

White Paper: Marine Fisheries Policy for South Africa

5 May 1997

1. PERSPECTIVE AND OVERALL POLICY OBJECTIVE

The long-term vision for a democratic South Africa (as stated in the Macro-Economic Strategy presented by the Department of Finance) is

- a competitive, fast-growing economy which creates sufficient jobs for all work-seekers
- a redistribution of income and opportunities in favour of the poor
- a society in which sound health, education and other services are available to all
- an environment in which homes are secure and places of work are productive.

It is the objective of the marine fisheries policy to improve the overall contribution from the fishing industry to this long-term vision. Since fisheries is a relatively small sector within the national economy, its contribution will remain modest when measured in terms of macro-economic significance. Expansion of the sector's total activity is limited by the natural productive capacity of the living marine resources from which the activities derive, and the necessity to limit and control the total harvesting pressure according to what the resources can sustain on a long-term basis. In spite of these constraints, the fisheries sector is of great importance to the economy in several coastal regions, and for the livelihood of many communities. This perspective permeates all proposals put forward in this White Paper. The fisheries policy is founded on the belief that all natural marine living resources of South Africa, as well as the environment in which they exist and in which mariculture activities may occur, are a national asset and the heritage of all its people, and should be managed and developed for the benefit of present and future generations in the country as a whole.

This document sets out the main policy principles that the Department of Environmental Affairs and Tourism of the Government of South Africa will endeavour to implement through its marine fisheries management institutions in order to achieve this overall policy objective.

It must be stressed here that the term fisheries hereafter refers only to the marine fisheries. Inland (freshwater, and currently also estuarine) fisheries are an even smaller component of the economy, but are still important. They fall under the jurisdiction of the provincial administration or, in the case of aquaculture, the Department of Agriculture. No doubt some of the objectives and discussion that follow could apply equally well to freshwater fisheries, so consideration may have to be given to applying such objectives within other State competencies.

2. BACKGROUND

2.1. Fisheries

2.1.1 Introduction

South Africa has a coastline of some 3,000 km, extending from the Orange River in the west, on the border with Namibia, to Ponta do Ouro in the east, adjacent to Moçambique. The western coastal shelf is highly productive, in common with other upwelling ecosystems around the world, while the east coast is considerably less productive but has a high species diversity, including both endemic and IndoPacific species.

The living marine resources of South Africa have been exploited for many centuries, there being some evidence of abalone having been exploited 125,000 years ago. Approximately 6,000 years ago, the "Strandlopers" (beach-walkers) were already exploiting many marine species, as shown by studies of middens along the coastline. Industrial fisheries started just before the turn of this century and, thereafter, effort escalated rapidly. By the 1960s, catches in several South African fisheries had exceeded sustainable yields and there were sharp declines in some key stocks, prompting initiatives to improve the scientific standard and base for management of the major fisheries.

2.1.2 Demersal fishery

South Africa's most valuable fishery commercially is the demersal fishery, a fishery dominated by deep-sea trawling for the Cape hakes. The fishery developed at the start of the century and grew rapidly after World War II to peak at more than 300,000 tons in the early 1970s. It then went into decline, which prompted the implementation of a larger minimum mesh size and declaration of a 200 nautical mile fishing zone (the former in 1975 and the latter in November 1977). The exclusion of foreign vessels and a conservative management strategy with effect from 1983 led to a gradual recovery in catch rates. In fact, hake catch rates by the mid 1990s had returned to levels last seen in the late 1960s. Since the late 1970s the hake fishery has been controlled largely by means of company-allocated quotas within a Total Allowable Catch (*TAC*), limitations on the number of vessels, and closed areas (mainly where Agulhas sole or pelagic fish are targeted).

A few foreign vessels still operated in South African waters until 1992, but by 1993 the only foreign quota was 1,000 tons of hake awarded for a joint venture with Moçambique in terms of a bilateral fishing agreement.

