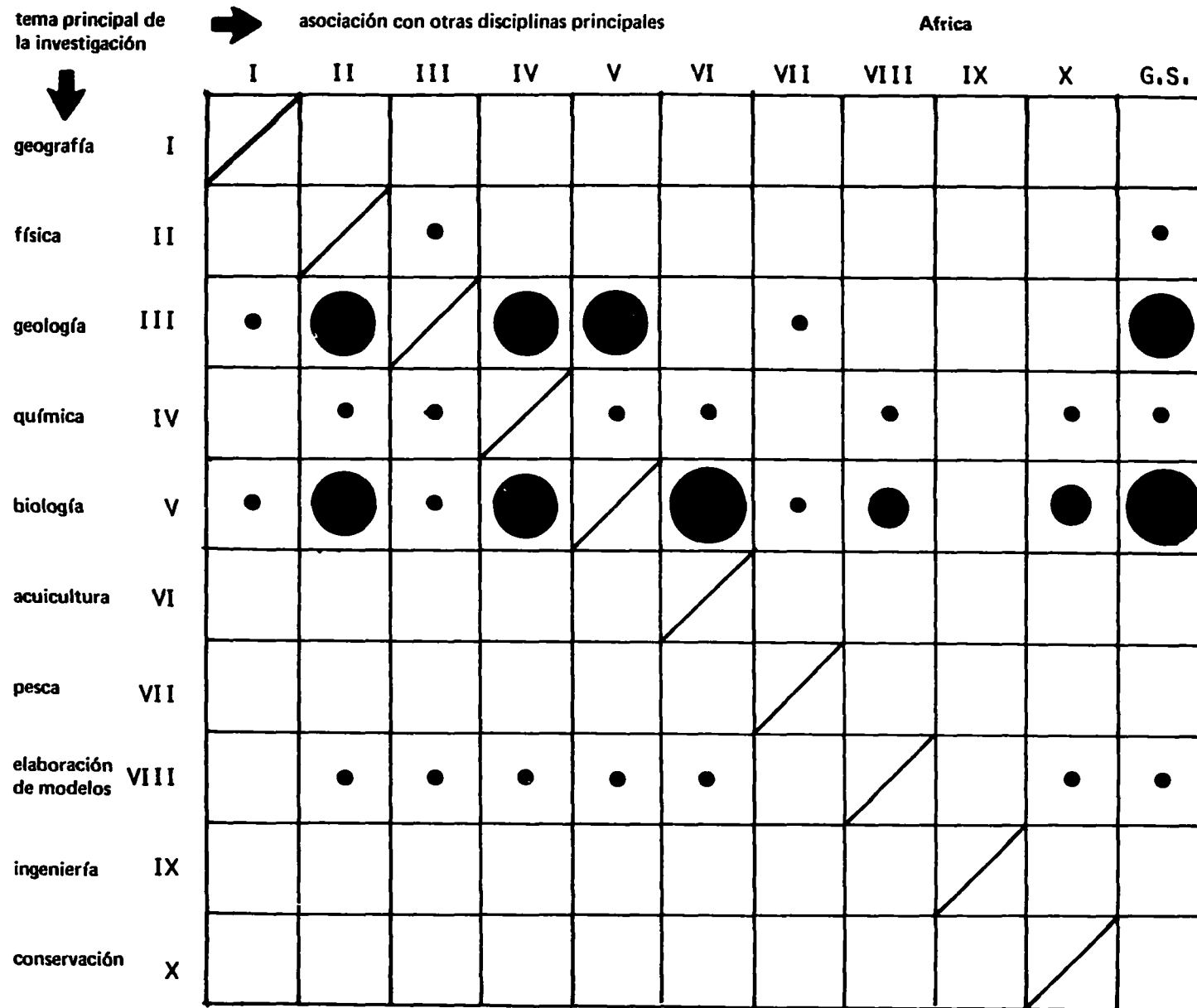


Figura 6: Reseña de los temas específicos de investigación comprendidos en la disciplina principal "biología"

Lista de temas comprendidos en la disciplina principal "biología"

grupo 1:	grupo 2:	grupo: 3
<u>tipos de organismos</u>	<u>temas descriptivos</u>	<u>temas sistémicos</u>
fitoplancton	taxonomía	endocrinología
zooplancton	historia vital	genética
meroplancton	embriología	dinámica de poblaciones
microbentos	serología	estructura de la comunidad
mesobentos	patología	redes alimentarias
macrobentos	parasitología	ecología fisiológica
peces	rel. animales/sedimentos	fisiología y bioquímica
bacterias	especies indicadoras	ciclo de nutrientes
microflora	cosecha permanente	utilización de materia orgánica
halofitas	microbiología	metabolismo
	producción de detritus	balances energéticos
		productividad
		eutroficación
		efecto de los contaminantes
		elaboración de modelos

Temas prioritarios (frecuencia 100-60%) en cada uno de los tres grupos:

grupo 1: tipos de organismos

Africa	Asia	Pacífico	Europa	A.Latina	A.del Norte
macroben- tos peces	fitopl. zoopl.	fitopl. macroben- tos halofitas peces	macro- bentos peces zoopl. fitopl. mesoben- tos	fitopl. zoopl. macroben- tos	macrobentos fitopl. zoopl. bacterias

grupo 2: temas descriptivos

Africa	Asia	Pacífico	Europa	A.Latina	A.del Norte
cosecha per.	cosecha per.	especies indic. cosecha per. relación an/sed	relación an/sed cosecha per. hist. vital especies indic.	cosecha per. hist. vital	detritus cosecha per. rel. an/sed especies indic.

grupo 3: temas sistémicos

Africa	Asia	Pacífico	Europa	A.Latina	A.del Norte
redes alim.	produc- tiv. din.po- blacio- nes redes alim.	din.po- blación estr.co- munidad produc- tiv.	din.po- blación estr.co- munidad ecología ffs. balances energét. utiliza- ción m.o.	din.po- blación producti- vidad redes aliment.	estr.comuni- dad productivi- dad ciclo nutr. utilizac. m.o. din.pobla- ciones ecología fis.

Figura 7: Temas especiales de investigación elegidos dentro de la disciplina principal
"Biología": tipos de organismos

(entre paréntesis, el número de programas revisados)

	(5)	(10)	(10)	(27)	(17)	(16)
Frecuencia (por ciento)	AFRICA	ASIA	PACIFICO	EUROPA	AMERICA LATINA	AMERICA DEL NORTE
100 - 60 %	macrobentos peces	fitoplancton zooplancton	fitoplancton macrobentos halofitas peces	macrobentos peces zooplancton fitoplancton mesobentos	fitoplancton zooplancton macrobentos	macrobentos fitoplancton zooplancton mesobentos bacterias
59 - 40 %	zooplancton meroplancton bacterias	macrobentos halofitas peces bacterias	zooplancton bacterias microflora mesobentos	bacterias microbentos microflora halofitas	peces	halofitas peces microflora microbentos meroplancton
39 - 20 %	fitoplancton mesobentos	meroplancton mesobentos	meroplancton microbentos	meroplancton	microbentos halofitas	
inf. 20 %	halofitas microflora microbentos	microbentos microflora			meroplancton microflora bacterias mesobentos	

Figura 8: Temas especiales de investigación elegidos dentro de la disciplina principal
"Biología": temas descriptivos

(entre paréntesis, el número de programas revisados)

	(5)	(10)	(10)	(27)	(17)	(16)
Frecuencia (por ciento)	AFRICA	ASIA	PACIFICO	EUROPA	AMERICA LATINA	AMERICA DEL NORTE
100 - 60 %	cosecha perm.	cosecha perm.	especies indic. cosecha perm. rel. an/sed.	rel. an/sed. cosecha perm. historia vital especies indic.	cosecha perm. historia vital	prod. detritus cosecha perm. rel. an/sed. especies indic.
59 - 40 %	rel. an/sed. especies indic. prod. detritus	microbiología prod. detritus	microbiología prod. detritus	taxonomía prod. detritus microbiología	taxonomía rel. an/sed. prod. detritus	microbiología historia vital
39 - 20 %	microbiología historia vital	taxonomía historia vital rel. an/sed. parasitología serología/hem.	taxonomía historia vital	embriología	microbiología	embriología taxonomía
inf. 20 %	taxonomía	embriología patología	embriología patología	parasitología patología serología/hem.	embriología patología parasitología serología/hem.	parasitología patología serología/hem.

Figura 9: Temas especiales de investigación elegidos dentro de la disciplina principal
"Biología": temas sistémicos

(entre paréntesis, el número de programas revisados)

	(5)	(10)	(10)	(27)	(17)	(16)
Frecuencia (por ciento)	AFRICA	ASIA	PACIFICO	EUROPA	AMERICA LATINA	AMERICA DEL NORTE
100 - 60 %		productividad din. población redes aliment.	din. población estruc. comunidad productividad redes aliment.	din. población estruc. comunidad ecología fis. presup. energét. productividad	productividad din. población redes aliment.	estruc. comunidad productividad ciclo nutrientes utilización m.o. ecología fis. redes aliment.
59 - 40 %	ciclo nutrientes balances energét. contaminantes redes aliment.	estr. comunidad ciclo nutrientes eutroficación ecología fis.	elab. modelos ciclo nutrientes	redes aliment. ciclo nutrientes eutroficación contaminantes elab. modelos	ciclo nutrientes utilización m.o. estruc. comunidad eutroficación	eutroficación din. población metabolismo contaminantes elab. modelos
39 - 20 %	din. población estruc. comunidad utilización m.o. eutroficación	utilización m.o. contaminantes elab. modelos fisio. y bioquím.	utilización m.o. contaminantes eutroficación metabolismo ecología fis.	metabolismo genética fisio. y bioquím. endocrinología	ecología fis. balances energét. contaminantes	balances energét. genética fisio. y bioquím. endocrinología
inf. 20 %	elab. modelos	presup. energét. metabolismo endocrinología	balances energét.		fisio. y bioquím. elab. modelos	

Fig. 10 Relaciones de afinidad entre los temas, dentro de la disciplina principal "biología" (diagrama de trellis) en el caso de un programa avanzado de investigación.

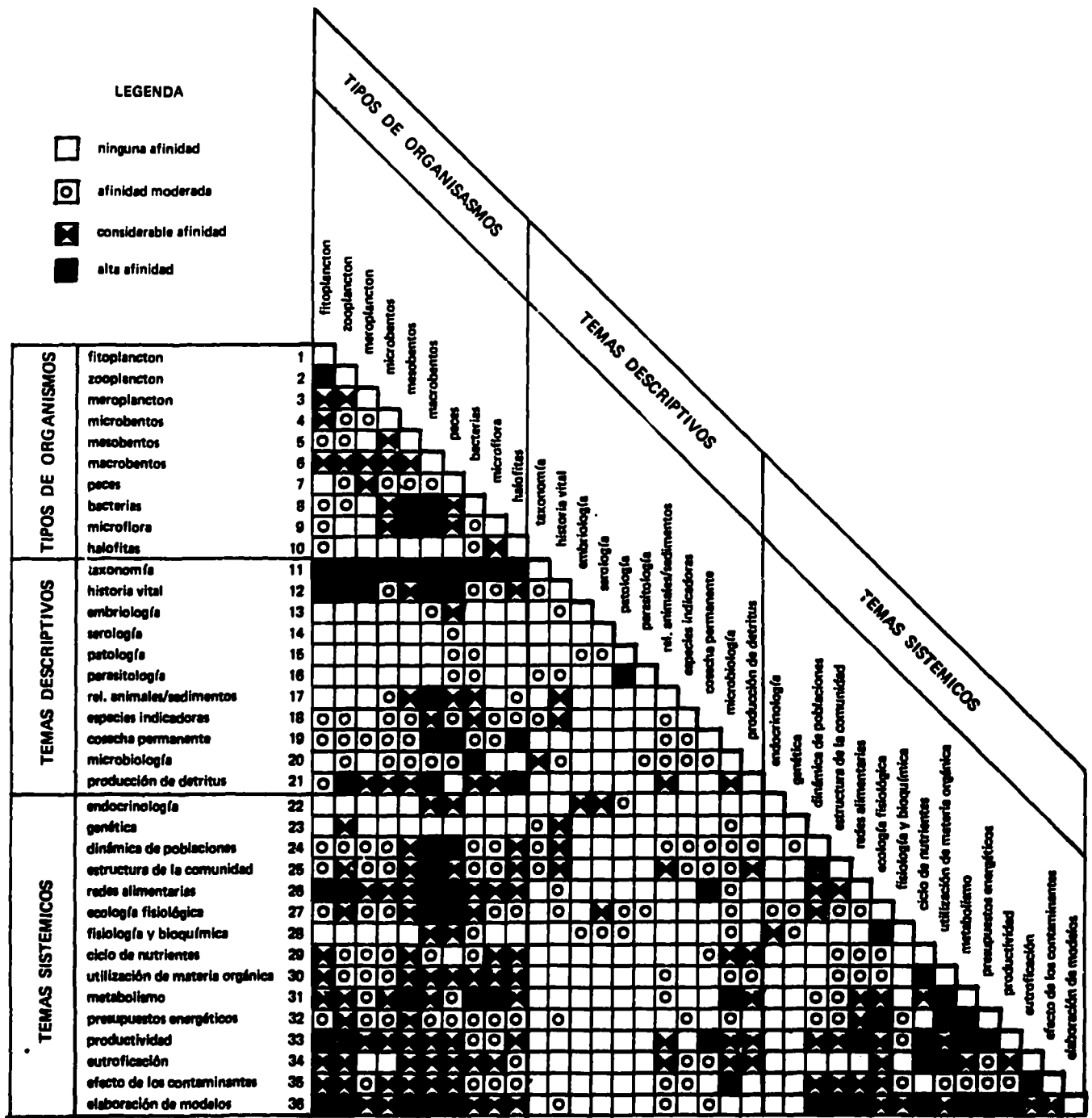
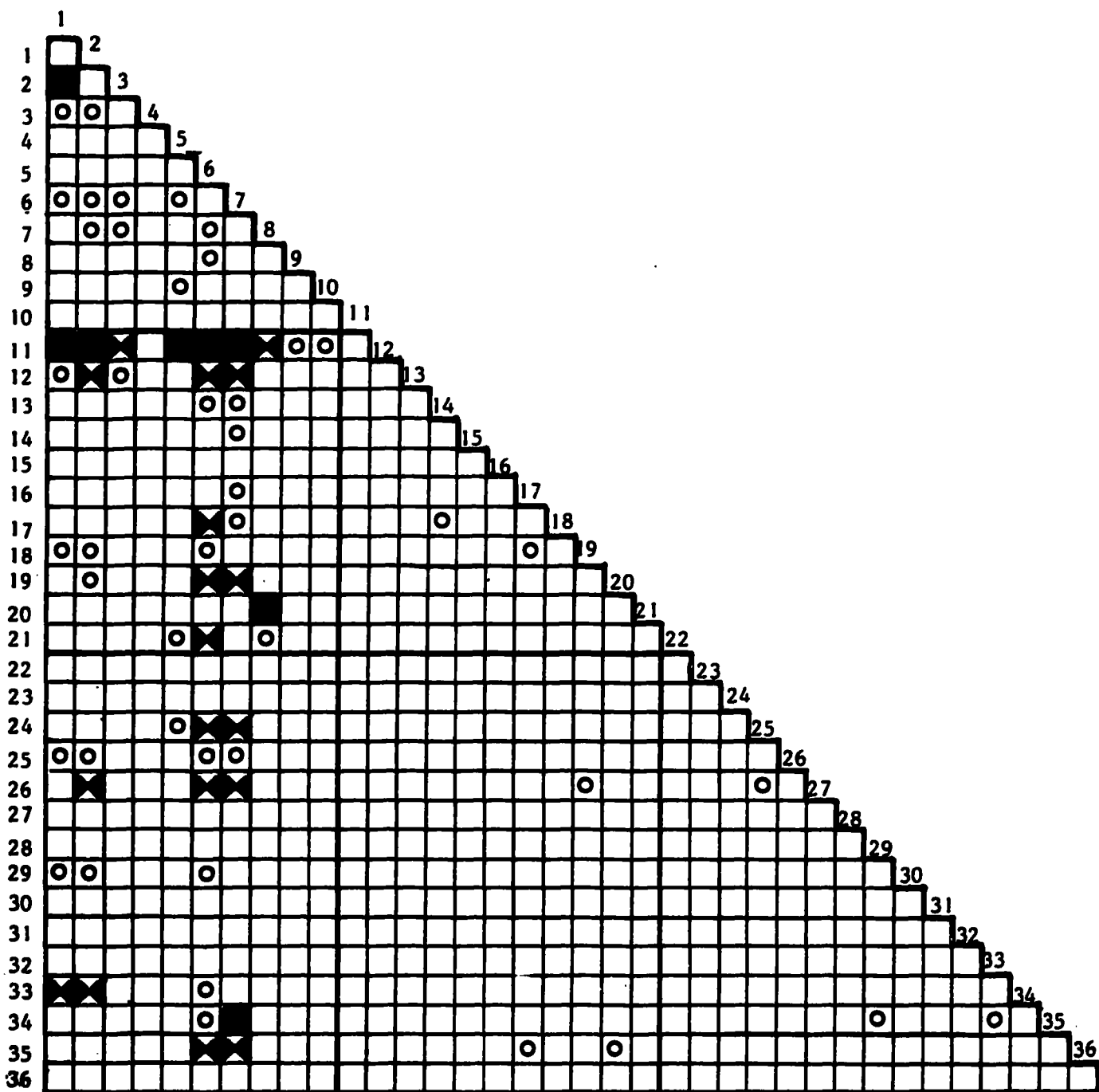


Fig. 11. Relaciones de afinidad entre los temas, dentro de la disciplina principal "biología" (diagramme de Trellis), en el caso de un programa en sus comienzos.



DIRECTORY OF COASTAL LAGOON RESEARCH PROGRAMMES
REPertoire DES PROGRAMMES DE RECHERCHES SUR LES LAGUNES COTIERES
DIRECTORIO DE LOS PROGRAMAS DE INVESTIGACION DE LAS LAGUNAS

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Australian Institute of Marine Science

Address : P.O. Box 1104,
Townsville, Queensland 4810,
Australia

Director : M. Gilmartin

Project leader(s) : J.S. Bunt

Address : Australian Institute of Marine Science,
P.O. Box 1104,
Townsville, Queensland 4810, Australia

Co-operating institution(s) : Australian Museum ;
Commonwealth Scientific and Industrial
Research Organization ;
University Researchers .

Supporting or funding body : Australian Government

Starting dates/duration of programme/project : June 1974/Indefinite

Name of lagoon(s) :

Geographic location lat. :
Various locations on East
Coast of Tropical Australia long. :

Code :
surface area : 60 km²

Australia

Title of programme : Inshore Productivity

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
			X	X					X	

Literature and/or reports available : in preparation

Existing training programme : no

Description and objectives of the programme/project (summarized) :

A study of the productivity of mangroves, seagrasses and macroalgae including consideration of environmental and biological influences affecting production.

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Australian Institute of Marine Science Address : P.O. Box 1104, Townsville, Queensland 4810, Australia Director : M. Gilmartin		
Project leader(s) : T. Ikeda Address : P.O. Box 1104, Townsville, Queensland 4810, Australia		
Co-operating institution(s) :		
Supporting or funding body : Australian Government		
Starting dates/duration of programme/project : January 1974/1977		
Name of lagoon(s) : Great Barrier Reef Lagoon		
Geographic location Various locations near Townsville, Queensland	lat. : long. :	Code : surface area :

Australia											
Title of programme : Pelagic food webs											
	I	II	III	IV	V X	VI	VII	VIII	IX	X	G.S.
Description and objectives of the programme/project (summarized) : The main objectives were to evaluate the physiological activities of tropical zooplankton in detail in the laboratory, with field studies in the shallow coastal seas (lagoon) inside the Great Barrier Reef and in mangrove-controlled channels and bays. Feeding, respiration, excretion, growth rates and nutrient recycling were considered.											

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Australian Institute of Marine Science
 Address : P.O. Box 1104,
 Townsville, Queensland 4810,
 Australia
 Director : Mr. Gilmartin

Project leader(s) : G.L. Pickard

Address : Institute of Oceanography,
 University of British Columbia,
 Vancouver, B.C., Canada V6T 1W5

Co-operating institution(s) :

Supporting or funding body
 Australian Institute of Marine Science

Starting dates/duration of programme/project : November 1975/Continuing

Name of lagoon(s) : Great Barrier Reef Lagoon

Geographic location	lat. :	Code :
Off Queensland	long. :	surface area :

Australia

Title of programme : Review of the Physical Oceanography of the Great Barrier Reef and the Western Coral Sea

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
	X									

Description and objectives of the programme/project (summarized) :

Programme involves review of published and available data on the subject area and preparation of plans for future studies of the area .

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Commonwealth Scientific and Industrial Research Organization, (CSIRO) Address : P.O. Box 21, Cronulla, NSW 2230, Australia Director : K.R. Allen		
Project leader(s) : R. Parker Address : Commonwealth Scientific and Industrial Research Organization (CSIRO) P.O. Box 21, Cronulla, NSW 2230, Australia		
Co-operating institution(s) : Australian Atomic Energy ; University of Sydney ; University of New South Wales ; State Fisheries Department.		
Supporting or funding body : CSIRO		
Starting dates/duration of programme/project : 1974/Indefinite		
Name of lagoon(s) : Southwest Arm of Port Hacking (currently)		
Geographic location lat. : Near Sydney long. :	Code : surface area :	

Australia											
Title of programme : Estuarine Project											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
	X		X	X			X				
Literature and/or reports available : yes											
Description and objectives of the programme/project (summarized) : The objective of this ongoing study of Australian estuaries is an understanding of the physical, chemical and biological processes and their interactions . It is hoped that this systems analysis will enable the employment of a simulation model towards quantitative predictions of the consequences of man's perturbation of the estuarine environment.											

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Commonwealth Scientific and Industrial Research Organization,
Division of Applied Geomechanics
Address : P.O. Box 54,
Mount Waverly,
Victoria 3149,
Australia
Director : G.D. Atchison

Project leader(s) : Edmund D. Gill

Address : CSIRO, Division of Applied Geomechanics,
P.O. Box 54,
Mount Waverly,
Victoria 3149, Australia

Co-operating institution(s) :

Supporting or funding body : Australian Government

Starting dates/duration of programme/project : 1974/ Continuing

Name of lagoon(s) :

Geographic location	lat. :	Code :
	long. :	surface area :

Australia

Title of programme : Coasts of Australia

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
X	X	X						X		

Description and objectives of the programme/project (summarized) :

Incidental to the study of coasts, lagoons are being investigated for evidence of coastal processes . For example, being areas of low energy, lagoons may preserve evidence of sea level changes not revealed by the open coast .

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Environmental Studies
 Address : Ministry for Conservation
 240 Victoria Parade
 East Melbourne, Victoria 3002
 Australia
 Director : T.L. Linton

Project leader(s) : Graham Frecker

Address : Port Phillip Bay Environmental Study
 240 Victoria Parade
 East Melbourne, Victoria 3002
 Australia

Co-operating institution(s) :

Melbourne and Metropolitan Board of Works;
 Fisheries and Wildlife Department, Ministry for Conservation;
 Port Phillip Authority;
 University of Melbourne;
 Monash University;
 Ministry of Transport;
 Environmental Protection Authority;
 Town and Country Planning Board; and
 Ports and Harbors Division; Public Works Department.

Supporting or funding body :

The Ministry for Conservation, State of Victoria.

Starting dates/duration of programme/project : 1967/ongoing

Name of lagoon(s) :

Port Phillip Bay

Geographic location lat. : 38° 0' S
 long. : 144° 50' E

Code :
 maps : yes
 surface area : 1950 km²

Australia

Title of programme :

Port Phillip Bay Environmental Study

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X			X		X	X

Description and objectives of the programme/project (summarized) :

An interdisciplinary environmental study involving three lagoon systems and their associated watersheds. The central objective is to gain sufficient knowledge concerning the system functionings to be able to make responsible recommendations to policy makers regarding the management and use of these coastal systems.

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Enviromental Studies Address : Ministry for Conservation 240 Victoria Parade East Melbourne Victoria 3002 Australia Director : T.L. Linton		
Project leader(s) : Gary Mahon Address : Westernport Bay Environmental Study 240 Victoria Parade East Melbourne Victoria 3002 Australia		
Co-operating institution(s) : Fisheries and Wildlife Division, Ministry for Conservation; University of Melbourne, Department of Agriculture; CSIRO; Department of Health; Monash University; Department of Mines; Department of Public Works; Department of Minerals and Energy; Australian Department of Science; State Rivers and Water Supply; and National Museum of Victoria; Caulfield Institute of Technology.		
Supporting or funding body : Ministry for Conservation, State of Victoria.		
Starting dates/duration of programme/project : 1971/Ongoing		
Name of lagoon(s) : Westernport Bay		
Geographic location	lat. : 38°40' S long. : 145°20' E	Code : maps : yes surface area : 680 km ²

Australia											
Title of programme : Westernport Bay Enviromental Study											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
					X			X		X	X
Description and objectives of the programme/project (summarized) : An interdisciplinary enviromental study involving three lagoon systems and their associated watersheds. The central objective is to gain sufficient knowledge concerning the system functionings to be able to make responsible recommendations to policy makers regarding the management and use of these coastal systems.											

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Environmental Studies
Ministry for Conservation
Address : 240 Victoria Parade
East Melbourne Victoria 3002
Australia
Director : T.L. Linton

Project leader(s) : Brian Newell

Address : Environmental Studies
Ministry for Conservation
240 Victoria Parade
East Melbourne Victoria 3002
Australia

Co-operating institution(s) :
University of Melbourne;
Latrobe Valley Water Sewage Board;
Fisheries and Wildlife Service;
Ministry for Conservation;
State Rivers and Water Supply Commission;
Ports and Harbors Division, Department of Public Works;
State Electricity Commission;
Snowy Mountain Hydroelectric Commission;
Bureau of Meteorology;
Mines Department; and National Museum.

Supporting or funding body :

Ministry for Conservation, State of Victoria.

Starting dates/duration of programme/project : 1975/at least 1980

Name of lagoon(s) :
Gippsland Lakes, Lake Wellington, Lake Victoria,
Jones Bay, King Lake, Lake Reeve.

Geographic location lat. : 38° S
long. : 147°30' E
Code :
map : yes
surface area :

Australia

Title of programme :
Gippsland Lakes Regional Environmental Study

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X			X		X	X

Description and objectives of the programme/project (summarized) :

An interdisciplinary environmental study involving three lagoon systems and their associated watersheds. The central objective is to gain sufficient knowledge concerning the system functionings to be able to make responsible recommendations to policy makers regarding the management and use of these coastal systems.

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Flinders University, School of Earth Sciences

Address : Bedford Park,
South Australia,
Australia

Director : Chris von der Borch

Project leader(s) : Chris von der Borch

Address : Flinders University,
School of Earth Sciences,
Bedford Park,
South Australia, AustraliaCo-operating institution(s) :
Bureau of Mineral Resources;
Australian National University;
Adelaide University, School of GeologySupporting or funding body :
Australian Research Grants Committee;
Flinders University Research Grants

Starting dates/duration of programme/project : 1972/continuing

Name of lagoon(s) :
Coorong Lagoon ;
Marion Lake

Geographic location lat. :

South Australia long. :

Code :

surface area :

Australia

Title of programme : Quaternary stratigraphy of lagoons and coastal lakes of
Southern Australia, with particular emphasis on :
1) carbonate sedimentation (NB dolomite), 2) regional
hydrology, 3) paleoclimatology, 4) evaporites, 5) sea level
changes, 6) modern stromatolites

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
---	----	-----	----	---	----	-----	------	----	---	------

X

X

Literature and/or reports available : Yes

Description and objectives of the programme/project (summarized) :

This ongoing project involves the collection and interpretation of stratigraphic information from : 1) the Coorong Lagoon and associated coastal lake systems ; from 2) pleistocene stranded lagoon-barrier systems now on the coastal plain ; and from 3) the gypsum-carbonate-stromatolite bearing Marion Lake . Stratigraphy of these systems is being studied for input into such problems as paleoclimatology, sea level changes and carbonate (particularly dolomite) genesis.

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Ministry for Conservation
 Address : 250 Victoria Parade,
 East Melbourne,
 Victoria 3002,
 Australia
 Director : B.S. Newell

Project leader(s) : B.S. Newell

Address : Ministry for Conservation
 250 Victoria Parade,
 East Melbourne,
 Victoria 3002, Australia

Co-operating institution(s) : Several Victorian Government Departments
 and Agencies together with some universities and polytechnics

Supporting or funding body : Victorian Government

Starting dates/duration of programme/project : 1977/5 years

Name of lagoon(s) : Gippsland Lakes

Geographic location lat. :
 Eastern Victoria long. :

Code :
 surface area :

Australia

Title of programme : Gippsland Regional Environmental Study

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
									X	X

Description and objectives of the programme/project (summarized) :

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : University of Adelaide, Department of Zoology Address : P.O. Box 498, G.P.O., Adelaide, South Australia 5001, Australia Director : W.P. Williams	
Project leader(s) : A.J. Butler Address : University of Adelaide, Department of Zoology, Box 498, G.P.O., Adelaide, South Australia 5001, Australia	
Co-operating institution(s) :	
Supporting or funding body : Australian Government	
Starting dates/duration of programme/project : ongoing	
Name of lagoon(s) : Gulf of St. Vincent(mainly Port Adelaide)	
Geographic location South Australia	lat. : long. : Code : surface area :

Australia											
Title of programme : Several PhD projects associated with mangrove and tidal flat habitats in sheltered parts of South Australian coast											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
				X	X						
Description and objectives of the programme/project (summarized) : Subprojects include : Ecology of razor-shells, <u>Pinna dolabrata</u> ; Feeding behaviour of <u>Cepiella vinosa</u> ; and biology of the Western King prawn, <u>Panaeus latisulcatus</u> .											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : University of Western Australia, Department of Geology Address : Nedlands, Western Australia 6009, Australia Director :		
Project leader(s) : R.G. Brown and B.W. Logan Address : University of Western Australia, Department of Geology, Nedlands, Western Australia 6009, Australia		
Co-operating institution(s) :		
Supporting or funding body : Australian Research Grants Committee ; University of Western Australia		
Starting dates/duration of programme/project : September 1972/1978		
Name of lagoon(s) : Exmouth Gulf		
Geographic location West coast of Australia	lat. : long. :	Code : surface area :

Australia											
Title of programme : Carbonate and ferrigenous sedimentation, Exmouth Gulf, Western Australia											
I	II	III X	IV	V	VI	VII	VIII	IX	X	G.S.	
Description and objectives of the programme/project (summarized) : The six-year study was designed with three objectives : 1) determination of the nature and distribution of carbonate and ferrigenous sediments in Exmouth Gulf; 2) determination of stratigraphic relationships and elucidation of sedimentation history in the quaternary sequence; 3) assessment of the roles of organic and physical agents in the formation of lithofacies . These objectives are being investigated in the following manner : 1) collection and examination of surface grab samples and vibro-cores in offshore and tidal flat terrains; 2) normal stratigraphic analysis of on-shore sections; 3) determination of hydrological parameters in gulf-waters and shallow ground-waters of marginal tidal flats											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Department of Geology Address : University of Western Australia, Nedlands, Western Australia 6007, Australia Director : P.G. Harris	
Project leader(s) : Brian W. Logan Address : Department of Geology, University of Western Australia, Nedlands, Western Australia 6007, Australia	
Co-operating institution(s) :	
Supporting or funding body : Australian Research Grants Committee ; University of Western Australia	
Starting dates/duration of programme/project : 1973/probably 6 years	
Name of lagoon(s) : Lake MacLeod	
Geographic location lat. : 25°S long. : 114°E	Code : surface area : 2,000 km ²

Australia										
Title of programme : Holocene Carbonate and Evaporite Sedimentation, MacLeod Evaporite Basin, Western Australia										
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
		X	X	X						
Description and objectives of the programme/project (summarized) : The investigation has five related aims : 1) Development of an actualistic model of evaporite basin hydrodynamics for use in interpretation of ancient evaporites; 2) documentation of sedimentary features in recent evaporites and determination of processes involved in evaporite deposition; 3) delineation of stratigraphic relations between evaporites, marine carbonate and ferruginous red-bed facies; 4) documentation of diagenesis in marine carbonates that are interstratified with evaporites; 5) reconstruction of the sedimentation history of the basin										

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Laboratorium voor Morfologie en Systematiek Instituut voor Dierkunde - Rijksuniversiteit Gent Address : Ledeganckstraat 35 8 - 9000 Gent Belgium Director : L. DeConinck	
Project leader(s) : Carlo Heip Address : Ledeganckstraat 35 8 - 9000 Gent Belgium	
Co-operating institution(s) : Instituut voor Zeewetenschappelijk Onderzoek	
Supporting or funding body : Nationaal Fonds voor Wetenschappelijk Onderzoek; Fonds voor Kollektief Fundamenteel Onderzoek; Instituut voor Wetenschappelijk Onderzoek in Landbouw en Nijverheid.	
Starting dates/duration of programme/project : (i) 1976/1978 (ii) 1968/1976	
Name of lagoon(s) : (i) Spuikom (ii) Dievangat	
Geographic location lat. : (i) 51°12' N (ii) 51°20' N long. : (i) 2°56' W (ii) 30°22' W	Code : surface area : (i) 0.8 km ² (ii) 0.015 km ²

Belgium										
Title of programme : (i) A study of the benthos of the Sluice Dock of Ostend; (ii) Ecology of the meiobenthos in a shallow brackish water habitat										
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X			X			
literature and/or reports available: yes										
existing training programme: no										
Description and objectives of the programme/project (summarized) : (i) This project involves a survey of the evolution of the standing crop during one year. The purpose is to evaluate production, mainly of the meiobenthos, and to incorporate the benthos in an existing energy flow scheme. (ii) This study was on the community and population ecology of dominant meiobenthic groups (Ostracoda, Copepoda, Harpacticoida and Nematoda) and considered the importance of competition and predation, production of the important species, and life-cycles of the individual species.										

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Vrije Universiteit Brussel Address : Laboratorium voor Ekologie en Systematick Pleinlaan 2 B - 1050 Brussels, Belgium Director : P. Polk	
Project leader(s) : P. Polk Address : Vrije Universiteit Brussel Laboratorium voor Ekologie en Systematick Pleinlaan 2 B - 1050 Brussels, Belgium	
Co-operating institution(s) : I.Z.W.O. (Bredene); - Institut Mathématique (Liege)	
Supporting or funding body : I.C.W.B.; Scientific Services Prime Minister, Belgium.	
Starting dates/duration of programme/project : 1970/at least 1981	
Name of lagoon(s) : Sluice Dock	
Geographic location lat. : long. :	Code : surface area : 0.9 km ²

Belgium										
Title of programme : Icometabolism of a shallow marine lagoon										
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X			X			
Description and objectives of the programme/project (summarized) : The main objectives are the establishment and understanding of the ecometabolism of marine biotypes in the North Sea, taking into account primary production (nutrients, excretion and respiration of phytoplankton); secondary production (grazing by zooplankton, excretion; respiration; population dynamics); planktonic bacteria (activity, respiration); and benthic bacteria (activity, respiration, seasonal and annual budgets).										

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Direction des Pêches Address : B.P. 383 Cotonou, République Populaire du Bénin Director : A. Th. Loko		
Project leader(s) : Direction des Pêches Address : same as above		
Co-operating institution(s) :		
Supporting or funding body : Ministère du Développement Rural et de l'Action Coopérative Fond Européen de Développement (FED)		
Starting dates/duration of programme/project : 1978		
Name of lagoon(s) : Nohoué lake Porto Novo lagoon Ouidah lagoon		
Geographic location	lat. : 6°30' N long. : 2°40' E	Code : surface area :

Benin											
Title of programme : Organization and development of agriculture in the Popular Republic of Benin.											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
		X		X	X	X	X				X
Description and objectives of the programme/project (summarized) : The project is quite recent. One of the main efforts will be devoted to an increase of the natural production of fish (mulletts, Tilapia) in fish ponds.											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Institut de Géologie du Bassin d'Aquitaine (IGBA) Université de Bordeaux I Address : 351 cours de la Libération 33405 Talence, France Director : M. Vigneaux		
Project leader(s) : A. Klingebiel Address : as above		
Co-operating institution(s) : Université Nationale de la République Populaire du Bénin Laboratoire de Géologie		
Supporting or funding body : French Ministry of the Universities C.N.R.S. (France)		
Starting dates/duration of programme/project : 1975		
Name of lagoon(s) : Porto Novo lagoon		
Geographic location lat. : 6°30 N long. : 2°47 E	Code : surface area : 4 00 km ²	

Benin											
Title of programme : Sedimentation evolution in the Porto Novo lagoon											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
X	X	X	X								
literature and/or reports available : yes											
Description and objectives of the programme/project (summarized) : The project includes five main topics : hydrology, hydrodynamical influence from Ouémé river, sedimentation processes, composition of particulate matter.											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution :	Université Nationale du Bénin Faculté des Sciences et Techniques, Section Géologie B.P. 526 Cotonou, République Populaire du Bénin
Address :	B.P. 526 Cotonou, République Populaire du Bénin
Director :	M. le Recteur
Project leader(s) :	Jacques Lang
Address :	Université Nationale du Bénin Faculté des Sciences et Techniques Section de Géologie B.P. 526 Cotonou, Républ. Pop. du Bénin
Co-operating institution(s) :	Direction des Pêches Direction de la Marine Marchande Ministère de l'Environnement Laboratoire de Zoologie, Univ. Nationale du Bénin
Supporting or funding body :	Governmental
Starting dates/duration of programme/project :	1975
Name of lagoon(s) :	Porto Novo Cotonou Nokoué Ahémé
Geographic location	lat. : 6°24'-6°30' N long. : 2°31'-2°47' E
Code :	surface area :

Benin											
Title of programme :											
Hydrosedimentology and hydrobiology in coastal lagoons of Bénin											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
X	X	X	X	X		X				X	
literature and/or reports available: yes											
existing training programme: yes											
Description and objectives of the programme/project (summarized) :											
This programme is concerned with hydrosedimentology and hydrology. A descriptive analysis of the lagoons related with sedimentation during the Quaternary has been made. Historical sedimentology, stratigraphy, and geo-dynamical evolution of the recent Quaternary have also been studied. Physico-chemical paramstres have been considered, and work has been done on fish and on mollusks.											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Bermuda Biological Station Address : St. Georges West, Bermuda Director : W.E. Sterrer	
Project leader(s) : Byron F. Morris Address : Bermuda Biological Station, St. Georges West, Bermuda	
Co-operating institution(s) :	
Supporting or funding body : Bermuda Government	
Starting dates/duration of programme/project : 1976/1981	
Name of lagoon(s) : Harrington Sound, Great Sound, Castle Harbour, St. George Harbour	
Geographic location lat. : long. :	Code : Map : Yes surface area :

Bermuda										
Title of programme : Bermuda Inshore Waters Investigators										
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
			X	X			X			X
Existing training programme : yes										
Description and objectives of the programme/project (summarized) : The initial phase of this five-year current project is to complete a descriptive survey of fundamental parameters of the inshore environment of Bermuda (as a multidisciplinary environmental study, aspects of geography, physics, geology, chemistry-geochemistry and biology are included). The threat of cultural entrophication of the inshore waters is being assessed as well as circulation of the inshore waters, residence time and renewal rates; and the annual cycles and seasonal variations of hydrographic and water quality parameters. It is hoped that ultimately the data acquired by the project will allow sufficient understanding of the ecological processes of the inshore environment so that fundamental ecosystem modeling will be feasible, and can be used as a predictive tool for any future need.										

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Base Oceanográfica Atlântica, Fundação de Rio Grande
 Address : Rua Luis Lorea 261,
 Cx. Postal 474,
 96200 - Rio Grande - RS
 Brazil
 Director : Eurípides Falcão Vieira

Project leader(s) : Jorge Pablo Castello

Address : Núcleo de Avaliação Pesqueira
 Base Oceanográfica Atlântica,
 Rua Luis Lorea, 261, Cx. Postal 474,
 96200 - Rio Grande - RS. Brazil

Co-operating institution(s) :

Supporting or funding body : Fundo Investimento Ensino e Pesquisa,
 Ministry of Education and Culture;
 Fundação Universidade do Rio Grande

Starting dates/duration of programme/project : 1975/1977

Name of lagoon(s) : Lagoa dos Patos

Geographic location lat. : 30° - 32° S Code :
 Rio Grande City long. : 50° - 52° W surface area : 11,000 km²

Brazil

Title of programme :

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
		X		X		X				X

Description and objectives of the programme/project (summarized) :

The programme of research was primarily aimed at attaining a descriptive picture of the estuary. The main aspects of this lagoon project were : to study the community structure and its environmental relations; to study the shrimp resources (*Penaeus paulensis*) by analyzing its spatial and temporal distributions, structure and dynamics of its population, penetration and development of the postlarvae; to identify and study the main species of fishes that breed and use the lagoon estuary as a nursery ground; to study the sediment characteristics of the bottom; and to assess the possibility of introducing regulatory measures into the artisanal fisheries.

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Centro de Estudos de Geologia Costeira e Oceânica Address : CECO/UFERS Praça Argentina S/n, 90.000 Porto Alegre, RS, Brazil Director : Luiz Roberto Martins		
Project leader(s) : Luiz Roberto Martins and Jorge Alberto Villwock Address : CECO/UFERS, Praça Argentina S/n 90.000 Porto Alegre, RS, Brazil		
Co-operating institution(s) : Diretoria de Hidrografia e navegação; Compania de Pesqui de Recursos Minerais; Porto do Brasil; Departamento Estadual de Postos, Rios e Canais; Departamento Nacional de Aguas e Energia Eletrica .		
Supporting or funding body : Universidade Federal do Rio Grande do Sul		
Starting dates/duration of programme/project : 1975/1980		
Name of lagoon(s) : Lagoa dos Patos		
Geographic location Rio Grande do Sul State, South Brasil	lat. : 30° - 32° S long. : 50° - 52° W	Code : surface area : 11,000 km ²

Brazil										
Title of programme : Geology, circulation and sedimentology of Lagoa dos Patos										
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
	X	X							X	X
Literature and/or reports available : Yes										
Existing training programme : no										
Description and objectives of the programme/project (summarized) : The basic purpose of this programme is to investigate the geological evolution of lagoon-barrier complex, as well as studies on the circulation, sedimentation, source areas, marine influence, biology, mineral resources, recreational areas, ports and other aspects important to coastal lagoon management .										

SC02/Unesco enquiry on existing lagoon research programmes		
Institution : Coastal Studies Institute Address : Louisiana State University Baton Rouge, Louisiana 70803 USA Director : James M. Coleman		
Project leader(s) : James M. Coleman Address : Coastal Studies Institute Louisiana State University Baton Rouge, Louisiana 70803 USA		
Co-operating institution(s) :		
Supporting or funding body : Office of Naval Research.		
Starting dates/duration of programme/project :		
Name of lagoon(s) : Suape Lagoon		
Geographic location	lat. : long. :	Code : surface area :
northern coast of Brazil		

Brazil																																	
Title of programme : Wave and tidal circulation in Suape Lagoon																																	
<table border="1"> <thead> <tr> <th>I</th> <th>II</th> <th>III</th> <th>IV</th> <th>V</th> <th>VI</th> <th>VII</th> <th>VIII</th> <th>IX</th> <th>X</th> <th>G.S.</th> </tr> </thead> <tbody> <tr> <td></td> <td>X</td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>												I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.		X	X	X							
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.																							
	X	X	X																														
Description and objectives of the programme/project (summarized) : Stone barriers off the Brazil coast form lagoons which are valuable as recreation areas. Wave distribution and current and sediment movement have been studied.																																	

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Instituto de Biologia Marinha Address : Praia de Mãe Luiza SN Natal - RN Brazil Director :		
Project leader(s) : Address :		
Co-operating institution(s) :		
Supporting or funding body :		
Starting dates/duration of programme/project :		
Name of lagoon(s) :		
Geographic location	lat. : 5° 30' S long. : 35° 15' W	Code : surface area :

Brazil											
Title of programme :											
	I	II	III x	IV	V x	VI	VII	VIII	IX	X	G.S.
Existing training programme : yes											
Description and objectives of the programme/project (summarized) : Work involved with primary production and sediments .											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Instituto de Pesquisas da Marinha Address : Rua Ipirã, s/n, Ilha do Governador, Rio de Janeiro, Brazil Director : Paulo de Castro Moreira da Silva		
Project leader(s) : Paulo de Castro Moreira da Silva Address : Rua Ipirã, s/n, Ilha do Governador, Rio de Janeiro, Brazil		
Co-operating institution(s) :		
Supporting or funding body : Secretaria do Planejamento, Ministério da Marinha .		
Starting dates/duration of programme/project : 1974/continuing		
Name of lagoon(s) : Lagoa de Araruama		
Geographic location Cabo Frio (Rio de Janeiro)	lat. : long. :	Code : Map(s) : Yes Surface area :

Brazil											
Title of programme : Studies of the dynamics and ecology of Araruana Lagoon											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
				X	X					X	
Description and objectives of the programme/project (summarized) : The main purpose of the programme is to investigate the possibility of mariculture in the Araruama, with the following considerations under study : the actual residence time of water in the lagoon, its algae and shrimp population, and measures for obtaining a better sea water exchange through the narrow channel .											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Research and Development Centre, Petrobras/Cenpes Address : Ilha do Fundão, Quadra 7, Rio de Janeiro, 20.000, Brazil Director : Antonio Seabra Maggi	
Project leader(s) : Helio Roncarate Address : Ilha do Fundão, Quadra 7, Rio de Janeiro 20.000, Brazil	
Co-operating institution(s) :	
Supporting or funding body : Petroleo Brasileiro - Petrobras	
Starting dates/duration of programme/project : 1970/	
Name of lagoon(s) : Lagoa de Jacarepagua, Lagoa de Camorim, Lagoa da Tijuca; Lagoa de Marapendi	
Geographic location lat. : 23° 00' S long. : 43° 23' W	Code : surface area :

Brazil											
Title of programme : Sedimentation models after the study of the recent Jacarepagua Project											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
		X	X								
Literature and/or reports available : yes											
Description and objectives of the programme/project (summarized) : This programme is aimed at the establishment of sedimentation models .											

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Institute of Oceanography
 Address : The University of British Columbia,
 Vancouver, B.C., Canada, VGT IW5
 Director : G.L. Pickard

Project leader(s) : G.L. Pickard

Address : Institute of Oceanography,
 The University of British Columbia,
 Vancouver, B.C., Canada VGT IW5

Co-operating institution(s) :

Supporting or funding body : University of British Columbia;
 National Research Council of Canada

Starting dates/duration of programme/project : 1949/continuing

Name of lagoon(s) :

Geographic location lat. :
 British Columbia
 (also Alaska, USA and Chile) long. :

Code :
 surface area :

Canada

Title of programme : Fjord Inlet Study

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
	X									

literature and/or reports available : yes

Description and objectives of the programme/project (summarized) :

The programme involves studies on the distribution of water characteristics
 and of the circulation in these bodies of water

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Instituto de Investigaciones Marinas Address : AA. 1016, Sta. Marta, Colombia Director : Gabriel Roldán Pérez		
Project leader(s) : Heberthard Wedler Address : AA. 1016, Sta. Marta, Colombia SA,		
Co-operating institution(s) :		
Supporting or funding body : Cooperative project between Colombian and German Governments		
Starting dates/duration of programme/project : 1976/1979		
Name of lagoon(s) : Ciénaga Grande de Sta. Marta		
Geographic location 45 Km South of Sta. Marta	lat. : 11° N long. : 74° 30 W	Code : Map(s) : yes surface area :

Colombia											
Title of programme : Programme of oyster culture (<u>Crassostrea rhizophorae</u>) in Ciénaga Grande											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
					X	X					
Description and objectives of the programme/project (summarized) : Maintening and increasing the efficiency of the oyster cultures (<u>Crassostrea rhizophorae</u>) are the most important objectives of this two-year programme . This will involve investigating the annual cycle of salinity in the lagoon, establishing the salinity regime required for the growth of oysters, and experimenting with growing oysters in boxes and floating rafts .											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Instituto Nacional de los Recursos Naturales y del Ambiente Address : Apartado Aero 13458, Bogota, Colombia Director : Orlando Mora Lara		
Project leader(s) : German Riveros Celis Address : Instituto Nacional de Recursos Naturales y del Ambiente, Apartado Aero 13458, Bogota, Colombia		
Co-operating institution(s) : Several government and private research centres		
Supporting or funding body : United Nations Environment Programme (UNEP); Colombian Government Funds		
Starting dates/duration of programme/project : 1977/1979		
Name of lagoon(s) : Ciénaga Grande of Santa Marta		
Geographic location lat. : 10° 30' N long. : 74° 75' W	Code : surface area : 450 Km2	

Colombia											
Title of programme : Ecodevelopment project - Ciénaga Grande of Santa Marta											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
					X	X	X				x
Literature and/or reports available : yes											
Existing training programme : yes											
Description and objectives of the programme/project (summarized) : This two-year project is aimed at recovering the former oyster grounds of the Ciénaga Grande Lagoon, which was the main oyster producing water body of Colombia before a highway was built between the lagoon barrier and the sea . The following action has been planned : hydrological studies (to learn how to obtain the proper salinities to grow oysters and brackish water fish populations); studies of different oyster cultivation systems (to increase efficiency of the oyster grounds); mangrove research (to give different management alternatives); and a programme in fish management (including studies of fish population and a seasonal inventory) .											

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Université de Bordeaux I
Institut de Géologie d'Aquitaine (IGBA)
Address : 351 cours de la Libération
33405 Talence , France

Director : M. Vigneaux

Project leader(s) : A. Klingebiel

Address : same as above

Co-operating institution(s) :

- Centro de Investigaciones Hidrolical y Oceanograficas, Escuela Naval,
- Cartagena, Colombia
- Universidad Jorge Tadeo Lozano, Bogota, Colombia

Supporting or funding body :

C.N.R.S. (France)
Ambassade de France en Colombie

Starting dates/duration of programme/project : 1975

Name of lagoon(s) : Cartagena bay ("Bahia de -")
Barbacoas bay ("Bahia de -")

Geographic location lat. : 10°30' N

Colombia long. : 75°30' W

Code :
maps : yes
surface area : 400 Km²

Colombia

Title of programme :

COTECOL

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
	X	X	X	X					X	

literature and/or reports available : yes

Description and objectives of the programme/project (summarized) :

The project is a hydrological survey of the system including water mass movements and sedimentation processes in relation with the development of mangroves and corals. Paleogeographic evolution of the system.

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Ministerio de Agricultura Dirección General de Pesca, INDERENA Address : Avenida Caracas n°25A-66 Bogotá, Colombia, S.A. Director :	
Project leader(s) : Jorge E. Mercado Address : Centro de Investigaciones Pesqueras INDERENA - A.A. 2459 Cartagena, Colombia	
Co-operating institution(s) :	
Supporting or funding body : Ministry of Agriculture	
Starting dates/duration of programme/project :	
Name of lagoon(s) :	
Geographic location lat. : 10°40' N long. : 75°14' W	Code : surface area : 21 km ²

Colombia											
Title of programme :											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
					X	X	X			X	X
literature and/or reports available : yes											
Description and objectives of the programme/project (summarized) : Biological cycles of fish (<u>Megalops</u> , <u>Mugil</u>); possibilities of aquaculture.											