By 1996, the *TAC* of hake had risen from 120,000 tons in 1983 to about 150,000 tons (still some way short of the anticipated maximum sustainable yield of 180,000-200,000 tons). However, after the closure of an experimental longline fishery for kingklip in 1990, local fishing entrepreneurs exerted considerable pressure for the introduction of hake-directed longlining in South Africa. Longlining is seen as a less capital-intensive method of catching hake and a means by which access to the hake resource can be broadened. Part of the hake *TAC* has therefore been set aside for a scientific and socio-economic experiment to test the advisability of hake-directed longlining. The first phase of the experiment revealed that, in the long term, longlining alone is likely to be more beneficial to the hake resource than trawling alone. Longlines are highly selective and catch adult fish only, whereas trawling is less selective and catches many smaller fish. However, other questions about the impact of longlining remain to be answered, e.g. the different potential impact longlining would have on the two species of hake in our waters. A two-year experimental longline fishery was therefore initiated in 1996; effort is strictly controlled and the catches closely monitored for the collection of scientific and economic data.

Longlining for kingklip started in 1982, peaked in 1985 and then, as catches plummeted, was stopped in 1990. Although by-catches of kingklip catches in the trawl fishery are now showing signs of recovery, they

still constitute only 1.5% of the total demersal landings, compared to 2-3% in the years preceding longlining.

The inshore trawl fishery operates along the south coast and comprises mostly small side trawlers working in waters shallower than 110 m on the Agulhas Bank. This fishery lands only 6% of the national hake catch but almost all of the sole catch. Sole is by far the most valuable species of finfish per unit mass landed in South Africa, although it constitutes only 0.5% of the total demersal catch. In 1978 the TAC was 700 tons, but it was increased to 950 tons in 1983. Since then, it has been reduced gradually to 872 tons as more data have been accrued and the modelling of the resource has become more rigorous. The fishery has on occasion been unable to fill these quotas, the scarcity of sole being attributed to environmental effects caused by *El Niño*/Southern Oscillation (ENSO) events.

The midwater trawl fishery is relatively small and targets exclusively adult horse mackerel, which are also caught by the inshore and deep-sea trawl fisheries. Although adult horse mackerel are abundant on the south coast, their unpredictable behavioural patterns sometimes make them difficult to catch. Bottom and midwater trawling are often done alternately by the same vessel, depending on the availability of the species. Unfortunately, data for assessment of horse mackerel are not sufficiently rigorous to allow establishment of a TAC, so an annual precautionary upper limit of catch of 58,000 tons is currently in operation for all horse mackerel trawled east of Cape Hangklip.

2.1.3 Pelagic fishery

The pelagic fishery is South Africa's largest in terms of volume landed. From 1975 until 1990, total catches fluctuated between 350,000 and 450,000 tons, except in 1987 and 1988 when catches averaged 675,500 tons, the largest since the inception of the fishery in the late 1940s. In 1990 and 1991, they dropped to 250,000 tons, the lowest level since 1958, recovered to 453,000 tons in 1992, and then declined again, to only 214,000 tons in 1996. With its stock size the lowest in recent records, prospects for any anchovy catch in 1997 are poor.

Pelagic catches fluctuate because anchovy, a short-lived species prone to massive recruitment swings, dominated the catch from the 1960s until 1996. Used for the manufacture of fishmeal and oil, it has been the single most important species since 1966, when overfishing caused the pilchard stock to collapse. However, pilchard has recently been showing a steady recovery, to the extent that by-catches of juvenile pilchard became so abundant in the anchovy catches that the reduction fishery could not operate efficiently. As a result, a modified management procedure had to be implemented at the beginning of 1994. It provided initial TACs for both species on the basis of results from end of year hydroacoustic surveys of spawner biomass, and made allowance for revision to these TACs after the mid-year hydroacoustic recruitment surveys. Pilchard biomass at the end of 1994 overtook anchovy biomass for the first time since the 1960s, and scientists and fisheries managers are now talking about species replacement. In light of the poor prospects for anchovy in 1997, a new management procedure for the fishery has had to be developed.

The only other species making up a significant part of the pelagic catch is round herring. This is a more offshore species which shoals deeper than anchovy and pilchard, and it is therefore largely out of the range of the present purse-seine fleet. Catches are infrequent and highly variable and, although it has been estimated that this species could support a fishery of 100,000 tons, little progress has been made in developing reliable methods to ensure more consistent catches. Finally, juvenile horse mackerel and lanternfish occasionally yield a few thousand tons (sometimes as much as 25,000 tons annually) to the purse-seine fishery.

2.1.4 Rock lobster fishery

South Africa's commercial rock lobster fishery is based on two species, one on the south and one on the west coast. The latter is caught inshore by traps and hoopnets deployed from small vessels, and it is also harvested by recreational divers, and the former is a deep water species caught by means of longlines of traps set by larger freezer vessels.

The commercial fishery for West Coast rock lobster is controlled by company-allocated quotas within a *TAC* subdivided by geographical area. In recent years, a severe decline in the average somatic growth rate, believed to be a result of an unknown environmental anomaly, has led to a decreasing catch rate and necessitated a reduction in the *TAC*. A reduction in the minimum size that can be legally harvested, from 89 to 75 mm carapace length, was introduced in April 1992. The *TAC* was set at 2 200 tons for the 1992/93 season, but with somatic growth rate staying low, the *TAC* has since been reduced progressively. For the 1996/97 season, the *TAC* is 1 700 tons.

The South Coast rock lobster fishery has been in existence since 1974. No minimum size limit is enforced and animals are caught from a size of about 60 mm carapace length upwards. As this means that little protection is afforded to breeding females, a conservative *TAC* of 450 tons tail mass was set each year from 1984 in order to retain enough surviving adults in the stock to ensure adequate egg production and recruitment. It was later increased to 475 tons, but it is now declining. For the 1996/97 season, it is 412 tons.

In addition, an experimental deep-water longline trap fishery for Natal rock lobster was launched in 1994 to determine the viability of this potential fishery. Commercial catches are likely to be low, some 50 tons at the most, if the fishery is established.

2.1.5 Abalone fishery

South Africa's commercial abalone fishery remained relatively stable for many years, being controlled by a whole mass quota of some 600 tons. This was imposed in 1983 after irregularities were exposed in the implementation of the production quota, first set in 1968 to curb overexploitation, which peaked in 1965 at 2 800 tons whole mass.

The fishery is divided into seven fishing zones, but most of the commercial catch is harvested from only five. A *TAC* is set for each zone. Other means of protecting the resource are a closed season and a minimum legal size limit of 114 mm.

Licensed commercial divers operate from small boats and use the "hookah" system of air supply, in which a portable compressor channels air through reinforced hosepipe. Most of the catch is canned or frozen and exported to the Far East, although legislation stipulates that 10% must be sold in South Africa.

The lucrative market in the Far East has in recent years stimulated an escalation in illegal fishing activity. At the same time the number of recreational divers has been rising steadily, so that the total recreational take is now almost as large as the commercial take. Ways must be sought urgently to limit these activities or the species runs the risk of becoming commercially extinct in a few years. By the 1996/97 season, the *TAC* had already started to decline (560 tons whole mass), and scientific prognoses for the future, given the current lack of control over poaching, are bleak.

2.1.6 Linefishery

The South African linefishery is split into three main components: the squid-jigging fishery, the tuna fishery and the general recreational and commercial linefishery.

The squid-jigging fishery targets chokka squid. After its initiation in 1983 the fishery grew rapidly until a permit system for vessels was introduced in 1987 to limit fishing effort. Today the jig-fishing fleet consists of about 300 mostly small vessels, such as skiboats and catamarans, but effort is creeping up and catch rates are declining. The resource is protected by a closed season of 3 - 5 weeks when spawning is at its peak (usually November).

Large fluctuations in abundance and availability are a feature of squid fisheries worldwide, and in South Africa are a reflection of the sporadic nature of inshore migration to the spawning grounds where the catches are made. Trawled squid make a small contribution to the total catches of chokka squid, but have been declining consistently since 1979. Much of the trawled catch used to be made by foreign vessels. South African trawlers also land red squid.