SCOR/Unesco enquiry on existing lagoon research programmes			
Institution : Universidad del Valle Dept. of Biology Address : Apartado Aero 2188 Cali, Colombia Director : F. Pineda Polo			
Project leader(s) : F. Pineda Polo Address : same as above			
Co-operating institution(s) : Centro Internacional para Investigaciones del Desarrollo (Canada) :IDRC			
Supporting or funding body : Fondo de Investigaciones de la Division de Ciencias, Universidad del Valle			
Starting dates/duration of programme/project : 1977			
Name of lagoon(s) : Magdalena bay ("Bahia de -")			
Geographic location		Code :	
lat. : 4° N long. : 77° W		surface area :	

Colombia											
Title of programme : Reproductive biology of <u>Callinectes toxotes</u> and <u>C. arcuatus</u> in Magdalena Bay.											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
					X	X					
Description and objectives of the programme/project (summarized) : The project include studies on larval development, distribution of larval stages in the lagoon, population dynamics of the populations of <u>Callinectes</u> and the possibilities of harvesting the species.											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Consejo Nacional de Investigaciones Cientificas y Tecnologicas Address : Apartado No. 10318, San José, Costa Rica Director : Rodrigo Zeledon		
Project leader(s) : Carlos R. Villalobos Sole Address : Escuela de Biologia, Universidad de Costa Rica, San José, Costa Rica		
Co-operating institution(s) :		
Supporting or funding body : Organization of American States (OAS); Consejo Nacional de Investigaciones Cientificas y Tecnologicas de Costa Rica		
Starting dates/duration of programme/project : 1977/1979		
Name of lagoon(s) : Bahia Ballena, Golfo de Nicoya		
Geographic location lat. : 9° 45' N long. : 85° W	Code : surface area : 16 km ²	

Costa Rica											
Title of programme : Biological Resources in Coastal Lagoons and Mangrove areas in Latin America											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
				X	X		X			X	
Literature and/or reports available : No											
Existing training programme : yes											
Description and objectives of the programme/project (summarized) : This two-year programme is concerned with providing an integrated knowledge of several mangrove and coastal lagoon systems . The areas of study include : physical oceanography (circulation patterns of tides and currents, temperature profiles); chemical oceanography (analysis of the sea water for oxygen, salinity and nutrients); climatology (maxima and minima temperatures, wind conditions, precipitation); biological oceanography (plankton communities, including species composition, relative density, biomass and migration patterns, relative density and distribution of larvae of commercial species and the life cycle of <u>Anadara grandis</u> Arcidae : Mollusca) .											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Departamento de Acuacultura, Pesca Continental y Vida Silvestre Address : Ministerio de Agricultura y Ganaderia, San José, Costa Rica Director : Eduardo Bravo		
Project leader(s) : Herbert Manie Echandi Address : Ministerio de Agricultura y Ganaderia, San José, Costa Rica		
Co-operating institution(s) :		
Supporting or funding body :		
Starting dates/duration of programme/project :		
Name of lagoon(s) : Lagunas de Tortuguero		
Geographic location lat. : 10° 30' N long. : 83° 30' W	Code : surface area :	

Costa Rica											
Title of programme :											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
					X	X	X				
Existing training programme : no											
Description and objectives of the programme/project (summarized) :											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : University of Copenhagen Institute of Physical Oceanography Address : Haraldsgade 6 2200 Copenhagen N Denmark Director : N.G. Jerlov	
Project leader(s) : G. Kullenberg Address : University of Copenhagen Institute of Physical Oceanography Haraldsgade 6 2200 Copenhagen N Denmark	
Co-operating institution(s) : Geophysical Institute; Bergen University, Norway; several institutes in Denmark.	
Supporting or funding body : Nordic University Group for Physical Oceanography; Environmental Protection Agency; Research Council.	
Starting dates/duration of programme/project : (i) October 1976 (ii) October 1974/1977	
Name of lagoon(s) : (i) Arnavägen; Norway (Bergen) (ii) Danish Sounds	
Geographic location lat. : long. :	Code : surface area :

Denmark											
Title of programme : (i) Fjord mixing (ii) Mixing in Danish Sounds and Bays											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
	X						X				
Description and objectives of the programme/project (summarized) : Internal mixing has been studied using dye (rhodamine B) and <u>in situ</u> instruments. Currents, density layering and waves have all been studied, as has meteorological conditions.											

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : University of Copenhagen
Geographical Institute
Geomorphological Laboratory
Address : Haraldsgade 68
2100 Copenhagen Ø
Denmark

Director :

Project leader(s) : Niels Nielsen
University of Copenhagen
Geographical Institute
Address : Geomorphological Laboratory
Haraldsgade 68
2100 Copenhagen Ø
Denmark

Co-operating institution(s) :

Supporting or funding body :

Starting dates/duration of programme/project :
1966/1976

Name of lagoon(s) :
Nûk Lagoone; Disko

Geographic location lat. : 69°39'N
long. : 51°52'W

Code :
surface area : 2 km²

Denmark

Title of programme :
Arctic coasts coastal geomorphology

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
X	X	X								

existing training programme: no

Description and objectives of the programme/project (summarized) :

The coastal development during the thawing period; coastal morphology and dynamics in an arctic environment have all been studied.

SCOR/Unesco enquiry on existing lagoon research programmes			
Institution : Copenhagen University Address : Institute of Plant Ecology Ø. Farimagsgade 2 D DK - 1353 Copenhagen Denmark Director : Mogens Kjøle			
Project leader(s) : Peter Vestergaard Address : Copenhagen University Institute of Plant Ecology Ø. Farimagsgade 2 D DK - 1353 Copenhagen Denmark			
Co-operating institution(s) :			
Supporting or funding body :			
Starting dates/duration of programme/project : 1976			
Name of lagoon(s) : (i) Olsemagle lagoon (ii) Korevle lagoon			
Geographic location		Code :	
lat. : (i) 55°30'N (ii) 55°54'N long. : (i) 12°12'E (ii) 11°32'E		Map surface area : yes : (i) 4 km ² (ii) 2 km ²	

Denmark											
Title of programme : Relations between uptake and translocation of metals in the substrate, with special reference to two Danish coastal lagoons which differ in loading of heavy metals											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
			X	X							
literature and/or reports available: yes											
existing training programme: no											
Description and objectives of the programme/project (summarized) : Soil cores and salt marsh plants (especially <i>Aster tripolium</i>) from coastal lagoons are analyzed for metals, including Cu, Zn, Ni, Pb and Cr.											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Instituto Nacional de Pesca Address : Letamendi 102 y la Ría, Casilla 5918, Guyaquil, Ecuador Director : Blanca Reinoso de Aveiga	
Project leader(s) : Address :	
Co-operating institution(s) :	
Supporting or funding body :	
Starting dates/duration of programme/project :	
Name of lagoon(s) :	
Geographic location lat. : long. :	Code : surface area :

Ecuador											
Title of programme :											
I	II	III	IV	V %	VI	VII	VIII	IX	X	G.S.	
Description and objectives of the programme/project (summarized) : Work done on carcinology (Panaeus) and freshwater phytoplankton .											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Instituto Nacional de Pesca Address : Casilla de Correo 5918, Guayaquil, Ecuador Director :	
Project leader(s) : Jaime Barragan Address :	
Co-operating institution(s) :	
Supporting or funding body :	
Starting dates/duration of programme/project :	
Name of lagoon(s) :	
Geographic location lat. : long. :	Code : surface area :

Ecuador											
Title of programme :											
	I	II	III	IV	V X	VI	VII	VIII	IX	X	G.S.
Description and objectives of the programme/project (summarized) : Work done with juvenile populations of crustaceans Penaeidea and Caridea .											

SCOR/Unesco enquiry on existing lagoon research programmes

Egypt

Institution : Institute of Oceanography and Fisheries
Mediterranean Branch
Address : Kayet Bay
Alexandria, Egypt

Director :

Project leader(s) : A. El-Agamy

Address : Institute of Oceanography and Fisheries
Mediterranean Branch
Kayet Bay
Alexandria, Egypt

Co-operating institution(s) :

Supporting or funding body :

Academy of Scientific Research

Starting dates/duration of programme/project : 1975/1978

Name of lagoon(s) :
Lake Manzala

Geographic location lat. :
northeast of Nile delta long. :

Code :
surface area :

Title of programme :

Hydrographical and fishery survey in Lake Manzala

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
			X	X		X				X

Description and objectives of the programme/project (summarized) :

Project covers seasonal investigations of the commercial catch; fish and fishery biology of the economic species; quantitative and qualitative estimation of phyto and zooplankton and the bottom fauna; and water analysis for nutrients, salinity and oxygen content.

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Mansoura University Address : Faculty of Science Botany Department Mansoura, Egypt Director : A.E. Younis		
Project leader(s) : M.A. Zahran Address : Mansoura University Faculty of Science Botany Department Mansoura, Egypt		
Co-operating institution(s) :		
Supporting or funding body :		
Starting dates/duration of programme/project : 1977/1982		
Name of lagoon(s) : El-Manzala, El-Borollus, Edku and Mariut.		
Geographic location	lat. : 30° N long. : 29° - 33° E	Code : map : yes surface area :

Egypt											
Title of programme : Ecological studies of the northern lakes of Egypt											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
X			X	X						X	
Description and objectives of the programme/project (summarized) : The programme on the northern lakes of Egypt will include studies on: geomorphology; local climate; synecology of the vegetation inhabiting the water (Hydrophytes), the islands and the shores (Halophytes); algal life; bacterial life; physio-chemical characteristics of the water; the pollutants and contaminants of the water; salinity; and sedimentation.											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution :	Unidad de Parques Nacionales y Vida Silvestre
Address :	Servicio Forestal y de Fauna Dirección General de Recursos Naturales Renovables, Ministerio de Agricultura y Ganadería, Cantón El Matasano,
Director :	Soyapango, San Salvador, El Salvador Joaquín A. Guevara Morán
Project leader(s) :	Francisco Serrano
Address :	Servicio Forestal y de Fauna, Dirección General de Recursos Naturales Renovables, Ministerio de Agricultura y Ganadería, Cantón El Matasano, Soyapango, San Salvador, El Salvador
Co-operating institution(s) :	Department of Biology, University of El Salvador
Supporting or funding body :	Not yet defined (project is in final stages of design) .
Starting dates/duration of programme/project :	expected 1978/1983
Name of lagoon(s) :	Not yet selected
Geographic location	lat. :
Pacific coast of Central America	long. :
Code :	surface area :

El Salvador											
Title of programme : Compartment structure, function and importance in a neotropical mangrove ecosystem .											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
				X							
Description and objectives of the programme/project (summarized) :											

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Nature Conservation Office
Address : Ministry of Forestry and Agriculture,
 Hallituskatu 3 A,
 SF - 00170 HELSINKI 17
 Finland
Director :

Project leader(s) :

Address :

Co-operating institution(s) : University of Helsinki,
 Tvärminne Zoological Station;
 University of Turku,
 Archipelago Research Institute;
 University of Oulu,
 Bothnian Bay Research Station;

Supporting or funding body :

Starting dates/duration of programme/project : To end of 1976

Name of lagoon(s) : numerous

Geographic location lat. :
 along the Baltic Sea,
 coast of Finland long. :

Code :
 surface area :

Finland

Title of programme :

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
									X	

Description and objectives of the programme/project (summarized) :

Conservation project for scientific and other purposes .

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Faculté des Sciences Centre Universitaire Address : Laboratoire de Biologie Marine 66025 Perpignan , France Director : J. Bruslé	
Project leader(s) : J. Bruslé Address : same as above	
Co-operating institution(s) :	
Supporting or funding body : Ministry of the Universities	
Starting dates/duration of programme/project : 1976	
Name of lagoon(s) : Salses and Leucate ("étangs")	
Geographic location lat. : 42° 50' N long. : 3° 00' E	Code : surface area : 5 8 km ²

France											
Title of programme : Comparative study of fish populations in coastal lagoons of Salses, Leucate and Canet (Roussillon)											
I	II	III	IV	V X	VI X	VII	VIII	IX	X	G.S. X	
Description and objectives of the programme/project (summarized) : The project is based on a comparative study of teleosts living in lagoons of the Mediterranean. The project is a general survey including some aspects of population dynamics and reproductive physiology.											

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Laboratoire Central d'Hydraulique de France
Address : 10, rue Eugène Renault
 94700 Maisons-Alfort
 France
Director : Pierre Prudhomme

Project leader(s) : Claude Migniot

Address : Laboratoire Central d'Hydraulique de France
 10, rue Eugène Renault
 94700 Maisons-Alfort
 France

Co-operating institution(s) :
 University of Perpignan.

Supporting or funding body :
 private firm
 Maritime Service for Languedoc-Roussillon

Starting dates/duration of programme/project : September 1976/February 1977

Name of lagoon(s) :
 Bages - Sigean

Geographic location	lat. :	Code :
South of France - Mediterranean Sea	long. :	surface area :

France

Title of programme :

Study of sedimentation in the lagoon of Bages - Sigean

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
		X					X	X		

Description and objectives of the programme/project (summarized) :

This five month project consisted of the measurement, analysis and synthesis (including flow models) of various physical parameters (hydrodynamics, sediment transport and deposition, hydrogeology) of the Bages-Sigean lagoon.

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Ministry of Agriculture (CTGREF) Division Aménagements littoraux et aquaculture Address : 50 avenue de Verdun Gazinet 33610 Cestas , France Director : P. Ferlin	
Project leader(s) : O. Ledoux Address : CTGREF rue Jules Guesde - Celleneuve 34000 Montpellier	
Co-operating institution(s) : Office national des Forêts	
Supporting or funding body : Ministry of Agriculture	
Starting dates/duration of programme/project : 1975	
Name of lagoon(s) : Mediterranean lagoons : Thau notably	
Geographic location lat. : 43° N long. : 5° E	Code : surface area :

France											
Title of programme : Conservation and management in coastal lagoons of the Mediterranean coast											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
						X			X	X	X
existing research programme : no											
reports available : yes											
Description and objectives of the programme/project (summarized) : This program is based on a general survey on coastal lagoons of the french Mediterranean coast. The main fields investigated are biological productivity and hydrology in the form of a general survey.											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Université d'Aix Marseille II Address : Station Marine d'Endoume et Centre d'Océanographie rue Batterie des Lions 13007 Marseille, France Director : J.M. Peres		
Project leader(s) : J.M. Peres Address : as above		
Co-operating institution(s) :		
Supporting or funding body : Ministry of the Universities CNRS, CNEXO		
Starting dates/duration of programme/project : about 20 years ago		
Name of lagoon(s) : Berre (étang de Berre)		
Geographic location W Marseille	lat. : 43°27' N long. : 5°05' E	Code : maps : yes surface area :

France										
Title of programme : Hydrochemistry, primary productivity; benthos production in the Berre lagoon.										
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
			X	X					X	
literature and/or reports available : yes										
existing training programme : yes										
Description and objectives of the programme/project (summarized) : The following fields are investigated : dynamics of hydrochemistry and primary productivity; and dynamics of the benthic community in relation with a) the pollution level (domestic and industrial) and b) the more or less regular freshwater input (due to a hydroelectric plant).										

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Université de Bordeaux I Address : Institut de Biologie Marine 2 rue du Professeur Jolyet 33120 Arcachon, France Director : J. Boisseau	
Project leader(s) : P. Lasserre Address : same as above	
Co-operating institution(s) : Université des Sciences et Techniques du Languedoc (Laboratoire d'Hydrobiologie marine); Centre Océanologique de Bretagne (COB), Brest	
Supporting or funding body : Ministry of the Universities C.N.R.S. C.N.E.X.O. D.G.R.S.T.	
Starting dates/duration of programme/project : 1974	
Name of lagoon(s) : Arcachon Marennes-Oléron	
Geographic location S.W. Atlantic coast	lat. : 44°-46° N long. : 1°10' W Code : maps : yes surface area : 200 km ²

France										
Title of programme : Mechanisms of production and environmental adaptation in lagoon ecosystems.										
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X	X		X		X	
literature and/or reports available : yes										
existing training programme : yes										
Description and objectives of the programme/project (summarized) : The following fields are investigated : - metabolic processes in eutrophic ecosystems, notably at the water/sediment interface; the rôle played by bacteria and meiofauna are considered; - environmental adaptation and stress; This approach is directed towards a better understanding of extensive and semi-intensive aquaculture in lagoonal impoundments. Fishes and molluscs are harvested in 1000 ha of fish ponds replenished during peaks of spring tides through a system of sea sluice gates.										

SCOR/Unesco enquiry on existing lagoon research programmes

France

Institution : Université de Bordeaux I
Institut de Géologie d'Aquitaine (IGEA)
Address : 351 cour de la Libération
33405 Talence, France

Director : M. Vigneaux

Project leader(s) : M. Vigneaux

Address : same as above

Co-operating institution(s) :

Supporting or funding body :
Ministry of the Universities
C.N.R.S.

Starting dates/duration of programme/project : 1972

Name of lagoon(s) : Maremmes-Oléron
Bonne Anse
Arcachon

Geographic location	lat. : 44°-46° N	Code :
S.W. Atlantic coast	long. : 1°10'-1°50' W	maps : yes
		surface area : 200 Km ²

Title of programme :

Sedimentation processes in coastal lagoons of the S.W. Atlantic coast (Aquitaine, Charente-Poitoux)

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
	X	X	X							

literature and/or reports available : yes

existing training programme : yes

Description and objectives of the programme/project (summarized) :

The programme include 3 main fields : hydrological and sedimentological relationships between lagoons and the ocean, movements of sand bar from the ocean, sedimentation rates as a function of water inputs.

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Université de Paris VI Address : Laboratoire Arago 66650 Banyuls-sur-Mer, France Director : J. Soyer		
Project leader(s) : G. Cahet Address : same as above		
Co-operating institution(s) :		
Supporting or funding body : Ministry of the Universities CNRS		
Starting dates/duration of programme/project : 1974		
Name of lagoon(s) : Bages - Sigean and Canet		
Geographic location Mediterranean	lat. : 43°07' N long. : 3°00' E	Code : maps : yes surface area :

France											
Title of programme : Utilization of organic matter in lagoonal sediments											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
			X	X							
literature and/or reports available: yes											
existing training programme: yes											
Description and objectives of the programme/project (summarized) : The following field is investigated : biogeochemical functioning of lagoonal sediments in highly eutrophied systems, including heterotrophy potential due to microorganisms.											

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Université des Sciences et Techniques du Languedoc
Laboratoire d'Hydrobiologie Marine
Address : Place E. Bataillon
34060 Montpellier, France

Director : M. Amanieu

Project leader(s) : M. Amanieu

Address : same as above

Co-operating institution(s) :
Institut de Biologie Marine, Université de Bordeaux I, Arcachon

Supporting or funding body :
Ministry of Universities
CNR, DGRST, CNRS

Starting dates/duration of programme/project : 1974

Name of lagoon(s) : Thau, Maguelone, Palavas

Geographic location lat. : 43°20'-43°40'N
long. : 3°40'- 4°20'E
Code :
maps : yes
surface area :

France

Title of programme :

Population dynamics in the coastal lagoons of the Languedoc

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X	X	X	X			

literature and/or reports available : yes

existing training programme : yes

Description and objectives of the programme/project (summarized) :

Studies on population dynamics and ecology of fish and crustaceans.
Ecology of bacteria and benthic macrofauna.
Applied aspects are also considered.

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Biologische Anstalt Helgoland Address : Zentrale Hamburg-Altona Palmaille no. 9 2000 Hamburg 50 Federal Republic of Germany Director : O. Kinne		
Project leader(s) : H. Kessler Address : Biologische Anstalt Helgoland Litoralstation List Hafenstrasse 2282 List auf Sylt Federal Republic of Germany		
Co-operating institution(s) :		
Supporting or funding body : Federal Ministry of Research and Technology		
Starting dates/duration of programme/project : indefinite		
Name of lagoon(s) : North Sylt Lagoon		
Geographic location lat. : 54°58' long. : 8°27'	Code : map : yes surface area :	

Germany, Federal Republic of											
Title of programme : Ecological Research on the North Sylt Lagoon											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
				X						X	
existing training programme: no											
Description and objectives of the programme/project (summarized) : The aim of the investigations is to study the present composition of the benthic and planktonic fauna and flora of the lagoon, and to observe the seasonal fluctuations and long term variations of the species. The results will be correlated with hydrographic and meteorological data.											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Universität Kiel Address : Geologisch-Paläontologisches Institut und Museum Oshausenstrasse 40/60 2300 Kiel, Federal Republic of Germany Director : E. Seibold	
Project leader(s) : Address :	
Co-operating institution(s) :	
Supporting or funding body : DE-2 : Deutsche Forschungsgemeinschaft	
Starting dates/duration of programme/project :	
Name of lagoon(s) : lagoons in the Baltic	
Geographic location lat. : long. :	Code : surface area :

Germany, Federal Republic of											
Title of programme : Special Research Project 95											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
	X	X	X	X	X		X				X
Description and objectives of the programme/project (summarized) : Multidisciplinary programme on the sea/seafloor interaction with special emphasis on the Western Baltic.											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : University of Oldenburg Address : Postfach 943 D - 2900 Federal Republic of Germany Director : W.E. Krumbein	
Project leader(s) : W.E. Krumbein M. Shilo Address : University of Oldenburg Postfach 943 D - 2900 Federal Republic of Germany	
Co-operating institution(s) : Hebrew University of Israel (Departments of Life Science, and Microbiology and Marine Biological Laboratory, Elat); Senckenberg am Meer Wilhelmshaven.	
Supporting or funding body : Niedersachsen Landesregierung Deutsche Forschungsgemeinschaft Bundesministerium für Forschung und Technologie	
Starting dates/duration of programme/project : 1970/1979	
Name of lagoon(s) : Lagoonal environments and sea-marginal pools of the Gulf of Aqaba (the Solar Lake) and the Wadden Sea	
Geographic location lat. : long. :	Code : surface area :

Germany, Federal Republic of										
Title of programme : Geomicrobiology and biogeochemistry of intertidal and lagoonal environments										
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
		X	X	X						
literature and/or reports available: yes										
existing training programme: yes										
Description and objectives of the programme/project (summarized) : The project is mainly concerned with the mutual exchange between marine and hypersaline or brackish waters with respect to the development of the biota typical of extreme and fluctuating environments. Various subprojects are designed to study: pollution and successions of populations of bacteria and cyanobacteria under certain geochemical and sedimentological conditions; mass cultivation of anoxygenic cyanobacteria as protein sources, or food for animals, or as simple biological energy sources; the possibility that cyanobacteria and algal mats are indicators of pollution, or if their activity and species distribution and diversity is indicative of environmental pollution.										

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Universidad de San Carlos de Guatemala Address : Ciudad Universitaria, Zona 12, Guatemala Director : Roberto Morales Juárez	
Project leader(s) : Address :	
Co-operating institution(s) :	
Supporting or funding body :	
Starting dates/duration of programme/project :	
Name of lagoon(s) :	
Geographic location lat. : 14° 20' N long. : 90° 30' W	Code : surface area : 30 km ²

Guatemala											
Title of programme :											
I	II	III	IV	V X	VI	VII	VIII	IX	X	G.S. X	
literature and/or reports available : in preparation											
existing training programme : yes											
Description and objectives of the programme/project (summarized) : Work has been done on primary productivity and mangrove ecosystems .											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Direccion General de Recursos Naturales Renovables Address : Edificio Jimenez Talavera 8a. Ave., 11 y 12 calles Comayagüela, D.C., Honduras Director : Humberto Caballero		
Project leader(s) : Gustavo A. Cruz Address : same as above		
Co-operating institution(s) : Corporacion Hondurena de Desarrollo Forestal (COHDEFOR)		
Supporting or funding body : Governmental		
Starting dates/duration of programme/project : 1977		
Name of lagoon(s) : Guaymoreto lagoon		
Geographic location lat. :16°00' N long. :85°50' W	Code : surface area :	

Honduras											
Title of programme : Determination of the chemical, physical and biological parameters in the Guaymoreto lagoon system.											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
				X		X			X	X	
Description and objectives of the programme/project (summarized) : The project objective is to make a general survey of the lagoon environment to determine the effects of pollution in Trujillo Bay.											

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Centre of Advanced Studies in Marine Biology
 Address : Annamalai University,
 Parangipettai, Tamil Nadu 608502,
 India
 Director : K. Krishnamurthy

Project leader(s) : R. Natarajan

Address : Annamalai University,
 Centre of Advanced Study in Marine Biology,
 Parangipettai,
 Tamil Nadu 608502, India

Co-operating institution(s) :

Supporting or funding body : Mainly the University Grants Commission,
 New Delhi; Tamil Nadu State Government;
 Madras and Annamalai University .

Starting dates/duration of programme/project : Ongoing

Name of lagoon(s) : Parangipettai Killain, Pichavaram region

Geographic location lat. : 11° 29' N
 Tamil Nadu, Coromandel Coast,
 Bay of Bengal seaboard long. : 79° 48' E

Code :
 surface area : 5 km²

India

Title of programme : Tropical Ecosystems : Tidal Pools, Mangroves,
 Mangrove Lagoons, Backwater Lagoons .

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
X				X	X	X	X	X	X	X

Literature and/or reports available : yes

Existing training programme : yes

Description and objectives of the programme/project (summarized) :

A comparative assessment of the marine biology of the plankton, shell fish and fishery resources in four biotypes (neritic, estuary, backwater and mangrove) is in process . A project on prawn aquaculture is also designed .

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : National Institute of Oceanography Address : NIO. P.O 403 004 Dona Paula, Panaji, Goa, India Director : S.Z. Qasim		
Project leader(s) : S.Z. Qasim Address : National Institute of Oceanography, NIO PO 403 004 Dona Paula, Panaji, Goa, India		
Co-operating institution(s) :		
Supporting or funding body : Council of Scientific and Industrial Research, Department of Science and Technology, Government of India		
Starting dates/duration of programme/project : 1) 1966/continuing 2) 1970/continuing		
Name of lagoon(s) : 1) Cochin Backwater and Vembanad Lake 2) Mandouli, Cumbarjua Canal and Zuary Estuarine System of Goa (a monsoonal lagoon) .		
Geographic location lat. : 1) 9°45'N 2) 15°25'N long. : 1) 76°20'E 2) 74°50'E	Code : Maps : yes surface area :	

India										
Title of programme : 1) Studies on Primary, Secondary and Tertiary Levels of the Food Chains . 2) Marine Environmental Monitoring .										
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
			X	X	X			X	X	X
Description and objectives of the programme/project (summarized) : The project aims at studying the physical, chemical, geological and biological characteristics for developing an understanding of the environmental changes which will help in the assessment of resources and also in developing measures for the protection of the environment . Subprojects emphasis the biochemical and physical changes and their effects on the living resources and on aquaculture .										

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution :	Department of Aquatic Biology and Fisheries
Address :	University of Kerala, Aquarium Campus, Trivandrum - 695007, South India, India
Director :	Balakrishnan Nair
Project leader(s) :	Balakrishnan Nair
Address :	University of Kerala, Department of Aquatic Biology and Fisheries, Aquarium Campus, Trivandrum - 695007, South India, India
Co-operating institution(s) :	
Supporting or funding body :	University of Kerala, University Grants Commission, New Delhi; Council of Science on Industrial Research, New Delhi; International Foundation for Science, Stockholm .
Starting dates/duration of programme/project :	1972/ongoing
Name of lagoon(s) :	Veli Lake, Kadinankulam Lake, Anjuthengu Lake, Edava-Nadayara Lake, Paravoor Lake, Ashtamudi Lake, Vembanad Lake, Kayamkulam Lake, Kodungalloor Kayal .
Geographic location	lat. : 8° 13' N long. : 75° 77' E Code : Maps : yes surface area : 500 km²

India										
Title of programme :		1) Biology and Culture of Cyprinid Fishes of Kerala; 2) Ecology and biology of mysids of Veli Lake, Trivandrum; 3) Ecology of the retting grounds in the back water systems of Kerala .								
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X	X	X				X
Literature and/or reports available : yes										
existing training programme : yes										
Description and objectives of the programme/project (summarized) :										
In addition to ecological studies that have been made on specific estuarine littoral animals (e.g. Cyprinid Fishes, mysids), a more comprehensive investigation is proposed on the dynamics, composition and energy flow in certain estuarine and littoral ecosystems . It is hoped that the work will be able to be practically applied towards aquaculture .										

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Geology-Paleontology

Address : Institut and Museum of the University of Kiel,
Olshausenstrasse 40/60,
D - 2300 Kiel,
Federal Republic of Germany

Director : Ilse Seibold

Project leader(s) :

Address :

Co-operating institution(s) :

Supporting or funding body :

Starting dates/duration of programme/project :

Name of lagoon(s) : Lagoon of Cochin

Geographic location

lat. : 10° 10' N

long. : 76° 15' E

Code :

surface area : 240 km²

India

Title of programme :

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
		X		X						

Literature and/or reports available : yes

Description and objectives of the programme/project (summarized) :

Work has involved comparison of foraminifera between the Lagoon of Cochin and the open shelf, and transport of material into and out the Lagoon of Cochin .