The commercial fishery for tuna began in 1960, when longlining was introduced, but despite annual catches of 2,000 tons, the fish fetched a poor price and operations ceased in 1964. The poling method, in which a baited hook or lure is attached by a short line to a pole, led to a renewed interest in commercial fishing for tuna in the late 1970s. In 1979 there was a massive run of yellowfin tuna and more than 6,000 tons were landed, prompting heavy investment in boats and tackle, but the large shoals failed to reappear the following year and the new industry came close to collapse. Effort was subsequently redirected at albacore (longfin tuna), which with smaller contributions from yellowfin, bigeye and skipjack has since provided the bulk of the South African tuna catch of 4,000 - 6,000 tons per year.

It is now known that total Atlantic Ocean albacore catches exceed the maximum sustainable yield of 25,000 tons and are not sustainable. A decrease is therefore inevitable. Also, although foreign operators (Japan and Taiwan) still make significant catches of tuna under license in South African waters, pressure for their removal is intense in some quarters.

Catches in the commercial linefishery peaked at 18,000 - 20,000 tons in the late 1960s and early 1970s, but then declined steadily to an estimated 7 300 tons in 1985. This was despite an increase in fishing effort as smaller, faster and more transportable skiboats replaced the earlier lineboats. The newer vessels enabled fishers to concentrate effort where fish were available and to follow migratory species along the coast, so effectively increasing pressure on the declining resource. The dropping catches, together with a decrease in the mean sizes of fish caught, led to calls for the protection of linefish stocks, and in 1984 the South African Marine Linefish Management Association was formed. Today management measures include minimum size limits, bag limits, closed seasons and closed areas (marine reserves), but catch rates continue to decrease as the numbers of fishers (commercial and recreational) rise annually.

2.2 Total production and trade

The total annual catch fluctuates depending on the catches of pelagic fish, in particular on those of anchovy. The total commercial catch in 1995 was approximately 580,000 metric tons at a wholesale value of approximately 1,7 billion Rand. A breakdown by main industry sectors is given in table 2.2.1. and by main species in table 2.2.2.

TABLE 2.2.1: NOMINAL COMMERCIAL CATCHES (ROUND MASS) AND WHOLESALE VALUES

INDUSTRY SECTOR	1993		1994		1995	
	Catch	Value	Catch	Value	Catch	Value
	(Tons)	(R'000)	(Tons)	(R'000)	(Tons)	(R'000)

Offshore Trawl	196 605	570 373	171 286	626 268	162 543	744 508
Inshore Trawl	15 280	43 455	15 104	52 164	15 235	60 722
TOTAL DEMERSAL	211 885	613 828	186 390	678 432	177 778	805 230
Purse Seine (Pelagic)	357 040	232 134	314 461	289 475	366 456	403 835
Rock Lobster	3 161	138 270	3 190	168 347	2 850	185 901
Crustacean Trawl	554	12 667	609	13 298	512	11 261
Line Fish	20 114	145 118	23 389	164 321	24 745	216 946
Demersal Longlining	0	0	2 452	38 122	1 696	26 520
Abalone	599	32 777	613	53 884	616	54 054
Miscellaneous Nets	1 766	3 197	1 228	2 555	1 338	3 895
Oysters	52	408	120	945	160	1 431
Mussel and Oyster Farm	2 237	9 481	2 887	13 759	2 082	23 586
TOTAL	597 408	1 187 880	535 339	1 423 138	578 233	1 732 659
Seaweed	995	2 819	857	2 782	1 250	4 215
Guano	0	0	281	219	0	0
GRAND TOTAL	598 403	1 190 699	536 477	1 426 139	579 483	1 736 874

Source: Sea Fisheries

Note: Slight rounding and statistical variances cause the figures in this table to deviate slightly from those in table 2.2.2.

TABLE 2.2.2: NOMINAL COMMERCIAL CATCHES (TONS ROUND MASS)

BY FISHERY AND SPECIES

Fishery and species	1985	1990	1993	1994	1995
Trawling	186 040	240 506	211 885	186 328	177 778
Hakes	139 889	134 821	141 202	144 071	137 616
Kingklip	10 187	2 547	2 567	2 867	2 861
Monk	4 230	5 405	4 281	5 047	5 941
Panga, reds	634	572	798	1 161	647
Sole	882	868	846	978	813
Snoek	5 387	13 091	12 519	6 149	6 875
Cape Horse Mackerel	13 439	43 875	12 348	11 987	9 321
Other	11 392	39 327	37 324	14 068	13 704
Purse seining	377 464	259 343	357 040	314 461	366 456
Pilchard	32 986	56 740	50 717	92 806	113 748
Cape Horse Mackerel	816	7 199	11 646	8 210	1 985
Chub Mackerel	156	23	371	2 037	2 671
Anchovy	272 642	150 100	235 830	155 554	170 261
Round Herring	39 871	44 710	56 331	54 145	76 486
Other	30 993	571	2 145	1 709	1 305
Rock Lobster	4 210	4 544	3 194	2 932	2 850
West Coast	3 728	3 491	2 176	1 956	1 858
East Coast	32	11	33	10	-
South Coast	450	1 042	985	966	992
Line, small net	18 336	24 717	21 857	24 629	26 083
Snoek	3 493	7 753	2 757	7 302	9 174
Tunas	4 375	4 929	4 903	4 069	3 816
Yellowtail	414	612	818	825	777
Mullet	1 801	1 380	1 310	1 153	1 338
Squids	3 100	3 281	6 308	6 441	6 826
Other	5 153	6 762	5 761	4 839	4 152
Other activities	9 784	15 517	4 404	7 819	6 316
Prawn, Langoustine	1 085	952	521	609	512
Abalone	961	624	599	613	616
Other, Guano, S.weed	7 738	13 941	2 384	6 597	5 188
GRAND TOTAL	595 838	545 717	598 380	536 169	579 483

Source: Fishing Industry Handbook and Sea Fisheries

The bulk of the production is consumed domestically, although the average *per capita* consumption of fish products in South Africa is relatively low compared to that of other fishing nations. The sector is, however, also characterized by its substantial level of international trade, resulting in a significant net contribution to foreign exchange. Breakdown by major commodity groups is given in table 2.2.3.

TABLE 2.2.3: SOUTH AFRICA'S IMPORTS AND EXPORTS OF FISH IN 1994

	IMPORTS		EXPORTS	
	1000 Kg	R'000	1000 Kg	R'000
TOTAL	276 396	478 354	178 068	898 060
MAIN PRODUCTS				
Live fish	11	1 888	93	61
Fresh fish, excluding fillets	3 010	3 198	6 960	51 257
Frozen fish, excluding fillets	37 724	46 652	124 052	413 338
Fish fillets, fresh and frozen	871	2 394	12 168	99 454
Fish dried, salted, smoked, etc.	518	6 279	5 093	40 759
Fish, crustacea, molluscs, prepared preserved	12 755	99 818	12 857	76 448
Crustacea and molluscs	5 021	42 374	12 443	208 823
Fishmeal and fish body oil	216 410	274 802	4 165	7 183

(Source: *Fishing Industry Handbook 1996*)

Fishing industry activities create significant employment opportunities in the communities in which they take place. Although the figures are not recent, it is estimated that the total number of people employed in the commercial sector is around 26-27,000, distributed approximately equally between sea- and shore-based workplaces. In addition to these, it is a reasonable estimate that another 60,000 people find employment in related sectors, exclusively or partly dependent on the fishing industry as a market for its supply of stores, equipment and services. Provision of equipment and services to the recreational sector is another add-on to the employment generated by fishing activities in South Africa.

No reliable information is available with regard to employment in the subsistence sector.

2.3 Institutional structures in South African sea fisheries

2.3.1 Government institutions, an overview

Over the past 30 years Sea Fisheries has resided under the Ministries of Economic Affairs, Industries, Agriculture, and since 1983 under the Ministry of Environmental Affairs (lately in alliance with the Department of Tourism, but in earlier years in alliance with other departments). The current fisheries management structure in South Africa is as follows:

2.3.2 Brief history and current situation

The first comprehensive legislation framed to protect marine resources was the Sea Fisheries Act of 1940, subsequently superseded by new Acts in 1973 and in 1988. A study of the above legislation clearly shows an evolution concerning several key aspects related to the utilization of the living marine resources, the issue of access rights to marine fisheries included.