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : University of Madras
Department of Zoology
Address : Madras - 5, India

Director : K. Ramalingam

Project leader(s) : Jeyapaul Azariah

Address : University of Madras
Department of Zoology
Madras - 600005, India

Co-operating institution(s) :

Supporting or funding body :

Starting dates/duration of programme/project :

Name of lagoon(s) :

- (i) Glaxea lagoon of Krusadi
- (ii) Sundarmadian lagoon (near Mandapam Camp)
- (iii) Kavarthi lagoc..

Geographic location
lat. (i) 9°N
(ii) 9°N
(iii) 11°N
long. (i) 79°E
(ii) 79°E
(iii) 72°E

Code :

surface area :

India

Title of programme :

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X	X					X

Description and objectives of the programme/project (summarized) :

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : National Institute of Oceanology, Indonesian Institute of Sciences Address : J/n Akvarium, Sunda Kelapa, P.O. Box 580/DAK, Jakarta Barat, Indonesia Director : Aprilani Soegiartu	
Project leader(s) : Atjep Suwartana Address : Stasiun Penelitian Ambon, Poka, Ambon, P.O. Box 44, Indonesia	
Co-operating institution(s) :	
Supporting or funding body : Government of Indonesia	
Starting dates/duration of programme/project : April 1974/1979	
Name of lagoon(s) : Ambon Bay	
Geographic location	lat. : long. :
Code : surface area :	

Indonesia										
Title of programme : Maluku Shallow Water Research										
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
	X		X	X	X					X
Description and objectives of the programme/project (summarized) : The study is aimed at providing hydrological and biological data of the bay to support the study of the biology of the life-bait fish, mainly <u>Stolerhorus</u> . The study includes chemical and physical oceanography, biological oceanography (planktonology) and fish taxonomy .										

SCOR/Unesco enquiry on existing lagoon research programmes			
Institution : Department of Fisheries Abbotstown, Castleknock Address : County Dublin, Ireland Director : F.A. Gibson			
Project leader(s) : Dan Minchin Address : Department of Fisheries Abbotstown, Castleknock County Dublin, Ireland			
Co-operating institution(s) :			
Supporting or funding body : Department of Agriculture and Fisheries, Fisheries Division			
Starting dates/duration of programme/project : 1975/ on going			
Name of lagoon(s) : Lough Ine			
Geographic location west Cork (S.W. coast of Ireland)	lat. : long. :	Code : map : yes surface area :	

Ireland											
Title of programme : Development of techniques to maximize the collection of <u>Pecten maximus</u> L. spat for subsequent culture and reseedling											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
					X	X	X		X		
literature and/or reports available: yes											
Description and objectives of the programme/project (summarized) : The nature of the research is to study and attempt to establish a technique for the development of farming the scallop (<u>Pecten maximus</u>).											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : University College Dublin Address : Zoology Department Belfield Dublin 4, Ireland Director :	
Project leader(s) : Brenda Healy Address : University College Dublin Zoology Department Belfield Dublin 4, Ireland	
Co-operating institution(s) : University College Dublin; Electricity Supply Board.	
Supporting or funding body : Department of Fisheries.	
Starting dates/duration of programme/project : 1976/1980	
Name of lagoon(s) : Ladys Island Lake	
Geographic location lat. : long. :	Code : surface area :

Ireland											
Title of programme : Productivity studies on Ladys Island Lake											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
			X	X		X			X	X	
Description and objectives of the programme/project (summarized) : The project aims to investigate aspects of primary and secondary productivity and to show the effects of seasonal fluctuations in temperature, nutrient levels and productivity. Seasonal and spatial variations in densities, reproductive cycles and growth patterns are being examined in the dominant species. The trophic relationships of the animal community are being considered. Quantitative sampling of benthos and macrophytes and semi-quantitative sampling of pelagic species is being carried out.											

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Trinity College
Zoology Department
Address : University of Dublin
Dublin 2, Ireland

Director :

Project leader(s) : Miles Parker

Address : Department of Agriculture and Fisheries
Fisheries Division
Abbotstown, Castleknock
County Dublin, Ireland

Co-operating institution(s) :

Supporting or funding body :

Salmon Research Trust of Ireland;
Zoology Department, Trinity College.

Starting dates/duration of programme/project : 1973/1975

Name of lagoon(s) :

Lough Furnace

Geographic location

lat. : 53°55' N

long. : 9° 35' W

Code :

map : yes

surface area : 1.5 km²

Ireland

Title of programme :

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
			X	X					X	

literature and/or reports available: yes

existing training programme: no

Description and objectives of the programme/project (summarized) :

The programme consisted of three phases: 1) the hydrography of the system was examined through repeated sampling of salinity, temperature and oxygen. Information on tides and their effects was gathered; 2) sampling of particulate organic matter was carried out at the same time with an attempt made to estimate the relative distribution of organic material in particulate, colloidal and dissolved form; and 3) a population of Neomysis integer was analyzed and information gathered on its biomass and on behaviour and feeding behaviour:

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : University College Galway Shellfish Research Laboratory Address : Carna, County Galway Ireland Director : P.J. O'Ceidigh		
Project leader(s) : J.K. Partridge Address : University College Galway Shellfish Research Laboratory Carna, County Galway Ireland		
Co-operating institution(s) :		
Supporting or funding body : National Science Council, Department of Education		
Starting dates/duration of programme/project : 1974/1976		
Name of lagoon(s) : Lough Ruisin and North Quay		
Geographic location Galway Bay	lat. : long. :	Code : surface area : 0.6 km ²

Ireland										
Title of programme : Ecology and reproduction of <u>Tapes decussatus</u> populations occurring in the outflow of seawater										
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X						X
literature and/or reports available: yes										
Description and objectives of the programme/project (summarized) : The project focused more on the outflow area than on the lagoon itself, where there were dense populations of <u>Tapes decussatus</u> . The physical environment has been investigated, including current, salinity, temperature, and chlorophyll monitoring. The reproductive cycle of <u>T. decussatus</u> was determined over a one year period, and conclusions drawn relating the cycle to environmental factors.										

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : University College Galway Address : Shellfish Research Laboratory Carna, County Galway Ireland Director : P. O'Ceidigh	
Project leader(s) : John Mercer Address : University College Galway Shellfish Research Laboratory Carna, County Galway Ireland	
Co-operating institution(s) : University College of Galway - Departments of Botany, Zoology, Microbiology, and Oceanography.	
Supporting or funding body : National Science Council of Ireland; Gael Lin (private industry).	
Starting dates/duration of programme/project : 1974/ on going	
Name of lagoon(s) : Kilkieran and Bertraghbay Bays	
Geographic location west coast of Ireland	lat. : 53° 19' N long. : 9° 51' W Code : surface area : 0.03 km ²

Ireland										
Title of programme : Experimental oyster development project										
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
					X					X
Description and objectives of the programme/project (summarized) : The first phase of the project was to assess the present state of oyster stocks in the two bays (where a locally important oyster culture was located about 1900) and suitability of the bay for oyster culture, including studies on: oyster stocks, density and distribution; growth of oysters in the area; annual cycle of phytopigment levels and temperature of water; annual cycle of nutrient levels and temperature of water; hydrography; concentration and distribution of oyster larvae during summer months. Having established that the area shows some potential for oyster culture, particularly for seed production, a programme was established to define areas of good settlement, and to design a suitable spat collecting technique for the area.										

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Hebrew University of Jerusalem
Department of Zoology
Address : Jerusalem, Israel

Director : F.D. Por

Project leader(s) : F.D. Por

Address : Hebrew University of Jerusalem
Department of Zoology
Jerusalem, Israel

Co-operating institution(s) :

Supporting or funding body :

Starting dates/duration of programme/project :

Name of lagoon(s) :

Solar Lake, Di Zahav, Nobq Mangroves

Geographic location lat. :
Senai long. :

Code :
surface area :

Israel

Title of programme :

- (i) Near shore seepage pools of Sinai
- (ii) Mangroves of Sinai
- (iii) Foodchains in oligohaline aquaculture

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X	X					X

Description and objectives of the programme/project (summarized) :

This general investigation includes studies on the major environmental parameters, the main community patterns, and the food webs of the lagoons.

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Hebrew University of Israel Address : Department of Zoology Jerusalem, Israel Director :	
Project leader(s) : Adam Ben-Tuvia Address : Hebrew University of Israel Department of Zoology Jerusalem, Israel	
Co-operating institution(s) : Israel Oceanographic and Limnological Research Company.	
Supporting or funding body : Ministry of Agriculture and Civil Rule Authority.	
Starting dates/duration of programme/project : 1970/1977	
Name of lagoon(s) : Bardawil Lagoon	
Geographic location Mediterranean coast of Sinai	lat. : 31° 10' N long. : 33° 10' E Code : surface area : 650 km ²

Israel											
Title of programme : Fisheries biology of the Bardawil Lagoon											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
					X		X			X	X
Description and objectives of the programme/project (summarized) : Studies were conducted on the hydrographic conditions of the lagoon and on the biology (growth, reproduction and feeding habits) of the main commercial species found in the lagoon (<u>Sparus aurata</u> , Mugilidae spp. and <u>Dicentrarchus labrax</u>).											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Tel-Aviv University Address : Tel-Aviv, Israel Director :	
Project leader(s) : L. Fishelson Address : Tel-Aviv University Department of Zoology, Marine Biology Tel-Aviv, Israel	
Co-operating institution(s) :	
Supporting or funding body : Tel-Aviv University.	
Starting dates/duration of programme/project : 1970/ongoing	
Name of lagoon(s) : Mediterranean and Red Sea littoral lagoons	
Geographic location	lat. : long. :
Code : surface area :	

Israel											
Title of programme : Epiphytic animal communities on macroalgae found along the Mediterranean and Red Sea littoral of Israel.											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
				X		X			X		
existing training programme: yes											
Description and objectives of the programme/project (summarized) : Along the lagoonal waters of the littoral of Israel (Mediterranean and Red Sea) macrophytic algae of the genus <u>Cystoseira</u> , <u>Sargassum</u> , <u>Pterocladia</u> , <u>Jania</u> and others form seasonal growths that usually grow during winter and disappear in summer. Each of these algae was found to be populated by a typical invertebrate community. The aim of this programme is to investigate the annual developments of such communities and to compare them found in polluted and non-polluted areas.											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Ente Siciliano per la Promozione Industriale (ESPI) Sezione per la pesca Address : Corso Garibaldi, 136 98100 Messina, Sicily, Italy Director : P. Arena		
Project leader(s) : P. Arena Address : same as above		
Co-operating institution(s) : Istituto di Zoologia, Università di Messina Istituto di Idrobiologia, " Istituto Sperimentale Talassografico di Messina		
Supporting or funding body : Ente Siciliano per la Promozione Industriale (ESPI) Cassa per il Mezzogiorno di Roma		
Starting dates/duration of programme/project : 1975		
Name of lagoon(s) : Marsala lagoon		
Geographic location western corner of Sicily	lat. : 37°52' N long. : 12°27' E	Code : surface area : 30 km ²

Italy										
Title of programme : Hydrobiological research in the Marsala lagoon										
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X	X	X				X
literature and/or reports available : yes										
existing training programme: no										
Description and objectives of the programme/project (summarized) : The project is centred mostly on hydrobiological conditions in the "stagnone" of Marsala. It includes a general survey with consideration on the possibilities of improving pond culture in the lagoon.										

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Istituto di Biologia del Mare, CNR, Address : Riva 7 Martiri 1364/A, Venice, Italy Director : Bruno Battaglia		
Project leader(s) : Bruno Battaglia Address : Istituto di Biologia del Mare, CNR, Riva 7 Martiri 1364/A Venice, Italy		
Co-operating institution(s) : EEC-FAO; UNEP; Istituto di Biologia Animale, University of Padua.		
Supporting or funding body : National Research Council of Italy		
Starting dates/duration of programme/project : 1962/ongoing		
Name of lagoon(s) : Lagoon of Venice		
Geographic location lat. : 45°26'N long. : 12°33'E	Code : surface area : 550 km ²	

Italy										
Title of programme : Sedimentology, ecology and pollution in the lagoon of Venice										
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
	X	X	X	X						X
literature and/or reports available : yes										
existing training programme : no										
Description and objectives of the programme/project (summarized) : The programme includes nine subprojects studying different aspects of lagoons: hydrological, planktological and microbiological research; chemical pollution and carcinogenic danger; distribution of superficial sediments; genetics, ecology and embryology of Ascidiacea; biochemical genetics of <i>Tisbe</i> spp., <i>Gammarus</i> spp., <i>Mytilus</i> spp., <i>Anguilla anguilla</i> ; ecological genetics and speciation in the genus <i>Tisbe</i> ; short and long-term effects of some pollutants in Harpacticoid copepods of the genus <i>Tisbe</i> ; interaction of environmental and endocrine factors on the reproductive cycle of Teleost fish; and research on the fouling communities as an indicator of environmental quality .										

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Istituto di Idrobiologia e Piscicoltura Università di Messina Address : via dei Verdi 75 Messina , Sicily Director : S. Genovese		
Project leader(s) : F. Faranda Address : same as above		
Co-operating institution(s) : Laboratorio per lo Sfruttamento delle lagune CNR di Lefina Ente Siciliano Promozione Industriale, Sezione ricerca pesca e prodotti del mare, Messina		
Supporting or funding body : Ministero Pubblica Istruzione Consiglio Nazionale delle Ricerche		
Starting dates/duration of programme/project : 1976		
Name of lagoon(s) : Anselmo, Nubia ("salina")		
Geographic location western Sicily	lat. : long. :	Code : surface area :

Italy										
Title of programme : A pilot project on the commercial marketing of <u>Penaeus kerathurus</u> .										
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X	X					X
literature and/or reports available : yes										
existing training programme : no										
Description and objectives of the programme/project (summarized) : The project is a pilot project on culturing penaeid shrimps in lagoonal salt ponds.										

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Istituto Sperimentale Talassografico di Trieste Address : Viale Romolo Gessi n°2 I - 34123 Trieste , Italy Director : David Bregant		
Project leader(s) : David Bregant Address : Istituto Sperimentale Talassografico di Trieste Viale Romolo Gessi n°2 I - 34123 Trieste, Italy		
Co-operating institution(s) :		
Supporting or funding body : Ministero dell'Agricoltura e delle Foreste		
Starting dates/duration of programme/project : 1976/1977		
Name of lagoon(s) : Laguna di Grado		
Geographic location North Italy	lat. : 45°40'33" N 45°45'39" N long. : 13°05'08" E 13°25'08" E	Code : surface area : 160 km ²

Italy											
Title of programme : Hydrology of the northern side of the Lagoon of Grado											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
			X								
Literature and/or reports available: yes											
existing training programme: no											
Description and objectives of the programme/project (summarized) : This programme involved studies on the variations of temperature, salinity, oxygen, pH, nutrients and other parameters in relation to the high tide and the low tide at the northern mouth of the Lagoon of Grado.											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : 1) Museo Civico Storia Naturale - Laboratorio di Ecologia Santa Croce 1730 Venezia, Italy Address : Director - A. Giordani Soika 2) Istituto Bioclimatologico Ospedale al Mare Lido di Venezia, Italy Director : Director - A. Giordani Soika 3) Assessorato all'Ecologia Comune di Venezia, Italy Project leader(s) : Director - A. Cianciolo Address : as above		
Co-operating institution(s) : various Institutes of the Universities of Padua and Pavia.		
Supporting or funding body : Municipality of Venice.		
Starting dates/duration of programme/project : several years		
Name of lagoon(s) : Lagoon of Venice		
Geographic location Adriatic Sea	lat. : long. :	Code : surface area :

Italy											
Title of programme : various research projects in the Lagoon of Venice											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
X	X			X							
Description and objectives of the programme/project (summarized) :											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Università di Ferrara Address : Istituto di Zoologia Via L. Borsari, 46 Ferrara Director : G. Colombo	
Project leader(s) : G. Colombo Address : same as above	
Co-operating institution(s) :	
Supporting or funding body :	
Starting dates/duration of programme/project : 1976	
Name of lagoon(s) : Comacchio	
Geographic location lat. : 44°37' N long. : 12° 9' E	Code : surface area : 110 Km ²

Italy											
Title of programme : Population dynamics on fish and community structure											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
				X	X	X				X	
literature and/or reports available : yes											
Description and objectives of the programme/project (summarized) : This project started recently. A general survey has been done . Population dynamics on fish include eels and mullets. The program deals also with rearing of eel.											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Università di Messina Address : Istituto di Zoologia Stazione di Biologia marina Via dei Verdi 75 Messina, Italy Director : Arturo Bolognari	
Project leader(s) : Guiseppe Magazzù Address : same as above	
Co-operating institution(s) :	
Supporting or funding body : Consiglio Nazionale delle Ricerche	
Starting dates/duration of programme/project : 1975	
Name of lagoon(s) : Marsala	
Geographic location lat. : 37°52' N long. : 12°27' E	Code : maps : yes surface area : 20 km ²

Italy										
Title of programme : Utilization of the lagoons of Marsala for agriculture										
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X	X					X
literature and/or reports available : yes										
existing training programme : no										
Description and objectives of the programme/project (summarized) : This project is a general survey started in 1975 to give data on hydrological parameters, nutrients, primary production, plankton, benthos and level of pollution. The possibility to develop experimental aquaculture is envisaged.										

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Università di Modena
Istituto di Zoologia
Address : Centro Interuniversitario di Biologia marina
Via Università 4
46100 Modena, Italy
Director : G. Cognetti

Project leader(s) : G. Cognetti
P. Tongiorgi
Address : same address as above

Co-operating institution(s) :

Centro Interuniversitario di Biologia marina
Piazzale Mascagni 1, 51100 Livorno

Supporting or funding body :

Università di Modena
Amministrazione della città di Livorno
Consiglio Nazionale Italiano delle Ricerche

Starting dates/duration of programme/project : 1976

Name of lagoon(s) : Orbetello
Burano
Comacchio

Geographic location lat. : 42°24-27' N
Tuscany Province of 44°55' N
Grosseto long. : 11°14-55' E
12°25' E

Code :
surface area : 15 0 km²

Italy

Title of programme :

Study of the ecological characteristics, environment protection
and fisheries of the lagoons of Orbetello, Burano and Comacchio.

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X	X				X	X

literature and/or reports available: yes

existing training programme : no

Description and objectives of the programme/project (summarized) :

This project is a general survey on the principal ecological
features in different coastal lagoons of Tuscany, in the province of
Grosseto. Environmental protection and fishery development are considered
in the lagoons of Orbetello and Burano.

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Institut de Géologie du Bassin d'Aquitaine (IGBA) Université de Bordeaux I Address : 351 cours de la Libération 33405 Talence , France Director : M. Vigneaux		
Project leader(s) : J.P. Tastet Address : same address as above		
Co-operating institution(s) : Département des Sciences de la Terre, Université d'Abidjan		
Supporting or funding body : C.N.R.S. (France)		
Starting dates/duration of programme/project : 1976		
Name of lagoon(s) : Ebrié lagoon		
Geographic location Ivory Coast	lat. : 4° N long. : 5° W	Code : maps : yes surface area : 5000 km ²

Ivory Coast											
Title of programme : Ebrié lagoon project											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
		X	X	X							X
literature and/or reports available : yes											
Description and objectives of the programme/project (summarized) : Hydrology and sedimentology of the lagoon											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : O.R.S.T.O.M. Address : Centre de Recherches Océanographiques B.P. 18 Abidjan, Côte d'Ivoire Director : P. Le Loeuff		
Project leader(s) : L. Lemasson Address : same as above		
Co-operating institution(s) :		
Supporting or funding body : O.R.S.T.O.M., Paris		
Starting dates/duration of programme/project : 1974		
Name of lagoon(s) : Ebrié lagoon		
Geographic location Ivory Coast	lat. : 4° N long. : 5° W	Code : maps : yes surface area : 5000 km ²

Ivory Coast											
Title of programme : Ebrié lagoon Project											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
	X	X	X	X	X	X	X		X	X	
literature and/or reports available : yes											
existing training programme : no											
Description and objectives of the programme/project (summarized) : The project in cooperation with the Ivory government has three main themes : a) a study of the water/sediment interface and lagoon/land interface, b) an inventory of pollutants, b) a study of the fishing resources.											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Natural Resources Conservation Department Address : 11 Masgrave Avenue, Kingston 10, Jamaica Director : Richard Thewell	
Project leader(s) : Peter Reeson Address : Wetlands Branch, Natural Resources Conservation Department, 4 Masgrave Avenue, Kingston 10, Jamaica	
Co-operating institution(s) : University of the West Indies (Mona)	
Supporting or funding body : Government of Jamaica	
Starting dates/duration of programme/project : 1967 - 1969	
Name of lagoon(s) : Great Salt Pond	
Geographic location St. Catherine, Jamaica	lat. : long. : Code : surface area :

Jamaica											
Title of programme : An ecological Study of a Jamaican Coastal Lagoon											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
					X	.					
Description and objectives of the programme/project (summarized) : This ecological study was carried out with special consideration to the benthic, zooplanktonic and fish communities .											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : University of West Indies Address : Mona Kingston 70, Jamaica Director : Ivan Goodbody	
Project leader(s) : Barry Wadie Address : same as above	
Co-operating institution(s) :	
Supporting or funding body : University of the West Indies	
Starting dates/duration of programme/project : 1976/1978	
Name of lagoon(s) : Fort Rocky Lagoon	
Geographic location lat. : 17° 57' N long. : 76° 48' W	Code : surface area :

Jamaica										
Title of programme : Ecological Study of Fort Rocky Lagoon and Port Royal Mangrove Lagoons										
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X	X					X
Description and objectives of the programme/project (summarized) : This two-year programme has two aspects : 1) a basic ecological study of lagoons (circulation, water quality, benthic and fish communities, fouling communities); and 2) investigations of the settlement and growth of oysters (<i>Crassostrea rhizophorae</i>) on various settlement surface in lagoons . This last includes a feasibility study for commercial oyster development .										

SCOR/Unesco enquiry on existing lagoon research programmes			
Institution : Water Research Institute Address : Nagoya University, Furo-cho, Chikusa-ku, Nagoya, Japan 464 Director : Kenji Tsono			
Project leader(s) : Yasuchi Kitano Address : Water Research Institute, Nagoya University, Furo-cho, Chikusa-ku, Nagoya, Japan 464			
Co-operating institution(s) The Institute of Hygiene of Nagoya City			
Supporting or funding body : Ministry of Education in Japan			
Starting dates/duration of programme/project : 1974/ongoing			
Name of lagoon(s) : 1) Ise and 2) Mikawa Bay			
Geographic location lat. :		Code :	
Central part of Japan long. :		surface area : 1) 1738 Km ² 2) 604 Km ²	

Japan											
Title of programme : River inputs to ocean system in Ise and Mikawa Bays											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X							
Description and objectives of the programme/project (summarized) : Programme includes : 1) evaluation of the present state of knowledge in Ise and Mikawa Bay; 2) determination of chemical species found in the sea water, river water, various organisms and sediment and suspended matter; 3) analysis of possible inputs and outflows of chemical species (e.g. influx from river water in suspended and dissolved states and loss of CO ₂ and H ₂ S to the atmosphere); 4) investigation of interaction of chemical species with suspended matter, sediment, organisms and atmosphere; 5) determination of dissolved states of chemical species for organisms; and 6) determination of partitioning of trace elements among various components of sediment .											

SCOR/Unesco enquiry on existing lagoon research programmes			
Institution : University College of Swansea Address : Department of Oceanography, Singleton Park, Swansea SA2 8PP, UK Director : F.T. Banner			
Project leader(s) : F.T. Banner Address : University College of Swansea, Department of Oceanography, Singleton Park, Swansea SA2 8PP, UK			
Co-operating institution(s) :			
Supporting or funding body : Natural Environment Research Council			
Starting dates/duration of programme/project : 1974/1977			
Name of lagoon(s) : Unnamed			
Geographic location Sublittoral between Mombassa and Mtwapa, Kenya		lat. : long. :	Code : surface area :

Kenya											
Title of programme : Carbonate Sediment Production, Transport and Composition											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
			X	X	X						
Description and objectives of the programme/project (summarized) : The three-year programme studied the hydrodynamics of the channels and the lagoons (tidal, hydraulic and wave components) in the transport and dispersion of biogenic carbonate debris . Specific enquiry was made into : the sources of carbonate sand, silt and mud from disaggregated foraminiferal, coral and calcareous algal skeletons; the hydrodynamic winnowing, sorting, transport and deposition of the debris; the role of seagrasses as sediment traps; the characteristics of lagoonal and littoral sediments; the growth and maintenance of beaches; the contribution of terrestrial sediments; the lithification of carbonate deposits and the use of benthic foraminifera as indicators of sediment source area and transport paths .											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution :	School of Biological Studies
Address :	Universiti Sains Malaysia Penang, Malaysia
Director :	C.P. Ramachandran
Project leader(s) :	Ong Jin Eong
Address :	School of Biological Sciences Universiti Sains Malaysia Penang, Malaysia.
Co-operating institution(s) :	
Supporting or funding body :	Universiti Sains Malaysia
Starting dates/duration of programme/project :	1974/1979
Name of lagoon(s) :	Pantai Krachut
Geographic location	lat. : 5° 28' N long. : 100° 07' E
Code :	surface area : 2000 m ²

Malaysia											
Title of programme : Physico-Chemical and Biological Limnology and a tropical meromictic lagoon											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
X	X			X					X		
Literature and/or reports available: in preparation											
Existing training programme: no											
Description and objectives of the programme/project (summarized) : The first part of the project was to investigate and describe the physico-chemical limnology of the lagoon. The second part is expected to study the physiological mechanism of adaptation by a species of gastropod and the plankton to the high temperature and variation of salinity in the lagoon.											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Centro de Investigaciones Cientificas y de Educación Superior de Ensenada, Address : Avenida Espinosa No. 843, Ensenada, Baja California, Mexico Director : Sadi Alvarez Borrego		
Project leader(s) : Sadi Alvarez Borrego Address : Centro de Investigaciones científicas y de Educación Superior de Ensenada, Avenida Espinosa No. 843, Ensenada, Baja California, Mexico		
Co-operating institution(s) : Unidad de Ciencias Marinas de la Universidad Autónoma de Baja California; Unidad Xochimilco de la Universidad Autónoma Metropolitana .		
Supporting or funding body : Federal Government of Mexico, Centro de Investigaciones Científica y de Educación Superior de Ensenada, Baja California		
Starting dates/duration of programme/project : Oct. 1972/continuing		
Name of lagoon(s) : Punta Banda Estuary, San Quintin Bay, Magdalena Bay, "El Coyote" Estuary, San Ignacio Lagoon		
Geographic location Western coast of the Baja California Peninsula	lat. :24°50'-30°28'N long. :116° - 112°50'W	Code : surface area :

Mexico											
Title of programme : Mariculture in protected and semiprotected waters of Baja California											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
			X	X	X					X	
Description and objectives of the programme/project (summarized) : This programme is a general survey; the main objectives being molluscs mariculture in semi-enclosed ecosystems of Baja California .											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution :	Centro de Investigaciones Cientificas y Tecnologicas de la Universidad de Sonora,
Address :	Rosales y Boulevard Transversal, Hermosillo, Sonora, Mexico
Director :	Xicotencatl Murrieta
Project leader(s) :	Luis Rafael Martinez
Address :	Centro de Investigaciones Cientificas y Tecnologicas de la Universidad de Sonora, Rosales y Boulevard Transversal, Hermosillo, Sonora, Mexico
Co-operating institution(s) :	
Supporting or funding body :	Secretaria de Recursos Hidraulicos
Starting dates/duration of programme/project :	1976/1978
Name of lagoon(s) :	Estero de Santa Rosa
Geographic location Sonora State	lat. : 28°58' N long. : 112°09'-112°10' W
	Code : surface area :

Mexico											
Title of programme : Restocking with postlarvae of penaid shrimp in Santa Rosa Inlet, Kino Bay, Sonora State .											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
					X					X	
Description and objectives of the programme/project (summarized) :											
The objective of this general survey is to give environmental data for mariculture of penaid shrimp in lagoon of Sonora State .											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Departamento de Pesca Address : Dirección de Acuicultura, Avenida Juárez No.100-50, Piso Mexico 1, D.F. Director : Daniel Muñoz Ferreira	
Project leader(s) : Sonia Alejandra Perez-Gómez Alvarez Address : Departamento de Pesca, Dirección de Acuicultura, Avenida Juárez No. 100-50, Piso Mexico 1, D.F.	
Co-operating institution(s) :	
Supporting or funding body : Federal Government	
Starting dates/duration of programme/project :	
Name of lagoon(s) :	
Geographic location lat. : long. :	Code : surface area :

Mexico											
Title of programme : Development of a Mathematical Model for Biological Investigations of Aquaculture and Fisheries .											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.3.	
					X	X	X				
Description and objectives of the programme/project (summarized) : This programme is developing mathematical and statistical models for aquaculture and fisheries activities in the coastal lagoons of Mexico .											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Departamento de Pesca Address : Dirección General de Acuicultura Avenida Juárez 100 - 60.piso Mexico 1, D.F. Director : Daniel Muñoz Ferreira		
Project leader(s) : Martha Palacios Fest Address : Departamento de Pesca, Dirección General de Acuicultura, Avenida Juárez 100 - 60. piso Mexico 1, D.F.		
Co-operating institution(s) : Universidad de Baja California and Cooperativas pesqueras de la región		
Supporting or funding body : Federal Government		
Starting dates/duration of programme/project : 1974/1975		
Name of lagoon(s) : Various lagoons, bays and estuaries in the States of Tamsulipas (Southern zone), Veracruz(North and Central zones), Tabasco (Western zone), Campeche (Western region), Yucatan (Western region), North and Southern Baja California, Sinaloa (Northern, Central and Southern zones) .		
Geographic location	lat. : long. :	Code : surface area :

Mexico										
Title of programme : Mariculture of oysters, mussels and <u>Strombus</u> .										
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X	X	X				
Description and objectives of the programme/project (summarized) : The project is considering resources in oysters (<u>Crassostrea</u>), mussels(Pinna, Rangia, Lyropecteu, Anadara) and <u>Strombus</u> in 16 coastal lagoons distributed along the Pacific and the Atlantic coasts .										

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Departamento de Pesca
 Address : Dirección General de Acuicultura
 Avenida Juárez 100-60.
 Piso Mexico 1, D.F.
 Director : Daniel Muñoz Ferreira

Project leader(s) : Alma Araceli Orbe Mendoza
 Rita Sumano López
 Address : Departamento de Pesca,
 Dirección General de Acuicultura,
 Avenida Juárez 100-60.
 Piso Mexico 1, D.F.

Co-operating institution(s) :

Supporting or funding body : Federal Government

Starting dates/duration of programme/project : 1975 and 1976/1979

Name of lagoon(s) : 1) Estero de Santo Domingo, B.C.
 2) Carrizal, Gro.
 3) Laguna Oriental, Oaxaca
 4) Puerto Ceiba, Tab. y Los Amates, Ver.

Geographic location lat. : Code :
 long. : surface area :

Mexico

Title of programme : 1) Work on cultivation and biology of Pámpano, Trachinotus spp.
 2) Work on cultivation and biology of grey mullet, Migil spp.
 3) Work on cultivation and biology of sabalote, Chanos, chanos
 4) Work on cultivation and biology of robalo, Centroponus spp.

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X	X					X

Description and objectives of the programme/project (summarized) :

Aquaculture of species of euryhaline fish of commercial value in different coastal lagoons . Biological aspects (feeding, growth, reproduction) are considered .

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Departamento de Pesca

Address : Dirección de Acuicultura,
Avenida Juárez No. 100,
60. piso Mexico 1, D.F.
Mexico

Director : Daniel Muñoz Ferreira

Project leader(s) : Hector Garduño Argüeta
Concepción Vázquez Córdoba

Address : Departamento de Pesca,
Dirección de Acuicultura,
Avenida Juárez No. 100,
60. piso Mexico 1, D.F.

Co-operating institution(s) : El Centro de Investigaciones Científicas
y Tecnológicas de la Universidad de Sonora

Supporting or funding body : Federal Government

Starting dates/duration of programme/project : 1974/1984

Name of lagoon(s) : 1) Puerto Penasco, Sonora and El Puyegue, Sinaloa
2) Presa derivadora de Sala, Colima and Los Amates, Veracruz

Geographic location lat. :
long. :

Code :
surface area :

Mexico

Title of programme : Culture of Penaid shrimps

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X	X	X				

Description and objectives of the programme/project (summarized) :

Mariculture of shrimps (Penaeus and Macrobrachium) including an estimation of natural resources and cycles of the investigated species .

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Direccion General de Usos del Agua y Prevencion de la Contaminacion Address : Reforma 107-1er. Piso Mexico, D.F., Mexico Director : Eloy Urroz Jimenez	
Project leader(s) : Hector R. Mendoza Marquez Address : Control de la Contaminacion del Agua Reforma 107-8° Piso Mexico 4, D.F. Mexico	
Co-operating institution(s) : Asesoría Técnica y Marítima, S.A.	
Supporting or funding body : Secretaría de Agricultura y Recursos Hidráulicos	
Starting dates/duration of programme/project : 1975/1985	
Name of lagoon(s) : Terminos lagoon	
Geographic location lat. : 18°39' N long. : 91°52' W	Code : Maps : yes surface area : 200 Km ²

Mexico											
Title of programme : Study of the water quality in the Terminos lagoon, Campeche											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
								X	X	X	
Description and objectives of the programme/project (summarized) :											

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Escuela Nacional de Ciencias Biologicas

Address : Carpo y Plan de Ayala,
Mexico 17, D.F.

Director : M. en C.Ma. Luisa Sevilla H.

Project leader(s) : Armando Lemos Pastrana

Address : Departamento de Microbiologia,
Escuela Nacional de Ciencias Biologicas,
Carpo y Plan de Ayala,
Mexico 17, D.F.

Co-operating institution(s) :

Supporting or funding body : CONACYT

Starting dates/duration of programme/project : June 1976/1979

Name of lagoon(s) : Tres Palos

Geographic location lat. : 16°45' N
long. : 99°50' W

Code :
surface area :

Mexico

Title of programme : Ecological Study of the Tres Palos Lagoon

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
			X	X						X

Description and objectives of the programme/project (summarized) :

The project is a general survey of lagoon Tres Palos . A study of bacteria is developed .

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Escuela Nacional de Ciencias Biológicas Address : Plan de Ayala y Carpio, Mexico 17, D.F. Director : M. and C. Maria Luisa Sevilla	
Project leader(s) : Ernesto A. Chávez Address : Escuela Nacional de Ciencias Biológicas Laboratorio de Ecología Marina, Apartado postal 42-186, Mexico 17, D.F.	
Co-operating institution(s) :	
Supporting or funding body : Consejo Nacional de Ciencia y Tecnología	
Starting dates/duration of programme/project : October 1975/1977	
Name of lagoon(s) : Mandinga Tamiahua	
Geographic location Vera Cruz, Mexico	lat. : 21° N long. : 97°30'W
Code : surface area :	

Mexico										
Title of programme : Ecological Study on the Continental Shelf off of the State of Veracruz , with two subprojects on the corresponding lagoonal systems .										
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X		X	X			X
Description and objectives of the programme/project (summarized) : The project is a general survey on the continental shelf of Veracruz State . Two subprojects are considering two lagoonal related systems (Mandinga and Tamiahua) . Their fish and crustacean resources are studied in more detail .										

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Université de Bordeaux I
Institut Universitaire de Biologie Marine (IUBMB)
Address : 2 rue du Professeur Jolyet
33120 Arcachon, France

Director : J. Boisseau

Project leader(s) : P. Lasserre (IUBMB, Arcachon)
A. Laguarda-Figueras (UNAM/CCML, Mexico)

Address : same as above

Co-operating institution(s) :

Universidad Nacional Autonoma de Mexico (UNAM) :
Centro de Ciencias del Mar y Limnologia (C.C.M.L.)

Supporting or funding body :

University of Bordeaux
French Embassy in Mexico
CONTACT

Starting dates/duration of programme/project : 1979

Name of lagoon(s) : Terminos

Geographic location lat. : 18°39' N

Mexico long. : 91°52' W

Code :

surface area : 200 Km²

Mexico

Title of programme :

Mechanisms of production in coastal lagoons

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X	X		X			

Description and objectives of the programme/project (summarized) :

This project of cooperation between the marine institute of Bordeaux University, in Arcachon, France, and the marine center of the University of Mexico (UNAM) will have the following fields of investigation :

- trophic relationships between meiofauna and bacteria;
- oxydative metabolism at the water-sediment interface;
- ecophysiological adaptation of some species of economical interest.

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : University of Liverpool
 Address : Department of Marine Biology,
 Port Erin,
 Isle of Man,
 England, United Kingdom
 Director : E. Naylor

Project leader(s) : B. Blake

Address : Estación de Investigaciones Marinas,
 Apartado postal 1238,
 Mazatlan,
 Sinaloa, Mexico

Co-operating institution(s) :

Supporting or funding body : Ministry of Overseas Development, London;
 Universidad Nacional Autónoma de México;
 University of Liverpool, England

Starting dates/duration of programme/project : July 1973/September 1979

Name of lagoon(s) : Caimanero and Huizache

Geographic location
 50 km south of Mazatlan,
 Pacific coast of Sinaloa
 State, Mexico
 lat. : 23° N
 long. : 106° W

Code :
 surface area : 150 km² (wet)
 50 km² (dry season)

Mexico

Title of programme : Mexican Lagoons Research Project

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X	X	X			X	X

Description and objectives of the programme/project (summarized) :

The following fields are investigated : ecology and population dynamics of
 a) penaeid shrimp, b) fishes, c) crabs (Callinectes) . Environmental data
 are also collected on a year basis .

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Liverpool University,
Address : Department of Oceanography,
 P.O. Box 147,
 Liverpool L69 3BX,
 England, United Kingdom
Director : K.F. Bowden

Project leader(s) : M.I. Abdullah
 L.D. Mee

Address : Liverpool University,
 Department of Oceanography,
 P.O. Box 147,
 Liverpool L69 3BX, England

Co-operating institution(s) : UNAM

Supporting or funding body : Natural Environment Research Council,
 Liverpool University

Starting dates/duration of programme/project : 1974/1977

Name of lagoon(s) : Mitla, Chautengo, Mazatlan and others

Geographic location lat. : 23° 11' N
West coast of Mexico long. : 106° 25' W

Code :
surface area :

Mexico

Title of programme : Chemistry and Productivity of Coastal Lagoons

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
			X	X						

Description and objectives of the programme/project (summarized) :

The programme includes the following aspects : a) general hydrographic features, b) water chemistry, c) eutrophication process, d) seasonal cycle of dissolved chemical species, e) primary productivity, f) geochemistry of lagoon sediments .

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Universidad Nacional Autonoma de Mexico
Address : Sección de Hidrobiología,
 Universidad Nacional Autonoma de Mexico (UNAM)
 Centro de Ciencias del Mar y Limnología
 Apartado postal 70-305
 Mexico, D.F.
Director Carlo Marquez

Project leader(s) : Virgilio Arenas Fuentes
 Guadalupe de la Lanza

Address : Instituto de Biología,
 Sección de Hidrobiología,
 Universidad Nacional Autonoma de Mexico (UNAM)
 Apartado postal 70-305 Mexico, D.F.

Co-operating institution(s) : Instituto de Geofísica (UNAM) and
 Sección de Agricultura y Recursos Hidráulicos

Supporting or funding body : UNAM

Starting dates/duration of programme/project : 1976/1981

Name of lagoon(s) : Huizache and Caimanero

Geographic location lat. : 22°5'-23°05'N **Code** :
Northwest long. : 105°55'-106°20'W **Surface area** :

Mexico

Title of programme : (1) Cycles of organic material and bacteria in littoral lagoons
 (2) Predictive model on the productivity in a lagoonal ecosystem

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
			X	X	X		X			

Description and objectives of the programme/project (summarized) :

The main objectives of the project are : (1) to relate cycles of organic material and bacteria ; (2) to give a model of the productivity in the two lagoons .

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Universidad Nacional Autonoma de Mexico (UNAM)
Centro de Ciencias del Mar y Limnologia
Address : Apartado postal 70-305
Mexico, D.F.

Director : A. Laguarda Figueras

Project leader(s) : L. Mee
H. Fernandez
Address : same address as above

Co-operating institution(s) :

Dept. of Oceanography, University of Liverpool, U.K.

Supporting or funding body :

Comision del Rio Balsas
C.C.M.L./UNAM

Starting dates/duration of programme/project : 1974 continuing

Name of lagoon(s) : Apozahualco and Chautengo

Geographic location	lat. :	Code	:
Estado de Guerrero	long. :	maps	: yes
		surface area	: 200 km ²

Mexico

Title of programme :

Hydrology and Hydrochemistry of Apozahualco lagoon.

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
			X							X

literature and/or reports available : yes

existing training programme : yes

Description and objectives of the programme/project (summarized) :

The chemistry of the lagoon is studied in detail. A research project on primary productivity is planned.

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Universidad Nacional Autonoma de Mexico (UNAM) Address : Centro de Ciencias del Mar y Limnologia Apartado postal 70-305 Mexico, D.F. Mexico Director : A. Laguarda Figueras		
Project leader(s) : V. Botello H. Fernandez Address : E. Mandelli same as above		
Co-operating institution(s) : Gulf Universities Research Cons., Texas, USA (in 1974)		
Supporting or funding body : UNAM/ C.C.M.L.		
Starting dates/duration of programme/project : 1974 continuing		
Name of lagoon(s) : Terminos		
Geographic location Estado de Campeche	lat. : 18°30' N long. : 91°45' W	Code : maps : yes surface area : 2000 km ²

Mexico											
Title of programme : Hydrology, chemistry and pollution in Terminos lagoon											
I	II	III	IV X	V	VI	VII	VIII	IX	X	G.S.	
literature and/or reports available : yes											
Description and objectives of the programme/project (summarized) : The chemistry of the Terminos lagoon waters is investigated in terms of salinity regimes, nutrients, oxygen, alkalinity and temperature variations. Some studies on contaminants (insecticides, heavy metals in sediments and in organisms) will be developed.											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Universidad Autonoma de Mexico (UNAM) Centro de Ciencias del Mar y Limnologia (UNAM) Address : Apartado postal 70-305 Mexico, D.F. , Mexico Director : A. Laguarda Figueras		
Project leader(s) : E. Mandelli L. Mee Address : same as above		
Co-operating institution(s) : Department of Oceanography, University of Liverpool, U.K.		
Supporting or funding body : Comision del Rio Balsas, Secretaria de Recursos Hidraulicos U N A M		
Starting dates/duration of programme/project : 1974, continuing		
Name of lagoon(s) : Mitla lagoon		
Geographic location State of Guerrero	lat. : 17° N long. : 100° W	Code : maps : yes surface area : 36 0 km ²

Mexico											
Title of programme : Hydrology and Hydrodynamics in Mitla lagoon											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X							
literature and/or reports available : yes											
existing training programme : yes											
Description and objectives of the programme/project (summarized) : The project is a study of the chemistry of the lagoon; it will include a research investigation on nutrients and primary productivity.											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Universidad Nacional Autónoma de México Centro de Ciencias del Mar y Limnología Address : Apartado postal 70-305 México D.F. , México Director : A. Laguarda Figueras		
Project leader(s) : A. Ayala Castañares Address : same address		
Co-operating institution(s) :		
Supporting or funding body : UNAM/ C.C.M.L.		
Starting dates/duration of programme/project : 1964 - 1976		
Name of lagoon(s) : Tamiahua lagoon		
Geographic location Veracruz State	lat. : 21°06' and 22°05' N long. : 97°22' and 97°46' W	Code : maps : yes surface area :

Mexico											
Title of programme : Ecology of the recent Foraminiferans in the Tamiahua lagoon, Veracruz.											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
			X		X						
literature and/or reports available : yes											
existing training programme : yes											
Description and objectives of the programme/project (summarized) : The project has been a long term project on the recent foraminiferans in the Tamiahua lagoon.											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Universidad Nacional Autonoma de Mexico (UNAM) Centro de Ciencias del Mar y Limnologia Address : Apartado postal 70-305 Mexico, D.F. • Mexico Director : A. Laguarda Figueras		
Project leader(s) : R. Cruz Orozco Estacion de Investigaciones Marinas Address : El Carmen, Ciudad del Carmen, Campeche Av. Lopes Mateos Playa norte, Campeche		
Co-operating institution(s) :		
Supporting or funding body : CONACYT		
Starting dates/duration of programme/project : 1975, continuing		
Name of lagoon(s) : Terminos lagoon		
Geographic location Tabasco and Campeche States	lat. : 18°30' N long. : 91°45' W	Code : maps : yes surface area :

Mexico											
Title of programme : Study of the complex river-lagoon-delta in the coastal region of Campeche - Tabasco.											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
	X	X	X	X						X	X
literature and/or reports available : yes											
existing training programme : yes											
Description and objectives of the programme/project (summarized) : The programme is a geological, chemical and ecological survey of the complex river-lagoon-delta. Sedimentological aspects are developed in this research.											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Universidad Nacional Autonoma de Mexico Centro de Ciencias del Mar y Limnologia Address : Apartado postal 70-305 Mexico, D.F., Mexico Director : A. Laguarda Figueras		
Project leader(s) : E. Macias Regalado Address : same as above		
Co-operating institution(s) : The University of Liverpool		
Supporting or funding body : Secretaria de Recursos Hidraulicos UNAM British Overseas Development Ministry		
Starting dates/duration of programme/project : 1969, continuing		
Name of lagoon(s) : Huizache - Caimanero		
Geographic location	lat. : 22°50' and 23°05' N long. : 105°55' and 106°20' W	Code : surface area :

Mexico											
Title of programme : Research project on lagoon system of Huizache - Caimanero.											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
		X		X	X						
literature and/or reports available : yes											
Description and objectives of the programme/project (summarized) : The topics of this multidisciplinary project include geology hydrochemistry and biology . The ecology and aquaculture of peneids and the blue crab (<u>Callinectes</u>) are developed.											

SCOR/Unesco enquiry on existing lagoon research programmes			
Institution : Universidad Nacional Autonoma de Mexico Centro de Ciencias del Mar y Limnologia Address : Apartado postal 70-305 Mexico, D.F. - Mexico Director : A. Laguarda Figueras			
Project leader(s) : A.A. Ortega R.R. Stephenson Address : same address as above			
Co-operating institution(s) : British Ministry of Overseas Development			
Supporting or funding body : UNAM/C.C.M.L.			
Starting dates/duration of programme/project : 1974/1976			
Name of lagoon(s) : Huizache - Caimanero			
Geographic location		lat. : 22°5'-23°5' N	
Sinaloa State		long. : 105°55'-106° W	
		Code : maps : yes surface area :	

Mexico											
Title of programme : Some aspects of the hydrography and hydrochemistry of the Huizache - Caimanero lagoon complex in Northwest Mexico.											
I	II	III	IV X	V	VI	VII	VIII	IX	X	G.S. X	
literature and/or reports available : yes											
Description and objectives of the programme/project (summarized) : This project has given information on the importance of dissolved nutrients and a general survey on the Huizache-Caimanero lagoon complex.											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Universidad Nacional Autonoma de Mexico Centro de Ciencias del Mar y Limnologia Address : Apartado postal 70-305 Mexico, D.F. Mexico Director : A. Laguarda Figueras		
Project leader(s) : M. Guzman Arroyo Address : same as above		
Co-operating institution(s) :		
Supporting or funding body : Comision del Rio Balsas Secretaria de Recursos Hidraulicos		
Starting dates/duration of programme/project : 1975 - 1977		
Name of lagoon(s) : Mitla, Coyuca and Tres Palos		
Geographic location	lat. : 17° N long. : 100° W	Code : maps :. yes surface area :

Mexico											
Title of programme : Biology, ecology and fisheries of lagoon shrimp (<u>Macrobranchium tenellum</u> , Palemonidae) in Mitla, Coyuca and Tres Palos lagoons.											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
					X	X	X				X
literature and/or reports available : yes											
Description and objectives of the programme/project (summarized) : The project includes a general survey of the lagoons and detailed studies on biological cycles and population dynamics of the shrimp Palemonidae, <u>Macrobranchium tenellum</u> .											

SCOR/Unesco enquiry on existing lagoon research programmes			
Institution : Universidad Nacional Autonoma de Mexico (UNAM) Centro de Ciencias del Mar y Limnologia Address : Apartado postal 70-305 Mexico, D.F. , Mexico Director : A. Laguarda Figueras			
Project leader(s) : A.A. Ortega R.R. Stephenson Address : same as above			
Co-operating institution(s) : British Mintry of Overseas Development			
Supporting or funding body : UNAM/C.C.M.L.			
Starting dates/duration of programme/project : 1974/1976			
Name of lagoon(s) : Yavaros, Moroncarit Etchoropa			
Geographic location		lat. : 26°41' to 26°56' N	Code :
State of Sonora		long. : 109°32' to 109°40' W	maps : yes surface area :

Mexico											
Title of programme : Some aspects of the hydrography and hydrochemistry of the Yavaros lagoon complex in North-West Mexico.											
I	II	III	IV X	V	VI	VII	VIII	IX	X	G.S. X	
literature and/or reports available : yes											
Description and objectives of the programme/project (summarized) : This 2 year project has given information on the importance of dissolved nutrients and a general survey on the Yavaros, Moroncarit and Etchoropa lagoons.											

SCOW/Unesco enquiry on existing lagoon research programmes	
Institution : Institut de Géologie du Bassin d'Aquitaine (IGBA) Address : Université de Bordeaux I 351 cours de la Libération 33405 Talence, France Director : M. Vigneaux	
Project leader(s) : M. Vigneaux Address : same as above	
Co-operating institution(s) : Université de Rabat Institut Scientifique Chérifien	
Supporting or funding body : CNRS (France)	
Starting dates/duration of programme/project : 1974	
Name of lagoon(s) : Nador (Mediterranean) Moulay Bouselham (Atlantic) Mohammedia and Oualidia and Tarfaya (Atlantic)	
Geographic location Morocco	lat. : 34°35' N long. : 6°20' W Code : surface area : 300 km ²

Morocco										
Title of programme : The sedimentary environment of coastal lagoons in Morocco.										
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
	X	X	X							
literature and/or reports available : yes										
Description and objectives of the programme/project (summarized) : The project has two main fields : a) a detailed study of present sedimentation in lagoons as a function of environmental parameters of both continental and marine origin; b) a geomorphological study of the sedimentation during recent quaternary (Holocene).										