In earlier years, quotas were granted by the Minister responsible acting on the advice of officials stationed mainly in Pretoria, officials who were not dedicated solely to fisheries matters and dealing with problems on an *ad hoc* basis. This state of affairs led to severe criticism by successive commissions of enquiry, notably Du Plessis in 1971 and Treurnicht in 1980. In 1982 the control post in Cape Town was upgraded to Chief Director and that local establishment was henceforth regarded as a component of the head office in Pretoria.

The Chief Directorate of Sea Fisheries is currently structured as follows:

The 1986 Diemont Commission gave considerable thought to access rights and related matters and proposed that the allocation of quotas be entrusted to a statutory board. This recommendation was accepted by the Government by way of its 1986 White Paper and the Sea Fishery Act, 1988 made provision for the establishment of a Quota Board. The first Board became operative in 1990.

The Quota Board (like the Sea Fisheries Advisory Committee) is appointed by the responsible Minister, who determines the number of members and the quorum. The chairman must meet certain requirements in respect of a legal background and no person with interests in the fishery may serve. The Act also stipulates that "a person in the employment of the State" may not serve on the Board. Notwithstanding the fact that politicians are not regarded as being in the employment of the State, their appointment would be contrary to the aims of the Board, *namely to remove quota allocation from the political arena*. The Board's function consists of the allocation of quotas to persons according to guidelines approved by the Minister. The Board may attach conditions to its quota allocations and no quota may be transferred without the Board's approval. The Board currently exerts control over access rights in the hake, Agulhas sole, pilchard, anchovy, West Coast rock lobster, South Coast rock lobster and abalone sectors. The horse mackerel (midwater trawl) sector is currently managed according to a precautionary upper level of catch.

The guidelines according to which the Quota Board takes decisions on access rights have been amended since their original approval by the Minister and are at present under review.

2.3.3 Funding

While Sea Fisheries administration (including control) and research is funded by monies voted by the legislative assembly, the current Act also provides for the continuation of the Sea Fishery Fund established in 1973 under the name Sea Fishery Research Fund. Apart from other sources specified in the Act, the Fund is subvented by levies, after consulting the Sea Fishery Advisory Committee and with the concurrence of the Minister of Finance. The monies may be appropriated for sea fisheries research and development, as outlined in the Act.

The Sea Fisheries global operational costs are currently some R60 million, of which 20% is consumed by administration, 17% by the operation of marine vessels, 29% by marine control and 34% by the activities of the research institute. A total of some R9.5 million of these global costs, or 16%, is sourced from fisheries-related fees and levies, channelled through the Sea Fishery Fund. The balance comes from Central Revenue.

3. THE FISHERIES POLICY DEVELOPMENT PROCESS

The Minister of Environmental Affairs and Tourism initiated the process of developing a national marine fisheries policy at a public launch on 27 October 1994. A committee was appointed to develop it. This Fisheries Policy Development Committee (FPDC) organized its work by way of a Working Committee and Technical Subcommittees, which coordinated and integrated inputs from a comprehensive range of relevant interest groups, institutions and individuals.

Policy on the key issues presented in this document is largely based on the Report from the FPDC, submitted to the Minister of Environmental Affairs and Tourism on 4 June 1996. Policy rests firmly on the main objectives and principles listed below.

3.1 Optimization of long-term social and economic benefits to the nation

The natural resources of the land and sea of South Africa are a national asset and the heritage of all its people and should be managed and developed for the benefit of the country as a whole. In this context, custodianship of marine resources will be entrusted to the State, which will allocate rights to utilize living marine resources. At the same time, the State will promulgate regulations to ensure that such utilization is undertaken on a long-term sustainable basis and that it results in optimal social and economic benefits for its people.

3.2 Promotion of sustainable utilization and the replenishment of living marine resources

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The principles of replenishment and restocking of the resources are accepted as the prime objectives in order to achieve optimum sustainable utilization and the maintenance of biodiversity, the fundamental principles of managing resources on a long-term basis, and will be implemented taking due cognizance of the Precautionary Principle, and the need to manage fisheries so that populations of harvested and other marine organisms are maintained at levels consistent with their roles in the ecosystem.