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Delft Hydraulics Laboratory Address : Rotterdamweg 185, Delft, The Netherlands Director : J.E. Prins	
Project leader(s) : W. Salomons Address : Delft Hydraulics Laboratory Haren Branch, C/O Institute for Soil Fertility, Oosterweg 92, Haren (Gr.), The Netherlands	
Co-operating institution(s) : Institute for Soil Fertility	
Supporting or funding body :	
Starting dates/duration of programme/project : 1973/indefinite	
Name of lagoon(s) : Wadden Sea area	
Geographic location lat. : 53°-53°30' N long. : 5-7° E	Code : surface area : 3300 km ² (Dutch part)

Netherlands											
Title of programme : Origin, transport and geochemical behaviour of heavy metals and phosphorus											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
		X	X					X			
literature and/or reports available : yes											
existing training programme : no											
Description and objectives of the programme/project (summarized) : The aim of this research is to determine the contents of heavy metals and phosphorus in the four different forms found in the aquatic environment (dissolved metals in surface water, suspended matter, deposited sediment, interstitial water) and to study the various interactions. Interactions are studied by laboratory experiments (absorption-desorption) or by modelling the field data. The origin and distribution of the heavy metals attached to the suspended matter are studied with natural tracers (stable isotopes).											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Delta Institute for Hydrobiological Research Address : Vierstraat 28, Yerseke The Netherlands Director : K.F. Vaas	
Project leader(s) : P.H. Nienhuis Address : Delta Institute for Hydrobiological Research Vierstraat 28, Yerseke The Netherlands	
Co-operating institution(s) : State Department of Roads and Waterways.	
Supporting or funding body : Royal Dutch Academy of Sciences and Letters, Amsterdam.	
Starting dates/duration of programme/project : 1972/1980	
Name of lagoon(s) : Lake Grevelingen	
Geographic location Southwest Netherlands	lat. : long. : Code : surface area : 108 km ²

Netherlands											
Title of programme : Carbon cycle under different hydrological regimes (tidal estuarine, stagnant brackish)											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
			X	X			X			X	
Description and objectives of the programme/project (summarized) : This programme is concerned with a quantified description and comparison of the carbon cycle in the various phases of the aquatic ecosystem of the Grevelingen: the tidal estuary, the salt water lake, and possible the fresh water lake. Emphasis is placed on the direct measurement of primary and secondary production and decomposition processes.											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Delta Institute for Hydrobiological Research Address : Vierstraat 28 Yerseke, The Netherlands Director : K.F. Vaas E.K. Duursma		
Project leader(s) : S. Parma Address : Delta Institute for Hydrobiological Research Vierstraat 28 Yerseke, The Netherlands		
Co-operating institution(s) :		
Supporting or funding body : Royal Society of Sciences; Delta Institute		
Starting dates/duration of programme/project : 1975/1980		
Name of lagoon(s) : Inland waters (ditches, creeks, etc...) in Southwestern Netherlands		
Geographic location Southwestern Netherlands (Rhine, Meuse, Scheldt estuaries)	lat. : 51°40' N long. : 4°E	Code : surface area : 130 km ²

Netherlands											
Title of programme : Investigations on the structure of small instable brackish ecosystems											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
	X	X		X	X						X
literature and/or reports available : yes											
existing training programme : no											
Description and objectives of the programme/project (summarized) : The aim of the Institute is to study the impact of civil technical constructions (dykes, dams, etc...) on the estuarine ecosystem in the southwest part of the Netherlands. The research group is particularly interested in the initial phase of the new standing ecosystem shortly after the human impact. For this reason they study unstable brackish and saline inland water bodies, especially ditches, small creeks, canals. The three main topics are : quantification of the so-called instability of the physico-chemical characters; classification of the unstable water bodies, based on biological structure; and autecological investigation of the ability of animals to resist changes in the environment.											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution :	Netherlands Institute for Sea Research
Address :	P.O. Box 59, Texel, The Netherlands
Director :	H. Postma and J.J. Zijlstra
Project leader(s) :	J.J. Beukema
Address :	Netherlands Institute for Sea Research, P.O. Box 59, Texel, the Netherlands
Co-operating institution(s) :	
Supporting or funding body :	Dutch Government
Starting dates/duration of programme/project :	1968/1993
Name of lagoon(s) :	Dutch Wadden Sea
Geographic location	lat. : 52°55'-53°30' N long. : 4°20'-6°00' E
	Code : surface area :

Netherlands											
Title of programme : Production processes in the Wadden Sea											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
				X			X				
Description and objectives of the programme/project (summarized) :											
The project is concerned with long-term measurements of primary and secondary production in the Wadden Sea . Emphasis is on the microphytobenthos, macrozoobenthos, flat-fish and birds of tidal flats . Another concern is the construction of energy- and carbon-budgets of the area, as well as modelling of the ecosystem of the Wadden Sea, both mathematically and by means of laboratory-scaled ecosystems .											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Netherlands Institute for Sea Research Address : P.O. Box 59, Texel, The Netherlands Director : J.J. Zijlstra	
Project leader(s) : F. Creutzberg Address : Netherlands Institute for Sea Research P.O. Box 59, Texel, The Netherlands	
Co-operating institution(s) : NIVO; Various Universities	
Supporting or funding body : Government, Department of Education and Sciences	
Starting dates/duration of programme/project : 1972/1981	
Name of lagoon(s) : Dutch Western Wadden Sea	
Geographic location lat. : 52°55'-53°30'N long. : 4°20'-6°00'E	Code : surface area : 3000 km ²

Netherlands											
Title of programme : Influence of predatory populations in Wadden Sea ecosystem											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
				X			X				
literature and/or reports available : yes											
existing training programmes : yes											
Description and objectives of the programme/project (summarized) : The emphasis of this ecosystem is autecology, especially with regard to predators. Data is being collected on the population dynamics, migratory movements, individual growth, food demand and food conversion on the predators which play a significant role in the predation on the intertidal flat fauna, such as many bird species, fish (<u>Pleuronectes platessa</u>, <u>P. flesus</u>, <u>Pomatoschistus minutus</u>, <u>P. microps</u>), and crustaceans (<u>Crangon crangon</u> and <u>Carcinus maenas</u>). These data are being used to evaluate the predatory pressure exerted by these animals. Research is carried out in the field as well as at the laboratory.											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Rijks Instituut voor Visserijonderzoek Address : Haringkade 1, IJmuiden, The Netherlands Director : P. Zorriga	
Project leader(s) : K.H. Postuma Address : Rijks Instituut voor Visserijonderzoek, Haringkade 1, IJmuiden, The Netherlands	
Co-operating institution(s) : German Institute for Fishery Research (Hamburg, FRG) Belgian Institute for Fishery Research (Ostend, Belgium)	
Supporting or funding body : Ministry of Agriculture and Fisheries	
Starting dates/duration of programme/project : 1969/continuing	
Name of lagoon(s) : Dutch Wadden Sea, Eastern/Western Scheldt, German Wadden Sea, Dutch and German and Danish coastal areas	
Geographic location lat. : long. :	Code : surface area :

Netherlands																																	
Title of programme : Wadden Sea Project																																	
<table border="1"> <thead> <tr> <th>I</th> <th>II</th> <th>III</th> <th>IV</th> <th>V</th> <th>VI</th> <th>VII</th> <th>VIII</th> <th>IX</th> <th>X</th> <th>G.S.</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>												I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.					X		X				
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.																							
				X		X																											
Description and objectives of the programme/project (summarized) : The Dutch Wadden Sea project was set up to get an insight into the influence of closure of the Wadden Sea on the fisheries of the area, not only those fisheries operating in the Wadden Sea but also on the fisheries in the North Sea on species using the Wadden Sea as a nursery (e.g. sole, plaice, shrimps, herring). The working procedure involves : assessment of the density of commercially important fish species in the Wadden Sea and the coastal area by periodic surveys with a standard programme; initiation of migration studies of different species from the Wadden Sea to the open North Sea; assessment of the proportion supplied by the juvenile stocks growing up in the Wadden Sea to the adult stocks in the North Sea by tagging programmes and the research in the abnormal pigmentation in the juvenile stages of sole, plaice and flounder; and investigation of the extent changes in the open estuaries influence the populations of commercially important fish species, numbers and growth .																																	

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Netherlands Institute for Sea Research

Address : P.O. Box 59,
Texel,
The Netherlands

Director : J.J. Zijlstra and H. Postma

Project leader(s) : H. Postma

Address : Netherlands Institute for Sea Research
P.O. Box 59,
Texel,
The Netherlands

Co-operating institution(s) :

Supporting or funding body : Dutch Government

Starting dates/duration of programme/project : Continuous

Name of lagoon(s) : Wadden Sea area

Geographic location lat. : 52°55'-55°40'N

long. : 4°20'-9°00'E

Code :

surface area :

Netherlands

Title of programme : Chemistry, geochemistry and sedimentology of Wadden Sea and other estuaries .

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
	X	X	X							

Description and objectives of the programme/project (summarized) :

The programme aims at understanding the cycle of several chemical species (e.g. nutrients, metals and pollutants) in the Wadden Sea and adjacent North Sea . It is supported by measurements of water movement and exchange with the North Sea, sedimentological and morphological investigations and processes . There are several sub-programmes under these topics .

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Netherlands Institute for Sea Research Address : P.O. Box 59 Texel, the Netherlands Director : J.J. Zijlstra		
Project leader(s) : P.A.W.J. de Wilde Address : Netherlands Institute for Sea Research P.O. Box 59 Texel, the Netherlands		
Co-operating institution(s) :		
Supporting or funding body :		
Starting dates/duration of programme/project :		
Name of lagoon(s) : a number of small sheltered lagoons on the Netherlands Antilles		
Geographic location Netherlands Antilles	lat. : 12° 00' long. : 69° 00'	Code : surface area :

Netherlands Antilles											
Title of programme :											
I	II	III	IV	V X	VI	VII	VIII	IX	X	G.S.	
Description and objectives of the programme/project (summarized) : Studies have been made on the ecology of terrestrial hermit crab (water economy and osmoregulation).											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution :	Botany Department	
Address :	University of Auckland Auckland, New Zealand	
Director :	V.J. Chapman	
Project leader(s) :	Paul Henriques	
Address :	Manukau Purification Works Mangere Auckland, New Zealand	
Co-operating institution(s) :	Auckland University	
Supporting or funding body :	Auckland Regional Authority	
Starting dates/duration of programme/project :	1973/1977	
Name of lagoon(s) :	Manukau Harbour	
Geographic location West of city of Auckland, northern New Zealand	lat. : long. :	Code : surface area :

New Zealand											
Title of programme :											
Selected Ecological Aspects of Manukau Harbour											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
			X	X		X			X	X	
Literature and/or reports available: in preparation											
Existing training programme: no											
Description and objectives of the programme/project (summarized) :											
Studies were made on the following in the Manukau Harbour: vegetation map (distribution map and per cent cover for the dominant plants); the intertidal seaweed <i>Gracilaria</i> (effects of sewage oxidation ponds on the distribution of <i>Gracilaria</i> benthic fauna (benthic macrofaunal species diversity variations); water chemistry (nutrients, salinity, and dissolved oxygen); sedimentology (particle size distribution and sediment nutrient distribution); and bacteriology (comparison of temporal variation of coliform measurements in water and sediment).											

SCOR/Unesco enquiry on existing lagoon research programmes			
Institution :	University of Auckland		
Address :	Marine Research Laboratory University of Auckland Leigh, New Zealand		
Director :	F.J. Taylor		
Project leader(s) :	F.J. Taylor		
Address :	Marine Research Laboratory Leigh, New Zealand		
Co-operating institution(s) :			
Supporting or funding body :	University of Auckland		
Starting dates/duration of programme/project :	1969/indefinite		
Name of lagoon(s) :	Whangateau Harbour		
Geographic location	lat. : 36°20'S long. : 174°46'E	Code :	surface area : 1.7 km ²

New Zealand											
Title of programme :											
Biological studies on the Whangateau Harbour, northern New Zealand.											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
			X	X						X	
Literature and/or reports available: in preparation											
Existing training programme: yes											
Description and objectives of the programme/project (summarized) :											
Past and present research concerns in the Whangateau Harbour include: the hydrology, nutrients and phytoplankton; intertidal and subtidal distribution of animal communities; the growth and productivity of <i>Spartina townsendii</i>; the growth of the mangrove <i>Avicennia</i> and the decomposition of its tissues in the mud. It is anticipated that work on the chemistry of deposits will be included.											

SCOR/Unesco enquiry on existing lagoon research programmes			
Institution : Department of Geology Address : University of Auckland Auckland, New Zealand Director : R.N. Brothers			
Project leader(s) : M.R. Gregory Address : Department of Geology University of Auckland Auckland, New Zealand			
Co-operating institution(s) :			
Supporting or funding body : Government of New Zealand, through New Zealand University Grants Committee			
Starting dates/duration of programme/project : 1975/indefinite			
Name of lagoon(s) : (i) Parengarenga and (ii) Rangaunu Harbours			
Northern-most Geographic location New Zealand	lat. (i) 34°30'S (ii) 34°56'S long. : (i) 172°56'E (ii) 173°15'E	Code : (i) Parengarenga 14.5 km ² surface area : (ii) Rangaunu Harbour 21.8 km ²	

New Zealand											
Title of programme : Geologic studies in Parengarenga and Rangaunu Harbours											
	I	II	III X	IV	V X	VI	VII	VIII	IX	X X	G.S.
Existing training programme: no											
Description and objectives of the programme/project (summarized) :											

SCOR/Unesco enquiry on existing lagoon research programmes			
Institution : Portobello Marine Laboratory Address : University of Otago Box 8 Portobello, New Zealand Director : J.B. Jillett			
Project leader(s) : J.B. Jillett and C.R. Boyden Address : Portobello Marine Laboratory Box 8 Portobello, New Zealand			
Co-operating institution(s) :			
Supporting or funding body : University of Otago, University Grants Committee; Ministry of Agriculture and Fisheries; Skeggs Food Ltd.			
Starting dates/duration of programme/project : 1970/continuing			
Name of lagoon(s) : Otago Harbour and nearby sea inlets			
Geographic location Southeastern New Zealand		lat. : long. :	Code : surface area :

New Zealand											
Title of programme : Biology of exploited species in local sea inlets											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
				X	X	X				X	
Description and objectives of the programme/project (summarized) : The first subproject is an investigation of growth, settlement, larval biology and survivorship of <i>Ostrea lutaria</i> , particularly as a potential subject for aquaculture. The second subproject is the study of seasonal and spatial distribution, breeding periodicity, trophic competition and niche separation, and assimilation efficiencies of three sibling species of the New Zealand Sole (<i>Peltorhamphus</i>) and two of flounder (<i>Rhombosolea</i>).											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Coastal Studies Institute Address : Louisiana State University Baton Rouge, Louisiana 70803 USA Director : James M. Coleman		
Project leader(s) : James M. Coleman Address : Coastal Studies Institute Louisiana State University Baton Rouge, Louisiana 70803 USA		
Co-operating institution(s) :		
Supporting or funding body : Office of Naval Research		
Starting dates/duration of programme/project :		
Name of lagoon(s) : Pearl Lagoon		
Geographic location	lat. :	Code :
east coast of Nicaragua	long. :	surface area :

Nicaragua											
Title of programme : Circulation in Pearl Lagoon											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
		X	X	X							
Description and objectives of the programme/project (summarized) :											
Studies have been made on the renewal of lagoon waters by tidal mixing through inlets.											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Nigerian Institute for Oceanography and Marine Research Address : P.M. B 12529, Lagos, Nigeria Director : Edward O. Bayagbona		
Project leader(s) : Edward O. Bayagbona Address : P.M. B 12529, Lagos, Nigeria		
Co-operating institution(s) : University of Lagos; University of Ife-Ife-Ife		
Supporting or funding body : Federal Military Government Funds		
Starting dates/duration of programme/project : 1975/continuous		
Name of lagoon(s) : Lagos Lagoon		
Geographic location Gulf of Guinea	lat. : 6° N long. : 3-4° E	Code : surface area : 100 km ²

Nigeria											
Title of programme :											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
				X	X	X				X	
literature and/or reports available : yes											
Description and objectives of the programme/project (summarized) :											
This programme includes studies of pollution (monitoring), shrimp migration, oyster culturing, the post larvae stage of penaeid shrimp, aquaculture and gillnet fisheries .											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : University of Lagos Faculty of Sciences Address : Department of Biological Sciences Lagos, Federal Republic of Nigeria Director :	
Project leader(s) : J.A. Ekindayo Address : same address	
Co-operating institution(s) : Nigerian Institute for Oceanography and Marine Research	
Supporting or funding body : University of Lagos	
Starting dates/duration of programme/project : ongoing	
Name of lagoon(s) : Lagos lagoon	
Geographic location lat. : 6°27' N long. : 3°28' E	Code : surface area :

Nigeria											
Title of programme : Microbiological studies in Lagos lagoon											
	I	II	III	IV	V X	VI	VII	VIII	IX	X	G.S.
Description and objectives of the programme/project (summarized) : Main emphasis in this recent project has been given to bacterial pollution, with a subsequent extension of the project to coastal waters.											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : University of Lagos Faculty of Sciences Address : Department of Biological Sciences Lagos Nigeria Director :	
Project leader(s) : Caleb I.O. Olaniyan Address : same address	
Co-operating institution(s) : Nigerian Institute for Oceanography and Marine Research	
Supporting or funding body : University of Lagos	
Starting dates/duration of programme/project : 1974/ongoing	
Name of lagoon(s) : Niger delta area Lagos lagoon Lekki lagoon	
Geographic location lat. : 4°50' N 6°22'-27' N long. : 6°00' N 3°28'- 4° E	Code : surface area :

Nigeria											
Title of programme : Fishery activities in the nigerian lagoons											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
					X	X	X				
Description and objectives of the programme/project (summarized) : The research programme concerns in the Lagos and Lekki lagoons include:brackish water fish culture, identification of the major fishery resources.											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Institute of Marine Research Address : P.O. Box 2906, M - 5011 Bergen-Mordnes, Norway Director : Gunnar Saetersdal		
Project leader(s) : Victor Øiestad Address : Institute of Marine Research, P.O. Box 2906, M - 5011 Bergen-Mordnes, Norway		
Co-operating institution(s) :		
Supporting or funding body : Norwegian Council of Marine Research		
Starting dates/duration of programme/project : February 1975/Feb.-Jul. every year		
Name of lagoon(s) : Upper oyster basin		
Geographic location Near Arendal, southern Norway at Statens Biologiske Stasjon of Flødevigen	lat. : 58°24' N long. : 8°43' E	Code : surface area : 1.7 km ²

Norway											
Title of programme : Seniculture-production of marine fish fry											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
				X	X		X				
literature and/or reports available : yes											
existing training programme : no											
Description and objectives of the programme/project (summarized) : The main aim is a study of the early life history of fish, with special attention to the "critical period" aspect . For this experiment the basin is stocked with yellow-sac larvae, and close study is made on nutrition condition, diet, feeding success, growth and survival . Special interest is being paid to the cod in these experiments, as studies on this species are impossible beyond 20 days in the laboratory . It is hoped that it will be possible to produce a large number of 0-group fish in systems with few predators or competitors . The 0-group flat fish thus produced will be transferred for polyculture with salmonids, and the cod fry will be tagged and released in coastal waters near the biological station .											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : University of Bergen Address : Marine Biology Station Espegrend, 5065 Blomsterdalen Norway Director : Ulf Lie	
Project leader(s) : Ulf Lie Address :	
Co-operating institution(s) :	
Supporting or funding body :	
Starting dates/duration of programme/project :	
Name of lagoon(s) :	
Geographic location	lat. : long. :
Code : surface area :	

Norway											
Title of programme :											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
			X	X		X	X				
Description and objectives of the programme/project (summarized) :											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Universidad de Panama Fac. de Ciencias Naturales Address : Lab. de Biología Marina Estafeta Universitaria Panama Director : Alfredo Soler		
Project leader(s) : Luis D'Croz Victor Martinez Address : Bogdan Kwiecinski same as above		
Co-operating institution(s) : Direccion de Recursos Marinos Ministerio de Comercio e Industrias		
Supporting or funding body : Universidad de Panama		
Starting dates/duration of programme/project : 1974		
Name of lagoon(s) : Lagoons of the Gulf of Panama		
Geographic location Gulf of Panama	lat. : 8°57' N long. : 79°30' W	Code : surface area :

Panama											
Title of programme : Ecological studies on populations of fish and crustaceans in estuaries and lagoons of the Gulf of Panama.											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X	X		X				X
literature and/or reports available : yes											
existing training programme : no											
Description and objectives of the programme/project (summarized) : The programme includes studies on populations dynamics of fish and crustaceans (shrimps) of commercial interest and a general survey of the principal environmental factors.											

SCOR/Unesco enquiry on existing lagoon research programmes			
Institution :	Bougainville Copper Limited		
Address :	Panguna, Bougainville, Papua New Guinea		
Director :	D.C. Vernon		
Project leader(s) :	P.J. Gilles		
Address :	Bougainville Copper Limited Panguna Bougainville Papua New Guinea		
Co-operating institution(s) :			
Supporting or funding body :	Bougainville Copper Limited		
Starting dates/duration of programme/project :	1975		
Name of lagoon(s) :	Anewa Bay		
Geographic location East coast of Bougainville Island, P.N.G.	lat. : 6°11'S long. : 155°33'E	Code :	Map(s) : yes
		surface area :	

Papua New Guinea											
Title of programme :											
Effects of power generating plant effluent and mining flotation chemicals on fish and invertebrates.											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
	X		X	X					X		
Description and objectives of the programme/project (summarized) :											
A power generating station and filtering and drying plant, situated on the east coast of Bougainville Island, discharges effluents into the western edge of the lagoon (Anewa Bay). Investigations involve bathymetry of Anewa Bay, mapping of physiochemical parameters associated with the power station plume, and bioassays to determine acceptable concentrations of residual flotation chemicals in filter plant effluent.											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution :	University of San Carlos Marine Station
Address :	Cebu City Philippines
Director :	
Project leader(s) :	Ulrich Hörstmann Norbert Rau
Address :	University of San Carlos Marine Station Cebu City Philippines
Co-operating institution(s) :	
Supporting or funding body :	
University of San Carlos; German Academic Exchange Program (DAAD)	
Starting dates/duration of programme/project : March 1976/1978	
Name of lagoon(s) : (i) Cebu Harbour, with Cebu Channel (ii) Hilutungan Channel with adjacent lagoons	
Geographic location Cebu Island, Philippines	lat. : 10°19'N long. : 123°55'E Code : Map(s) : yes surface area : (i) 15 km ²

Philippines											
Title of programme : (i) Cebu Harbour Project (ii) Hilutungan Channel Project											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
					X	X	X			X	
Description and objectives of the programme/project (summarized) :											
The Cebu Harbour Program is designed to give an idea of the influences of industrial wastes and domestic sewage and to initiate a permanent pollution survey. Hydrographical and chemical data are being collected (e.g. temperature, salinity, current, turbidity, pH, oxygen, nitrates, nitrites, ammonia). Research is made on the productivity of the water, the phyto- and zooplankton distribution, the biological oxygen demand, the distribution of Meio- and Macro-benthos and that of demersal fish species. Algae and mussels are being cultured on a mobile floating station anchored in the harbour to determine the influence of nutrient enriched water on their growth rate. Other activities planned include the determination of phosphates, organic sediments and heavy metals.											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Universidade do Porto Address : Instituto de Zoologia e Estacao de Zoologia Maritima 'Dr. Augusto Nobre' Porto , Portugal Director : A. Mateus		
Project leader(s) : A. Mateus Address : same as above		
Co-operating institution(s) :		
Supporting or funding body : Instituto de Zoologia 'Dr. Augusto Nobre' Instituto Nacional de Investigacao Cientifica , Ministerio da Educacao e Investigacao Cientifica.		
Starting dates/duration of programme/project : 1976		
Name of lagoon(s) : Aveiro (Ria)		
Geographic location west coast, w. of Aveiro	lat. : 40° 39' N long. : 8° 53' W	Code : surface area : 100 Km ²

Portugal											
Title of programme : Study of Amphipoda fauna.											
	I	II	III	IV	V X	VI	VII	VIII	IX	X	G.S. X
literature and/or reports available : yes											
Description and objectives of the programme/project (summarized) : The amphipod fauna of the "ria de Aveiro" is studied in relation with pollution which is produced by industrial activity (paper-mill factory).											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution :	Museum of Natural History
Address :	"Grigore Antipa" Bucurest 71268-R-Bucarest Chaussée Kildeff 1, Romania
Director :	Mihai Bacescu
Project leader(s) :	Mihailescu Nicolae
Address :	Institute of Geology and Geophysics 78344-R-Bucarest Caransebes 1 Romania
Co-operating institution(s) :	Institute of Geology and Geophysics, Bucurest Museum of Natural History "Grigore Antipa" Geographical Research Laboratory "Stejarul" Pînzarati
Supporting or funding body :	Ministry of Education Ministry of Mining, Petroleum and Geology
Starting dates/duration of programme/project :	1971/1981
Name of lagoon(s) :	Rarelm, Golovitzs, Zineica, Sinoie
Geographic location	lat. : 45°01'-44°20' long. : 28°30'-29°08' Code : Map(s) : yes surface area : 860 km ²

Romania											
Title of programme : The complex study of the Danube Delta and the littoral lagoons with a view to identifying certain concentrations of useful minerals											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
			X	X	X						
Existing training programme: no											
Description and objectives of the programme/project (summarized) : This ten year, on-going programme is aimed at an interdisciplinary study of lagoonal and nearby terrestrial sediments. The investigation involves geology, geophysics, chemistry, paleontology, zoology and microbiology.											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution :	University College of North Wales, Bangor	
Address :	Department of Marine Biology, Marine Science Laboratories, Menai Bridge, Gwynedd, North Wales, UK	
Director :	David A. Jones	
Project leader(s) :	David A. Jones	
Address :	University College of North Wales, Bangor, Department of Marine Biology, Marine Science Laboratories, Menai Bridge, Gwynedd, North Wales, UK	
Co-operating institution(s) :	ARAMCO Marine Biology Unit, Dhahran, Saudi Arabia	
Supporting or funding body :	Joint Funds from University College of North Wales and Saudi Arabian Ministry of Agriculture and Water	
Starting dates/duration of programme/project :	1973/1975	
Name of lagoon(s) :	Dawhat as Sahr	
Geographic location	lat. : 27°00' N long. : 49°40' E	Code : surface area :

Saudia Arabia										
Title of programme : Biological study of lagoons on the eastern seabord of Saudi Zrabia (Arabian Gulf) .										
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X	X			X	X	X
lietrature and/or reports available : yes										
Description and objectives of the programme/project (summarized) :										
This biological study of a high saline lagoon system investigated the possibility of establishing a Penaid shrimp culture . Physical factors that were measured included temperature and salinity (annual cycle and daily regime); sediment analysis (both of beaches and benthos); primary and secondary productivity . A quantitative study was made of intertidal and sublittoral fauna and flora, and a qualitative net fishing survey was conducted . The conclusions of the study was that the salinity was probable too high for the postlarvae of the local commercial penaaid shrimp (<i>Penaeus semisulcatus</i>), although the juvenile through adults would tolerate the salinite level . The temperatures are ideal; benthic productivity was high, but even so supplementary feeding would be required .										

SCOR/Unesco enquiry on existing lagoon research programmes			
Institution : South African Association for Marine Biological Research Address : P.O. Box 736, Durban, South Africa 4000 Director : A.E.F. Heydorn			
Project leader(s) : G.W. Begg Address : South African Association for Marine Biological Research, P.O. Box 736, Durban, South Africa 4000			
Co-operating institution(s) : Technical Advisory Group comprising various universities and Government departments			
Supporting or funding body : Natal Town and Regional Planning Commission			
Starting dates/duration of programme/project : 1976/1978			
Name of lagoon(s) : Over 70 lagoons			
Geographic location East coast of South Africa		lat. : 26° 50' S to 31° 05' S long. : .	Code : Maps : yes surface area :

South Africa											
Title of programme : A summary of the available information on Natal's estuaries and lagoons											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
X				X					X		
Description and objectives of the programme/project (summarized) : An assessment is being made of the present day knowledge of all Natal's estuaries and lagoons in the following manner : scrutiny of both published and unpublished information of Natal's estuaries ; consultation with Technical Advisory Group; consultation with local authorities concerned with estuaries; and interpretation of recent colour aerial photography (1:10,000) of Natal coast . This data will then begin the scientific basis upon which the management of these resources can be based .											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Department of Zoology Address : University of Capetown, Rondebosch 7700, Capetown, South Africa Director : R.C. Newell		
Project leader(s) : R.C. Newell Address : University of Capetown, Department of Zoology, Rondebosch 7700, Capetown, South Africa		
Co-operating institution(s) :		
Supporting or funding body : University of Odense; University of Capetown.		
Starting dates/duration of programme/project : 1975/at least 1980		
Name of lagoon(s) : Lagoons near Port Victoria, Mahe and Seychelles		
Geographic location	lat. : long. :	Code : surface area :

South Africa											
Title of programme : Energetic requirements and nutritional resources of suspension-feeding bivalves											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
				X	X		X				
existing training programme : yes											
Description and objectives of the programme/project (summarized) : The work has been designed to study the simultaneous effects of temperature and food availability on growth in suspension-feeding animals . It has been found that the balance between energy gain (the irrigation rate) and energy expenditure (metabolic rate) of various food concentrations can be adjusted to conform with local environmental temperatures and defines the potential for growth at each environmental temperature . It is hoped that earlier work will be extended to develop similar data for deposit-feeding and herbivorous species in the lagoons . The objective then will be to establish a standing crop of several non-competing organisms of commercial importance .											

SCOR/Unesco enquiry on existing lagoon research programmes ⁴	
Institution : University of Barcelona, Faculty of Sciences Department of Ecology Address : Pza. Universitaria Barcelona 7, Spain Director : R. Margalef	
Project leader(s) : F. Comin X. Ferrer Address : same address as above	
Co-operating institution(s) :	
Supporting or funding body : Instituto Nacional para la Conservacion de la Naturaleza (ICONA) Ministerio de Agricultura Universidad de Barcelona	
Starting dates/duration of programme/project : 1976	
Name of lagoon(s) : Ebro, la Encañizada	
Geographic location Delta of Rio Ebro (Tarragona province)	lat. : 41°42' N long. : 0° 50' E Code : maps : yes surface area : 90 Km ²

Spain											
Title of programme : Ecological studies of the Encañizada lagoon.											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X	X					X	
literature and/or reports available: yes											
Description and objectives of the programme/project (summarized) : The project is based on an annual study of nutrients and other physico-chemical factors. Biomass and production of plankton community, macrophytes and crustaceans are considered.											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution :	University of Sri Lanka	
Address :	University of Sri Lanka Department of Zoology Vidyalankara Campus Kelaniya, Sri Lanka	
Director :	S.S. de Silva	
Project leader(s) :	S.S. de Silva	
Address :	University of Sri Lanka Department of Zoology Vidyalankara Campus, Kelaniya, Sri Lanka.	
Co-operating institution(s) :		
Supporting or funding body :	National Science Council of Sri Lanka; International Foundation for Science, Stockholm, Sweden	
Starting dates/duration of programme/project :	August 1976/1978	
Name of lagoon(s) :	Negombo Lagoon	
Geographic location	lat. : 7°10'N long. : 79°50'E	Code : surface area : 40.9 km ²

Sri Lanka										
Title of programme :										
Feasibility studies on mono and polyculture of grey mullet, <u>Mugil cephalus</u> L. and a study of the hydrobiology of the Negombo Lagoon.										
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
			X	X						X
Existing training programme: no										
Description and objectives of the programme/project (summarized) :										
The present project is an attempt to estimate the potential of fry availability and the hydrobiological characters which determine the availability and concentration of fry at different places in the lagoon. The project also involves large scale pond experiments to investigate the potential of mono and poly culture of <u>Mugil cephalus</u> L. and also to evaluate the optimum density, primary production and other parameters in the ponds.										

SCOR/Unesco enquiry on existing lagoon research programmes			
Institution :	Institute of Zoology		
Address :	Uppsala University Box 561, S-751 22 Uppsala, Sweden		
Director :	K.G. Nyholm		
Project leader(s) :	Svaite Eriksson		
Address :	as above		
Co-operating institution(s) :	The Research Station of the Swedish Atomic Agency		
Supporting or funding body :	Swedish Natural Research Council Uppsala University		
Starting dates/duration of programme/project :	1973/1979		
Name of lagoon(s) :	Kuarnbukten Bay		
Geographic location Gulmar Fjord	lat. : 58°15'N long. : 11°28'E	Code :	surface area :

Sweden											
Title of programme : Autecology, population dynamics and energy budget of dominating macrofauna species on a marine sandy bottom.											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
					X		X			X	
Description and objectives of the programme/project (summarized) : The aim is to give a description of energy transformations and regulatory mechanisms within the <u>Macoma</u> community. As associated project studies the abundance and distribution of ciliates.											

SCOR/Unesco enquiry on existing lagoons research programmes

Institution : East African Marine Fisheries Research Organization

Address : P.O. Box 668,
Dar Es Salaam,
Tanzania

Director : George E.B. Kiraka

Project leader(s) : W. Kudhongania

Address : East African Marine Fisheries Research Organization
P.O. Box 668,
Dar es Salaam,
Tanzania

Co-operating institution(s) :

Supporting or funding body : East African Community (Kenya, Uganda and Tanzania)

Starting dates/duration of programme/project :

Name of lagoon(s) :

Geographic location

lat. :

long. :

Code :

surface area :

Tanzania

Title of programme :

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
						X				

Description and objectives of the programme/project (summarized) :

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Marine Biological Station of the University of Dar-es-Salaam

Address : P.O. Box 35064,
Dar es Salaam,
Tanzania

Director : A.S. Msangi

Project leader(s) : C. Sankarankutty

Address : Marine Biology Station of the University of Dar es Salaam,
P.O.Box 35064,
Dar es Salaam,
Tanzania

Co-operating institution(s) :

Supporting or funding body : University of Dar es Salaam

Starting dates/duration of programme/project : 1077/1978

Name of lagoon(s) : Kunduchi Creek, Dar es Salaam

Geographic location lat. : 6° 40' S
16 km North of
Dar es Salaam long. : 39° 15' ECode :
surface area :

Tanzania

Title of programme : Studies on zooplankton of Kunduchi Creek, Dar es Salaam,
with special reference to diurnal changes and influence
of tidal flow

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X						

Description and objectives of the programme/project (summarized) :

The project currently under investigation is expected to give the following information : composition of plankton, diurnal changes in composition and inflow and outflow of zooplankton of the creek for a 24-hour cycle during both spring neap tide .

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution :	Faculty of Forestry, Kasetsart University
Address :	Faculty of Forestry Kasetsart University Bangkok 9, Thailand.
Director :	Chongrak Prichananda
Project leader(s) :	Sanit Aksornkoae
Address :	Faculty of Forestry Kasetsart University Bangkok 9, Thailand
Co-operating institution(s) :	Royal Thai Forest Department
Supporting or funding body :	Faculty of Forestry, Kasetsart University
Starting dates/duration of programme/project :	1974/1975
Name of lagoon(s) :	Welu
Geographic location	lat. : 12°N long. : 102°-103°E.
Code :	surface area : 190 km ²

Thailand											
Title of programme :											
Structure, regeneration and productivity of mangroves in Thailand											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
				X							
Literature and/or reports available: in preparation											
Existing training programme: no											
Description and objectives of the programme/project (summarized) :											
The study of mangroves covered three parts: (1) mangrove community structure; (2) mangrove regeneration, and (3) mangrove plantation productivity. The first (study of mangrove community structure) was to describe the natural plant communities in terms of species zonation, species composition, species diversity and stem volume. The objectives of the mangrove regeneration study were to determine species suitability to site (clear-area), growth rates related to species and distances from the estuary edge to the land, and the time of year in which maximum growth occurs for each species. In regards to the mangrove plantation productivity study, the objectives were to explore possible correlation between (1) plantation age and plant component biomass, and (2) diameter and height measurement relationships with total biomass and stem volume.											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution :	Prince of Songkla University Lake Songkla Project	
Address :	Haadyai, Thailand	
Director :	Phasuk Kullayanich	
Project leader(s) :	Danai Limpadanai	
Address :	Prince of Songkla University Lake Songkla Project Haadyai, Thailand	
Co-operating institution(s) :	National Environment Board, Department of Fisheries	
Supporting or funding body :	Thai Government	
Starting dates/duration of programme/project :	March 1976/1981	
Name of lagoon(s) :	Lake Songkla	
Geographic location	lat. : 100°4'N long. : 7°5'E	Code : surface area : 1050 km ²

Thailand											
Title of programme : Lake Songkla Project											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
			X							X	
Existing training programme: no											
Description and objectives of the programme/project (summarized) : The following studies of the lake vicinity are being carried out: geomorphology, lake hydrology, ecology, exploitation of the lake's resources, and pollution. The programme of research and development includes basic data collection, monitoring technique and studies, particular scientific research, development of projects and programmes, and policy and programme guidelines.											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution :	Phuket Marine Biological Centre	
Address :	Phuket Marine Biological Centre P.O. Box 60 Phuket, Thailand.	
Director :	Uruphun Boonprakah	
Project leader(s) :	Pensri Boonruang Prawin Wootisdriapingo Nansa Chansang	
Address :	Phuket Marine Biological Centre P.O. Box 60 Phuket, Thailand	
Co-operating institution(s) :		
Supporting or funding body :	Department of Fishery; Danish International Development Aid	
Starting dates/duration of programme/project :		
Name of lagoon(s) :	Ao Nam Bor Mangroves	
Geographic location	lat. : 7°5'N long. : 97°25'E	Code : surface area : 4 km ²

Thailand											
Title of programme :											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X	X	.					X
Literature and/or reports available: yes											
Description and objectives of the programme/project (summarized) :											
A one-year study was conducted on the phenology of the mangrove trees in Southern Thailand. In addition, a one-year cycle on the primary production in a mangrove area was studied, as well as the influence of the heavy metals copper and mercury on photosynthesis.											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Institut National Agronomique 43 av. Charles Nicolle Address : Tunis , Tunisia Director : K. Belkodja		
Project leader(s) : J. Zaousli Address : same address as above		
Co-operating institution(s) : Office National des Pêches		
Supporting or funding body : Ministry of Agriculture		
Starting dates/duration of programme/project : 1972		
Name of lagoon(s) : Ichkeul lake, Bizerte lake, Tunis lake, Kelbia lake, Bongara sea, Biban sea, Khiuss lake		
Geographic location lat. : 37°-33° N long. : 9°35'-11°30'E	Code : surface area : appr.940 km ²	

Tunisia											
Title of programme : Lagoons and salt lakes of Tunisia. Ecology and productivity.											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
			X	X	X	X	X				X
literature and/or reports available : yes											
existing training programme : no											
Description and objectives of the programme/project (summarized) : The project is a general survey of the principal coastal lagoons of Tunisia. Geological, chemical and biological aspects are studied as well as fisheries resources and aquaculture.											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Université Claude Bernard Lyon I Département des Sciences de la Terre Address : 15-43 Ed. du 11 novembre 1918 69626 Villeurbanne, France Director : L. David	
Project leader(s) : G. Carbonnel Address : same as above	
Co-operating institution(s) : Paleontologiska Institutionen Uppsala, Sweden	
Supporting or funding body : C.N.R.S.	
Starting dates/duration of programme/project : 1978	
Name of lagoon(s) : Boug-Eara, Sebha kalbia, Bibans sea	
Geographic location Tunisia	lat. : 36°10'-30' N long. : 10°20'-11° E Code : surface area :

Tunisia											
Title of programme : Paleoecology studies											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
			X		X						
Description and objectives of the programme/project (summarized) : The project is an attempt to describe the existing relationships between the physico-chemical characteristics of the waters and the shell morphology of different organisms. Paleoecological interpretation.											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : University of Tunis, Faculty of Sciences Biology Laboratory Address : Tunis Campus University El Menzah, Tunis , Tunisia Director : M. Fekih	
Project leader(s) : K. Ben Hassine Ktari Address : same as above	
Co-operating institution(s) : Office National des Pêches	
Supporting or funding body : Ministry of National Education	
Starting dates/duration of programme/project : 1969	
Name of lagoon(s) : Tunis, Bizerte, Ischkeul, Monastir, Kelibia, Bibans Porto Farina.	
Geographic location lat. : 37°20'-33°10'N long. : 9°35'-11°30'E	Code : surface area : approx. 940 km ²

Tunisia											
Title of programme : Ectoparasites of lagoonteleost fish.											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
				X						X	
literature and/or report available : yes											
existing training programme : no											
Description and objectives of the programme/project (summarized) : The project is dealing with a general survey of different lagoons of Tunisia. Parasitic copepods of different species of fish are studied.											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution :	Ege University	
Address :	Faculty of Science Department of General Zoology Bornova Izmir, Turkey	
Director :	R. Geldiay	
Project leader(s) :		
Address :		
Co-operating institution(s) :		
Supporting or funding body :		
Starting dates/duration of programme/project :		
Name of lagoon(s) :		
Geographic location	lat. : long. :	Code : surface area :

Turkey											
Title of programme :											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
						X					
Description and objectives of the programme/project (summarized) :											

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Zoology Department
 Address : Queen's University
 Belfast
 North Ireland , United Kingdom
 Director : G. Owen

Project leader(s) : R. Seed

Address : Zoology Department
 Queen's University
 Belfast, Northern Ireland United Kingdom

Co-operating institution(s) :

Supporting or funding body :
 Natural Environment Research Council

Starting dates/duration of programme/project : 1972/1977

Name of lagoon(s) : Strangford Lough
 Belfast Lough

Geographic location lat. : Code :
 long. : * surface area :

United Kingdom

Title of programme :

The ecology of Modiolus modiolus (L.) and Cerastoderma (= Cardium) edule (L.)
 in Strangford Lough, Northern Ireland.

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X						

Literature and/or reports available: yes

Description and objectives of the programme/project (summarized) :

Some aspects of the reproduction, growth and mortality of the three common bivalve species found on the Irish coast, Cerastoderma edule, Mytilus edulis, and Modiolus modiolus. These data were used in an attempt to explain differences in their population ecology and to provide comparisons between them, particularly in the light of the environmental differences between their respective habitats.

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution :	Marine Biology Station	
Address :	Portaferry County Down, BT22 1PF Northern Ireland	
Director :	P.J.S. Boaden	
Project leader(s) :	P.J.S. Boaden G. Savidge	
Address :	as above	
Co-operating institution(s) :		
Supporting or funding body :	The Queen's University of Belfast	
Starting dates/duration of programme/project :	open ended	
Name of lagoon(s) :	Strangford Lough	
Geographic location County Down, Northern Ireland	lat. : long. :	Code : surface area :

United Kingdom										
Title of programme :										
Studies of Strangford Lough										
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X	X				X	
Literature and/or reports available: yes										
Description and objectives of the programme/project (summarized) :										
The projects being conducted in Strangford Lough are: (1) chemical and respiratory ecology of marine meiobenthos, particularly with anaerobic meiofauna on a sewage polluted beach; and (2) epifaunal ecology of intertidal algae, in particular an investigation of factors affecting community structure and composition of fauna associated with <u>Fucus serratus</u> in a small lagoon system.										

SCOR/Unesco enquiry on existing lagoon research programmes			
Institution :	Scottish Marine Biological Association		
Address :	P.O. Box 3 Oban, Argyll, Scotland.		
Director :	R.I. Currie		
Project leader(s) :	A. Edwards		
Address :	as above		
Co-operating institution(s) :			
Supporting or funding body :	Natural Environment Research Council		
Starting dates/duration of programme/project :	1971/ongoing		
Name of lagoon(s) :	Etive, Creran, Levein, Alfort and others		
Geographic location	lat. : 56°30' N	Code :	
West coast of Scotland	long. : 5°30' W	surface area :	

United Kingdom											
Title of programme :											
Scottish Loch Studies											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
		X			X	X					X
Literature and/or reports available: yes											
Existing training programme: no											
Description and objectives of the programme/project (summarized) :											
This ongoing programme has two different aspects: (1) studies on the circulation of Scottish fjords, the influence of sills upon bottom sediments, the renewal of fjordic bottom water as a function of climate and tide, and modelling of the surface layers; and (2) fjords as aquaculture sites. The sub-project associated with this second aspect has the aim of quantifying the oxygen flow into stocked cages of fish and to make a model of oxygen concentration in the cages. The model is to be tested in a commercial farm.											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution :	University College of North Wales	
Address :	Marine Science Laboratories Menai Bridge, Gwynedd, U.K.	
Director :	G.E. Fogg	
Project leader(s) :	E.I.S. Rees	
Address :	as above	
Co-operating institution(s) :	Nature Conservancy Council North Wales Naturalist Trust	
Supporting or funding body :		
Starting dates/duration of programme/project :	1975/1976	
Name of lagoon(s) :	Cemlyn and Inland Sea, Holyhead	
Geographic location	lat. :	Code :
Anglesey, N. Wales, UK	long. :	surface area :

United Kingdom											
Title of programme :											
Ecological surveys of Gwynedd estuaries											
	I	II	III	IV	V X	VI	VII	VIII	IX	X	G.S. X
Description and objectives of the programme/project (summarized) :											
An ecological description and a survey of the semi-artificial lagoons was made to provide background data for management of the sites as nature reserves.											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution :	University of Cambridge	
Address :	Department of Zoology Downing Street Cambridge CB2 3EJ, UK	
Director :		
Project leader(s) :	R.S.K. Barnes	
Address :	as above	
Co-operating institution(s) :	University of Bristol	
Supporting or funding body :		
Starting dates/duration of programme/project :	1968/ongoing	
Name of lagoon(s) :	Swanpool	
Geographic location Falmouth, Cornwall Norfolk, Suffolk, Hampshire, etc.	lat. : 50°7'N long. : 5°4'W	Code : surface area :

United Kingdom											
Title of programme :											
Biology of coastal lagoons											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
				X						X	
Literature and/or reports available: yes											
Existing training programme: no											
Description and objectives of the programme/project (summarized) :											
Work concerns the primary production of the phytoplankton, nutrient cycling, and the population dynamics of the detritus-feeding benthos.											

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : White Fish Authority
Sea Fisheries House
Address : 10 Yoing Street
Edinburgh EH2 4JQ . U.K.

Director : N.M. Kerr

Project leader(s) : S.J. Kingswell

Address : White Fish Authority
Marine Farming Unit
Ardtoe, Acharade, Argyll, PH36 4LD

Co-operating institution(s) :

Strathclyde University, Civil Engineering Dept.
Dept. of Agriculture and Fisheries, Fisheries Lab., Aberdeen
" " " " " Lowestoft

Supporting or funding body :

United Kingdom Government
Fishing Industry

Starting dates/duration of programme/project : 1965

Name of lagoon(s) : Ardtoe Pond

Geographic location lat. : 54°46' N
long. : 5°53' W

Code :
surface area : 0.02 km²

United Kingdom

Title of programme :

Research and development of commercial farming of marine flat fish
and shellfish

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
					X					X

Literature and/or reports available : yes

existing training programme : no

Description and objectives of the programme/project (summarized) :

The project is considering the possibilities of improving fish farming
in an intertidal lagoon of 2 ha replenished during peak of spring tides through
a system of sluice valves.

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution :	Scottish Marine Biological Association	
Address :	P.O. Box 3 Oban Argyll, Scotland	
Director :	R.I. Currie	
Project leader(s) :	Peter J. Landless	
Address :	Scottish Marine Biological Association P.O. Box 3 Oban, Argyll, Scotland	
Co-operating institution(s) :		
Supporting or funding body :	Natural Environment Research Council	
Starting dates/duration of programme/project :	1975/ongoing	
Name of lagoon(s) :	various	
Geographic location	lat. :	Code :
Argyll, Scotland	long. :	surface area :

United Kingdom											
Title of programme :											
Recall feeding in aquaculture Acclimatization of trout to sea water											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
					X	X					
Literature and/or reports available: yes											
Description and objectives of the programme/project (summarized) :											
This programme has two phases: (1) Acclimatization: to reduce losses in the transfer of rainbow trout from fresh water to sea water, and to accomplish this at as small a fish size as possible; and (2) recall-feeding: to condition rainbow trout to associate a sound signal with food, and to use this conditioned response to attract the fish to a specific area for feeding and recapture.											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution :	Zoology Department
Address :	University of Manchester Oxford Road Manchester M13 9PL, UK
Director :	E.R. Trueman
Project leader(s) :	E.R. Trueman
Address :	as above
Co-operating institution(s) :	
Supporting or funding body :	
Natural Environment Research Council (NERC)	
Starting dates/duration of programme/project : 1968/1977	
Name of lagoon(s) : none specifically	
Geographic location	lat. : long. :
	Code : surface area :

United Kingdom											
Title of programme :											
Effect of environmental variables on activity of marine invertebrates											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
				X							
Description and objectives of the programme/project (summarized) :											
This study was on patterns of activity of littoral and benthic molluscs, polychaetes and arthropods in their natural habitat, and the factors affecting them. Assessment was made of the energy requirements of marine benthic invertebrates during activity, such as burrowing, in different habitats.											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Belle W. Baruch Institute for Marine Biology and Coastal Research Address : University of South Carolina, Columbia, South Carolina 29208, USA Director : F. John Vernberg	
Project leader(s) : F. John Vernberg Address : Belle W. Baruch Institute for Marine Biology and Coastal Research, University of South Carolina, Columbia, South Carolina 29208, USA	
Co-operating institution(s) : Smithsonian Institute	
Supporting or funding body : University of South Carolina; Baruch Foundation; Environmental Protection Agency; National Science Foundation; NASA.	
Starting dates/duration of programme/project : 1970/indefinite	
Name of lagoon(s) : North Inlet Estuary	
Geographic location Near Georgetown, South Carolina	lat. : long. :
Code : surface area :	

USA										
Title of programme : The Dynamics of the North Inlet Estuary										
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
	X			X			X			
Description and objectives of the programme/project (summarized) : The study consists of two separate but interrelated substudies : 1) Macroecosystem study and 2) Microecosystem study . The macroecosystem was designed to study the dynamics of a relatively undisturbed marsh-estuarine ecosystem . There are two interrelated objectives of this study : 1) to establish baseline data for comparative study on a undisturbed estuary to provide a scientific basis for comparative studies on effects of various stresses of pollutants on other estuarine environments ; and 2) to develop models of an estuarine ecosystem which would predict probable effects of environmental perturbation . The prime objective of the microecosystem is to develop and test replicate experimental salt marsh units at the microecosystem level as diagnostic tools for the assessment of both long- and short-term pollution effects on the <u>Spartina alterniflora</u> salt marsh community .										

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Center for Wetland Resources Address : Louisiana State University Baton Rouge, Louisiana 70803 USA Director : J. Van Lopik	
Project leader(s) : John Day Address : Center for Wetland Resources Louisiana State University Baton Rouge, Louisiana 70803 USA	
Co-operating institution(s) :	
Supporting or funding body : NOAA; Sea Grant; State of Louisiana; US Army Corp of Engineers; Environmental Protection Agency.	
Starting dates/duration of programme/project : 1976/ongoing	
Name of lagoon(s) : Barataria	
Geographic location lat. : 30°N long. : 90°W	Code : surface area : 6000 km ²

USA										
Title of programme : Water Resource Management in the Barataria Basin										
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X			X		X	
literature and/or reports available: yes										
existing training programme: yes										
Description and objectives of the programme/project (summarized) : Primary production, water chemistry, soil chemistry of swamp forests under three different management practices, eutrophication of downstream receiving waters, and nursery functions of estuarine wetlands are the important elements of this current research.										

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : City College of City University of New York Address : Marine Microbiological Ecology Laboratory Convent Ave. at 138 st. New York, New York 10031, U.S.A. Director : John Lee	
Project leader(s) : John J. Lee John H. Tietjen Address : Department of Biology City College of CUNY Convent Ave at 135 st New York, New York 10031, U.S.A.	
Co-operating institution(s) : Woods Hole Oceanographic Institution, Woods Hole, Mass. Marine Biological Laboratory, Woods Hole, Mass.	
Supporting or funding body : E.R.D.A. N.S.F.	
Starting dates/duration of programme/project : 1958	
Name of lagoon(s) : Jamaica Bay; North Sea Harbor-Peconic bay L.I.; Buzzards Bay, Mass	
Geographic location Long Island N.Y. Cape Cod Bay, Mass.	lat. : long. : Code : surface area :

USA																																	
Title of programme : Energetics and community structure in shoal benthic ecosystems.																																	
<table border="1"> <tr> <td>I</td> <td>II</td> <td>III</td> <td>IV</td> <td>V</td> <td>VI</td> <td>VII</td> <td>VIII</td> <td>IX</td> <td>X</td> <td>G.S.</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> </tr> </table>												I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.					X			X			
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.																							
				X			X																										
Description and objectives of the programme/project (summarized) . The programme has two main aspects : - functional relationships underlying the energetics and community structure of organisms at lower intermediate steps of temperate marine shoal benthic food webs, - effects of environmental stress on the community structure and productivity on salt marsh epiphytic communities.																																	

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Coastal Studies Institute Address : Louisiana State University Baton Rouge, Louisiana 70803 USA Director : James M. Coleman		
Project leader(s) : James M. Coleman Address : Coastal Studies Institute Louisiana State University Baton Rouge, Louisiana 70803 USA		
Co-operating institution(s) :		
Supporting or funding body : Office of Naval Research.		
Starting dates/duration of programme/project : January 1973/ 1977		
Name of lagoon(s) : Santa Rosa Sound, Choctawhatchee Bay		
Geographic location Gulf Coast, USA	lat. : long. :	Code : surface area :

USA											
Title of programme : Circulation in Santa Rosa Sound and Choctawhatchee Bay, Gulf Coast											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
	X	X	X								
Description and objectives of the programme/project (summarized) : Interconnecting bays and lagoons have been studied for circulation and exchange patterns and how these relate to sediment transport in the bays and lagoons.											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Coastal Studies Institute Address : Louisiana State University Baton Rouge, Louisiana 70803 USA Director : James M. Coleman		
Project leader(s) : James M. Coleman Address : Coastal Studies Institute Louisiana State University Baton Rouge, Louisiana 70803 USA		
Co-operating institution(s) :		
Supporting or funding body : Office of Naval Research.		
Starting dates/duration of programme/project : January 1976/December 1977		
Name of lagoon(s) : an arctic lagoon		
Geographic location Peard Bay, Alaska	lat. : long. : °	Code : surface area :

USA										
Title of programme : Oceanography of an Arctic lagoon, Peard Bay, Alaska										
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
	X	X	X							
Description and objectives of the programme/project (summarized) : Brine rejection by ice was found to be important in lagoonal water character.										

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Duke University Address : Marine Laboratory, Beaufort, North Carolina 28516, USA Director : John D. Costlow	
Project leader(s) : Richard T. Barber Address : Duke University, Marine Laboratory, Beaufort, North Carolina 28516, USA	
Co-operating institution(s) :	
Supporting or funding body : Water Resources Research Institute	
Starting dates/duration of programme/project : 1974/1976 (with some continuing work) .	
Name of lagoon(s) : South River Estuary	
Geographic location Esta Coast of USA	lat. : long. : Code : surface area :

USA											
Title of programme : The Water Quality Ramifications of Converting Forest to Intensive Agriculture											
	I	II	III	IV	V	VI	VII	VIII	IX	X	U.S.
				X	X						
Description and objectives of the programme/project (summarized) : A two-year study on the impact of converting swamp pine forest to intensive agriculture land on the water quality properties of South River estuary, especially changes in water quality that might affect the important economic character of this estuary . The basic research plan was to compare the water quality in two different headwaters of the estuary : one area that is surrounded by undeveloped land . Monitoring the water quality of water flowing from farmed land into the various estuarine headwaters is expected to continue . A study is also planned on the functioning of the water impoundment system constructed by a near-by farm, and a study of the fate of suspended sediments entering the estuary in farm runoff .											

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Duke University
Address : Duke Marine Laboratory
 Beaufort, North Carolina 28516,
 USA
Director : John D. Costlow

Project leader(s) : John P. Sutherland

Address : Duke University,
 Duke Marine Laboratory,
 Beaufort, North Carolina 28516,
 USA

Co-operating institution(s) :

Supporting or funding body :

Starting dates/duration of programme/project :

Name of lagoon(s) : Beaufort Inlet, North Carolina
 (and also Buche Bay, Venezuela)

Geographic location	lat. :	Code :
	long. :	surface area :

USA

Title of programme :

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
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X

Description and objectives of the programme/project (summarized) :

The study of the dynamics of fauling communities .

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Florida State University Address : Department of Biological Science Tallahassee, Florida 32306 USA	
Director : E. Gilo De Busk	
Project leader(s) : Albert Collier Address : Florida State University Department of Biological Science Tallahassee, Florida 32306 USA	
Co-operating institution(s) :	
Supporting or funding body : State of Florida.	
Starting dates/duration of programme/project :	
Name of lagoon(s) :	
Geographic location	lat. : long. :
Code : surface area :	

USA											
Title of programme :											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
				X			X				
Description and objectives of the programme/project (summarized) : Various doctoral programmes on organisms of Apalachee Bay. Also, studies of hydrography of Texas Island Bay. Various studies on oysters.											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Florida State University Address : Tallahassee, Florida 32306, USA Director : Robert J. Livingston		
Project leader(s) : Robert J. Livingston Address : Florida State University, Tallahassee, Florida 32306, USA		
Co-operating institution(s) :		
Supporting or funding body : Sea Grant (NOAA); Environmental Protection Agency;		
Starting dates/duration of programme/project : 1971/1977		
Name of lagoon(s) : Apalachicola Bay, Apalachee Bay		
Geographic location North Florida, Gulf of Mexico	lat. : long. :°	Code : surface area :

USA										
Title of programme : Studies of North Florida Estuaries										
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X		X			X	
Description and objectives of the programme/project (summarized) : The major thrust of this six-year study was to determine the responses of individual marine organisms and estuarine coastal communities to gradients of key forcing functions such as temperature, salinity, dissolved oxygen and various forms of aquatic pollution. An emphasis was placed on behavioural aspects of community response (behaviour ecology), and the development of new methods and techniques to allow quantitative collection of aquatic organisms and analytical examination of broad interdisciplinary data banks. Projects involved : a study on the possible effects of pesticides (DDT, DDE, Dieldrin, Mirex) and other forms of pollution on bay ecosystems, simulated marsh habitats and the behaviour and embryological development of specific estuarine organisms; a follow-up study of the ecological effects of pulpmill effluents to determine rate of recovery of water and sediment quality, benthic macrophytes, invertebrates and fishes; and a computer program aimed at developing new methods of analysis for the impact of various forms of gradients (natural and unnatural) on coastal assemblages.										

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Harbor Branch Foundation, Inc.

Address : RFD 1, Box 196,
Fort Pierce, FL.33450,
USA

Director : R.S. Jones

Project leader(s) : M. John Thompson

Address : Harbor Branch Foundation, Inc.
RFD 1, Box 196,
Fort Pierce, FL.33450,
USA

Co-operating institution(s) : Florida Institute of Technology;
Florida Solar Energy Centre;

Supporting or funding body : Harbor Branch Foundation, Inc.;
The Atlantic Foundation;

Starting dates/duration of programme/project : 1976/indefinite

Name of lagoon(s) : Indian River

Geographic location lat. :

Southeastern coast of
Florida long. :

Code :

surface area :

USA

Title of programme : Remote sensing

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
	X			X			X			

Literature and/or reports available : yes

Description and objectives of the programme/project (summarized) :

This research deals primary with the transfer of radiant energy in the hydrosphere, and problems related to absorption, transmission, and reflectance of light in turbid estuarine and lagoonal waters .

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Harbor Branch Foundation, Inc. Address : R.R.I. Box 186, Fort Pierce, Florida 33450, USA Director : Robert S. Jones		
Project leader(s) : Ned P. Smith Address : R.R.I. Box 186, Fort Pierce, Florida 33450 USA		
Co-operating institution(s) :		
Supporting or funding body : Harbor Branch Foundation, Inc.; National Park Service;		
Starting dates/duration of programme/project : 1) 1973/1977 2) 1977/continuing		
Name of lagoon(s) : 1) Upper Laguna Madre, Texas 2) Indian River Lagoon, Florida		
Geographic location 1) Central Gulf Coast of Texas 2) Central Atlantic Coast, Florida	lat. : long. :	Code : surface area :

USA											
Title of programme : 1) Tide and Temperature Study of Upper Laguna Madre, Texas 2) Tide and Temperature Study of the Indian River Lagoon, Florida											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
	X						X				
Description and objectives of the programme/project (summarized) : Both the Laguna Madre and the Indian River studies were designed for the purpose of describing physical processes within, or which include intracoastal lagoons . Specific processes include : the tidal and long-period, meteorologically forced exchanges between the lagoon and the adjacent inner continental shelf; the internal circulation of the lagoon; and the energy exchange processes operating across the air-lagoon interface and producing temperature variations in lagoon waters . The ongoing Indian River study includes a hydrodynamic modeling of intracoastal tides and lagoon-shelf exchanges .											

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Island Resources Foundation
Address : Box 4187
 St. Thomas
 US Virgin Islands 00801
 USA
Director : Edward Towle

Project leader(s) : Maynard Nichols

Address : Box 254
 Gloucester, Virginia 23061
 USA

Co-operating institution(s) :

Supporting or funding body :

US Environmental Protection Agency;
 Government of the Virgin Islands:

Starting dates/duration of programme/project : 1976/1979

Name of lagoon(s) :
 The Mangrove Lagoon

Geographic location	lat. :	Code :
		map : yes
	long. :	surface area :

USA

Title of programme :

Ecological stress in a subtropical coastal lagoon

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
		X	X	X					X	X

Description and objectives of the programme/project (summarized) :

This is a broad study of many aspects of physical and chemical stress on the ecology of a sub-tropical lagoon with the aim to improve water quality and alleviate problems brought by development. The study emphasizes changes in the sediments, hydrography and biota during the last 8 years.

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Island Resources Foundation Box 4187 Address : St. Thomas US Virgin Islands 00801 USA Director : Edward Towle	
Project leader(s) : Maynard Nichols Box 254 Gloucester, Virginia 23061 Address : USA	
Co-operating institution(s) :	
Supporting or funding body : US Environmental Agency; the Government of the Virgin Islands.	
Starting dates/duration of programme/project : December 1977/February 1979	
Name of lagoon(s) : efforts focused on St. Thomas Harbor, the Mangrove Lagoon and Perserverance Bay	
Geographic location lat. : long. :	Code : map : yes surface area :

USA											
Title of programme : Water pollution susceptibility of Virgin Island Bays: a tool for long-term monitoring and management											
I	II X	III	IV	V	VI	VII	VIII X	IX	X	G.S.	
literature and/or reports available: in preparation											
Description and objectives of the programme/project (summarized) : This study consists of an analyses of circulation and flushing dynamics of a number of lagoons in the Virgin Islands. The modelling effort consists of development of a working scheme structured for use in different types of Virgin Island Bays. Assumptions are formulated and computational procedures developed for selected spatial and temporal scales. The model will be run for a variety of water quality parametres, different levels of pollutant discharge and lagoon configurations. Results emerging from the modelling effort are expected to provide guidelines for assessing the pollution potential of lagoons and to predict the effect of alternative wastewater management schemes.											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Island Resources Foundation Address : Box 4187 St Thomas US Virgin Islands 00801 USA Director : Edward Towle	
Project leader(s) : Maynard Nichols Box 254 Gloucester, Virginia Address : USA	
Co-operating institution(s) :	
Supporting or funding body : US Environmental Protection Agency; Government of the Virgin Islands	
Starting dates/duration of programme/project : January 1978/July 1979	
Name of lagoon(s) : Altona Lagoon and Christiansted Harbor	
Geographic location	lat. : long. :
Code : map: yes surface area :	

USA										
Title of programme : Water quality, circulation and environmental resources of Altona Lagoon and Christiansted Harbor										
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
		X	X	X					X	X
literature and/or reports available: yes										
Description and objectives of the programme/project (summarized) : The purpose of this investigation is to study the water quality, circulation biota and sediments in a lagoonal area where mans impact has been moderate to heavy. The lagoon waters are partly stagnant, sediments are anoxic and the mangroves are dying. The study consists mainly of field observations of existing conditions, a review of historical data and analyses of the circulation and flushing characteristics as provided by the tide, mass transport over the reef and by the wind. It is anticipated that recommendations will be offered on how the circulation can be modified to improve the water quality and to enhance productivity while providing for small boat recreation and fishing. An additional concern is on how the impact of growth and development in the watershed can be minimized by management and control.										

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Marine Environmental Sciences Consortium Address : P.O. Box 386, Dauphin Island, Alabama 36528, USA Director : George F. Crozier		
Project leader(s) : M. Susan Ivester and Judy Stout Address : Dauphin Island Sea Laboratory, P.O. Box 386, Dauphin Island, Alabama 36528, USA		
Co-operating institution(s) : Mississippi State University; University of South Alabama; University of Alabama (Birmingham and Tuscaloosa); Alabama Geological Survey;		
Supporting or funding body : Mississippi - Alabama Sea Grant; Alabama Coastal Area Board;		
Starting dates/duration of programme/project : 1975/continuing		
Name of lagoon(s) : Mobile Bay and Mississippi Sound		
Geographic location Gulf of Mexico Gulf of Alabama	lat. : 30° N long. : 88 ° W	Code : surface area :

USA											
Title of programme : Biology and Ecology of Alabama Coastal Marshes											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
					X					X	X
Description and objectives of the programme/project (summarized) : An ongoing study to inventory the distribution and composition of coastal brackish and salt marshes . This includes an investigation on the effect of various management techniques on the productive capabilities and faunal composition of selected dominant vegetation types .											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : San Diego State University Address : Biology Department San Diego, California 92182 USA Director :		
Project leader(s) : Joy B. Zedler and David A. Mauriello Address : San Diego State University Biology Department San Diego, California 92182 USA		
Co-operating institution(s) :		
Supporting or funding body : NOAA Sea Grant to University of California.		
Starting dates/duration of programme/project : 1976/1979		
Name of lagoon(s) : Tijuana Estuary		
Geographic location	lat. : 32°34'	Code :
San Diego County, CA	long. : 117°07'	surface area : 0.9 km ²

USA											
Title of programme : Coastal wetlands management: effects of disturbance on estuarine function											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
				X			X		X		
literature and/or reports available: yes											
Description and objectives of the programme/project (summarized) : The initial work concentrated mainly on 1) the primary productivity of the major ecosystem "compartments" -- salt marsh vascular plants, salt marsh benthic algae, channel benthic algae, and phytoplankton; 2) the conversion of the plants to detritus; 3) the movements of the detritus within the estuary; and 4) the exchange of organic matter with the ocean, both import and export. The emphasis is then expected to shift to comparisons of estuaries having different types and degrees of disturbance, e.g., with studies of open vs. closed ocean entrances, dredged vs. undredged channels. Measured differences will be compared to predictions based on manipulation of a compartmental model for the Tijuana Estuary. The last phase is expected to be largely experimental, with field and laboratory investigations on the impact of various types of disturbances and sensitive ecosystem processes.											

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Texas A & M University
 Address : Geology Department,
 College Station, Texas 77843,
 USA
 Director : Roy W. Hamm

Project leader(s) : Wayne M. Ahr

Address : Texas A & M University,
 Geology Department,
 College Station, Texas 77843,
 USA

Co-operating institution(s) :

Supporting or funding body : NOAA Sea Grant

Starting dates/duration of programme/project : 1974/1976

Name of lagoon(s) : Galveston Bay, Matagorda Bay

Geographic location lat. :
 Upper Texas Gulf coast
 long. : .

Code :
 surface area :

USA

Title of programme : Physical Processes : Upper Texas Coast

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
X		X					X			

Description and objectives of the programme/project (summarized) :

The tasks of this two-year study were : compilation and analysis of data on waves, wind, storms, tides and stream sediment discharge; analysis and interpretation of wave data as they pertain to littoral drift; calculation of littoral drift rates (CERC method 3) and comparison with shore line change survey done by the Texas Bureau of Economic Geology (comparisons favourable at order of magnitude level); and interpretive comments about predictive models for shore line stability .

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : University of Alabama System Address : Marine Science Programmes, P.O. Box 386, Dauphin Island, Alabama 36528, USA Director : G. Crozier	
Project leader(s) : William W. Schroeder Address : Marine Science Programmes, P.O. Box 386, Dauphin Island, Alabama 36528, USA	
Co-operating institution(s) : Dauphin Island Sea Cab	
Supporting or funding body : State of Alabama; Mississippi-Alabama Sea Grant Programme; NASA-GC Marshall Space Flight Centre; University of Alabama System; Water Resources Research Institute;	
Starting dates/duration of programme/project : 1973/indefinite	
Name of lagoon(s) : Mobile Bay, Bon Secour Bay, East Mississippi Sound	
Geographic location	lat. : 30°-31° N Northeastern Gulf of Mexico
Code : surface area :	long. : 87°-88° 5' W

USA											
Title of programme : Descriptive Characterisation of Coastal Alabama : Physical Environment											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
	X	X									
Description and objectives of the programme/project (summarized) : This programme is designed to descriptively characterize the circulation and hydrography of Mobile Bay, East Mississippi Sound and adjacent areas . The measurements include : basic meteorological observations; fixed position current speed and direction; drogue releases (surface to 1 - 2 Metres); time series temperature and salinity at fixed positions; vertical profiles of temperature, salinity and dissolved oxygen over 26 hour periods at fixed positions; and quasi-synoptic surveys of temperature, salinity and dissolved oxygen of preselected areas .											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : University of Texas, Address : Port Aransas Marine Laboratory, Marine Science Institute, Port Aransas, Texas 78373, USA Director : Oswald Roels		
Project leader(s) : Warren Pulich, Jr. Address : Port Aransas Marine Laboratory, Marine Science Institute, Port Aransas, Texas 78373, USA		
Co-operating institution(s) :		
Supporting or funding body :		
Starting dates/duration of programme/project : 1975/continuous		
Name of lagoon(s) : Laguna Madre		
Geographic location South Texas	lat. : long. :	Code : surface area :

USA											
Title of programme : Studies of sea-grass growth and relationship to edaptic conditions, particularly trace minerals in sediments											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
			X	X							
literature and/or reports available : yes											
Description and objectives of the programme/project (summarized) : Trace minerals requirements of seagrasses are being investigated through sediment and plant analysis, plant growth experiments in the laboratory and short-term uptake experiments in the laboratory under controlled conditions . Other sediment parameters such as grain size, porosity, shell (CaCO ₃) content, interstitial water major nutrients and nitrogen cycle processes (e.g. N ₂ fixation, nitrification, denitrification) are also examined or intended for investigation . These studies on mineral nutrition of sea-grasses are believed to be applicable to the problem of growth of terrestrial angiosperm plants on saline soils .											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : University of Puerto Rico Address : Department of Marine Science Mayaguez, Puerto Rico USA Director : Thomas R. Tosteson	
Project leader(s) : M.J. Cerame-Vivas Address : Lund 85 P.O. Box 173 San German, Puerto Rico 00753 USA	
Co-operating institution(s) :	
Supporting or funding body : M.J. Cerame-Vivas, Inc.	
Starting dates/duration of programme/project : on going	
Name of lagoon(s) :	
Geographic location lat. : long. :	Code : surface area :

USA											
Title of programme :											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
				X					X	X	
literature and/or reports available: yes											
Description and objectives of the programme/project (summarized) :											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : University of Rhode Island Address : Kingston, Rhode Island 02881, USA Director :		
Project leader(s) : Scott W. Nixon Address : University of Rhode Island Graduate School of Oceanography Narragansett Bay Campus Kingston, R.I. 02881, U.S.A.		
Co-operating institution(s) :		
Supporting or funding body :		
Starting dates/duration of programme/project :		
Name of lagoon(s) : lagoon system on the western coast of Rhode Island State		
Geographic location lat. : 41° 20' N long. : 71° 40' W	Code : maps : yes surface area : 12 km ²	

USA											
Title of programme : Ecosystem analysis, nutrient cycling and energetics of coastal ecosystems.											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X	X			X			
Literature and/or reports available : yes											
Description and objectives of the programme/project (summarized) : Coupling of lagoons and offshore waters in terms of nutrient flux and particulate organic matter flux. Production consumption and recycling of materials.											

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : University of Texas at Austin

Address : Austin, Texas 78712,
USA

Director :

Project leader(s) : Neal E. Armstrong

Address : University of Texas at Austin,
Department of Civil Engineering,
Austin, Texas 78712,
USA

Co-operating institution(s) :

Supporting or funding body : State of Texas

Starting dates/duration of programme/project : September 1974/August 1977

Name of lagoon(s) : Nueces Bay, San Antonio Bay, Lavaca Bay,
Matagorda Bay, Trinity Bay

Geographic location lat. :

Texas coast long. :

Code :

surface area :

USA

Title of programme : Nutrient exchange in Texas marshes

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X			X	X		

Description and objectives of the programme/project (summarized) :

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : University of Texas Marine Science Institute Address : Port Aransas Laboratory, Port Aransas, Texas 78373, USA Director : C. Burk	
Project leader(s) : Carl H. Oppenheimer Address : University of Texas Marine Science Institute, Port Aransas Laboratory, Port Aransas, Texas 78373, USA	
Co-operating institution(s) :	
Supporting or funding body : Environmental Protection Agency; University of Texas; NATO; NOAA Sea Grant;	
Starting dates/duration of programme/project : 1971/continuing	
Name of lagoon(s) : Texas Estuary Systems, Galveston Bay, Matagorda Bay, San Antonio Bay, Aransas Bay, Corpus Christi Bay, Laguna Madre Systems	
Geographic location lat. : Coast of Texas long. :	Code : surface area : 6070 km ²

USA											
Title of programme : Systems Ecology of Coastal Environment											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
			X	X						X	
Description and objectives of the programme/project (summarized) : This ongoing project was designed to classify coastal environments on a geographic-ecological basis with accompanying pertinent data . The data and subsequent information is used to provide a description of the varied estuarine environments. The system is currently being used to assess waste loading in the State of Texas . It is also being used to develop environmental impact statements for sewage treatment systems, industrial development and general coastal zone management .											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : University of Texas, Address : Port Aransas Marine Laboratory, Marine Science Institute, Port Aransas, Texas 78373, USA Director : O.A. Roels		
Project leader(s) : L. Parker Address : University of Texas, Port Aransas Marine Laboratory, Marine Science Institute, Port Aransas, Texas 78373, USA		
Co-operating institution(s) : University of Hawai; University of Alaska; University of Virginia; Florida State University; Farleigh Dickinson University.		
Supporting or funding body : National Science Foundation		
Starting dates/duration of programme/project : 1975/1980		
Name of lagoon(s) : Laguna Madre and other lagoons in Alaska and Florida		
Geographic location Texas, Alaska and St. Croix, Florida .	lat. : long. :	Code : surface area :

USA											
Title of programme : C ¹³ as tracers in seagrass food webs											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
				X	X						
Lietrature and/or reports available : yes											
Description and objectives of the programme/project (summarized) : This current five-year programme is to study the stable carbon isotope chemistry of seagrass ecosystems . The flow webs will also be studied to determine the extent of seagrass carbon utilization (as measured by change in C ¹³). Comparative studies will be made by doing comparative studies with scientists from other regions of the globe . Experiments will be carried out to discover why seagrass have such unique C ¹³ /C ¹² ratios . The change in C ¹³ of the CO ₂ and change in O ₁₈ of the O ₂ held within the plant will be studied to evaluate their metabolic role and all their implications for productivity measurements .											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Western Washington State College Address : Bellingham, Washington 98225, USA Director : A.C. Broad		
Project leader(s) : Address :		
Co-operating institution(s) :		
Supporting or funding body : National Oceanic and Atmospheric Administration (Outer Continental Shelf Environmental Assessment Programme)		
Starting dates/duration of programme/project : 1975/1981		
Name of lagoon(s) : Beaufort, Kaktovik, Gwydyr Bay, Elson, Pearl Bay, Wainwright Inlet, Kasegalok and Lopp Lagoon		
Geographic location Lagoons on the Alaskan coasts of the Beaufort and Chukchi Seas	lat. : long. : °	Code : surface area :

USA											
Title of programme : Environmental Assessment of Selected Habitats in the Beaufort and Chukchi Sea Littoral Systems											
	I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
					X					X	X
Description and objectives of the programme/project (summarized) : The first task of this five-year study was to delineate and describe the principal intertidal and littoral community types of the Beaufort and Chukchi Sea coasts. Representative and accessible sites will then be selected for more intensive study and description of ecological relationships and trophic communities of the Alaska arctic regions.											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Centre de Ecologia Address : Instituto Venezolano de Investigaciones Cientificas, Apartado 1827, Caracas, Venezuela Director : Gilberto Rodriguez		
Project leader(s) : Address :		
Co-operating institution(s) :		
Supporting or funding body :		
Starting dates/duration of programme/project :		
Name of lagoon(s) : Laguna de Tacarigua		
Geographic location lat. : 10° 05' N long. : 65° 50' W	Code : surface area : 140 km ²	

Venezuela											
Title of programme :											
	I	II	III	IV	V X	VI	VII	VIII	IX	X	G.S.
Existing training programme : yes											
Description and objectives of the programme/project (summarized) : Work has been done on Decapod crustacea .											

SCOR/Unesco enquiry on existing lagoon research programmes		
Institution : Fundacion la Salle de Ciencias Naturales Address : Avda. Boyaca, Edif. Fundacion la Salle Apto. Correo 8150 Caracas , Venezuela Director : Hermano Ginez		
Project leader(s) : Address : Estacion de Investigaciones Marinas de Margarita Apto. 144, Porlamar, Edo. N. Esparta , Venezuela		
Co-operating institution(s) : 		
Supporting or funding body : Fundacion la Salle de Ciencias Naturales		
Starting dates/duration of programme/project : 1976		
Name of lagoon(s) : Restinga lagoon		
Geographic location Margarita Island	lat. : 11°01' N long. : 63°54' W	Code : surface area :

Venezuela											
Title of programme : Restinga lagoon project											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
		X	X	X	X					X	
Description and objectives of the programme/project (summarized) : The project is a general survey with a final objective of improving oyster and shrimp culture on a large scale.											

SCOR/Unesco enquiry on existing lagoon research programmes	
Institution : Universidad Central de Venezuela Address : Instituto de Zoologia Tropical Apartado los Chaguarama 59058 Caracas 104 , Venezuela Director : J. Alberto Leon	
Project leader(s) : Evelyn Zoppi de Roa Address : same address	
Co-operating institution(s) : Oficina Nacional de Pesca (Direccion General de Desarrollo Pesquero), Ministerio de Agricultura y Cria	
Supporting or funding body : Universidad Central, Faculty of Sciences, Caracas	
Starting dates/duration of programme/project : 1976	
Name of lagoon(s) : Tacarigua lagoon	
Geographic location lat. : 10°12'-19' N long. : 65°41'-56' W	Code : maps : yes surface area : 140 km ²

Venezuela											
Title of programme : Variations in the composition and distribution of zooplankton in the Laguna of Tacarigua											
I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.	
	X		X	X							
Reports and/or literature available : yes											
Existing training programme : yes											
Description and objectives of the programme/project (summarized) : Studies on the plan ton communities.											

SCOR/Unesco enquiry on existing lagoon research programmes

Institution : Universidad de Oriente
Instituto de Oceanografia
Address : Cumana, Sucre
Venezuela

Director :

Project leader(s) :

Address :

Co-operating institution(s) :

Supporting or funding body :

Starting dates/duration of programme/project :

Name of lagoon(s) :

Tacarigua
Unare
Piritu

Geographic location

lat. : 10°16'-10°00' N

Code :

long. : 65°58'-65°23' W

surface area :

Venezuela

Title of programme :

Programme on lagoon systems of the eastern coast of
Venezuela

I	II	III	IV	V	VI	VII	VIII	IX	X	G.S.
	X	X	X	X	X	X				

Description and objectives of the programme/project (summarized) :

The topics of this multidisciplinary programme include
geological, chemical and biological aspects as well as physics.

DIRECTORY OF RESEARCH WORKERS

REPertoire DES CHERCHEURS

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2	Report of the first meeting of the joint group of experts on photosynthetic radiant energy held at Moscow, 5-9 October 1964. Sponsored by Unesco, SCOR and IAPO	1965	WG 15
3	Report on the intercalibration measurements in Copenhagen, 9-13 June 1965. Organized by ICES	1966	—
4	Incorporated with Nos. 1, 8 and 14 in No. 27	1966	WG 10
5	Report of the second meeting of the joint group of experts on photosynthetic radiant energy held at Kauizawa, 15-19 August 1966. Sponsored by Unesco, SCOR, IAPO	1966	WG 15
6	Report of a meeting of the joint group of experts on radiocarbon estimation of primary production held at Copenhagen, 24-26 October 1966. Sponsored by Unesco, SCOR, ICES	1967	WG 20
7	Report of the second meeting of the Committee for the Check-List of the Fishes of the North Eastern Atlantic and of the Mediterranean, London, 20-22 April 1967	1968	—
8	Incorporated with Nos. 1, 4 and 14 in No. 27	1968	WG 10
9	Report on intercalibration measurements, Leningrad, 24-28 May 1966 and Copenhagen, September 1966; organized by ICES	1969	—
10	Guide to the Indian Ocean Biological Centre (IOBC), Cochin (India), by the Unesco Curator 1967-1969 (Dr. J. Tranter)	1969	—
12	Check-List of the Fishes of the North-Eastern Atlantic and of the Mediterranean (report of the third meeting of the Committee, Hamburg, April 1969)	1969	—
13	Technical report of sea trials conducted by the working group on photosynthetic radiant energy, Gulf of California, May 1968; sponsored by SCOR, IAPSO, Unesco	1969	WG 15
14	Incorporated with Nos. 1, 4 and 8 in No. 27	1970	WG 10
15	Monitoring life in the ocean; sponsored by SCOR, ACMRR, Unesco, IBP/PM	1973	WG 29
16	Sixth report of the joint panel on oceanographic tables and standards, Kiel, 24-26 January 1973; sponsored by Unesco, ICES, SCOR, IAPSO	1974	WG 10
18	A review of methods used for quantitative phytoplankton studies; sponsored by SCOR, Unesco	1974	WG 33
19	Marine Science Teaching at the University Level. Report of the Unesco Workshop on University Curricula — <i>Available in French, Spanish and Arabic</i>	1974	—