3.3 Management and development of fisheries shall in all material aspects comply with the principles of the Constitution of South Africa and the long-term objectives and principles of the Reconstruction and Development Programme (RDP)

3.4 Transparency and accountability in marine resource management

The management of living marine resources and all aspects of the decision-making process will be open and transparent. Administrators and stakeholders will be accountable for their actions.

3.5 Fair and equitable access

- Access to marine resources shall be fair and equitable.
- The allocation of rights to utilize marine resources will be impartial, noting that access must be limited in order to achieve the policy objective of sustainable utilization.

3.6 Management of living marine resources will be based on the best available knowledge and multidisciplinary research within the context of sustainable utilization

3.7 There should be a holistic approach to fisheries and the utilization of marine resources, including the following goals:

- increasing the long-term absolute value contribution of fisheries to the GDP
- increasing employment opportunities in the harvesting, cultivation, processing and non-consumptive use of living marine resources
- investigating new resources and the enhanced utilization of underutilized resources
- the development of domestic and new markets and the expansion of value-added activities
- the development of tourism and recreation in coastal areas
- creating and sustaining a stable and internationally competitive industry
- addressing historical imbalances.

3.8 Participation in resource management

- local communities, labour, scientists and resource users will play an active role in the management of marine resources
- all resource harvesters will be required to keep data for management purposes.

3.9 Acceptable conditions of employment

Holders of fishing rights will provide acceptable conditions of employment for all employees with respect to income, health and safety, training, job security, retirement and other employment benefits.

3.10 National and provincial levels of management

- Research and management of marine resources shall be in accordance with the specifications of the Law of the Sea Convention and other accepted international standards, and will be coordinated, as specified in the Constitution of the Republic of South Africa, at the national level.
- Marine resources will be managed and controlled nationally, and the allocation of rights will take place on the national level. However, provincial authorities could play a useful administrative role in the case of inshore resources which have low mobility and are confined to a particular region.
- In terms of international agreements, neighbouring countries will be consulted where rights are being allocated to shared stocks.

3.11 Acts, regulations and strategies

No control or enforcement body, government act or regulation and harvesting strategy will be rescinded until such time as there is a clear replacement for its function, or its function is not necessary.

4. ACCESS AND ACCESS RIGHTS

4.1 Introduction

Marine resources are by definition a national asset and the heritage of all citizens. However, in order to ensure the sustainability of the resource, it is necessary to limit harvesting levels, and therefore access to the resource. Limiting entry creates a privileged group of sectoral actors who enjoy access to living marine resources, in contrast to all other South Africans who do not. In South Africa, access to these resources has not always been fair and equitable. As a result, the industry is faced with numerous problems which even threaten the sustainability of the resource itself. In order to address the problems of the industry it is necessary to develop mechanisms which achieve the following objectives:

- a fairer system of allocation of access to rights to harvest South Africa's living marine resources;
- a system which ensures greater access to the resource by those who have been denied access previously;
- a reduction in the current levels of pressure on the resources, which in some cases threaten the very sustainability of a resource.

In proposing changes to achieve these objectives, it is necessary to stress certain principles. These are outlined in the paragraphs that follow.

Those who enjoy the privilege of access should pay an appropriate fee. Fisheries administration (including management, research, development and control) is expensive and the costs should be covered by those enjoying the privilege of access. The commercial sector will pay the fee in the form of either a royalty or suitable rate based on quota, catch or effort. This system will make calculation simple, transparent and link it to the amounts that commercial fishers will earn. Funds generated in this manner should, to the extent required, be made available for execution of the fisheries management functions.

A dynamic, thriving fisheries sector depends on a sound resource base. The primary objective of South African fisheries policy must therefore always be to protect and safeguard the resource and its environment, in order to be able to reap an optimum, long-term sustainable harvest. To achieve this, limiting entry is imperative. The alternative, open or liberal access to the resource, inevitably leads to

overexploitation, depletion or even extinction of stocks, wasteful overcapitalization of the industry and consequent loss of income and jobs.

The present system of access rights has to be restructured fundamentally. Minor changes to the current system of access rights will not resolve the current problems. A new system, which creates real long-term rights, wherever feasible based on a percentage of the *TAC* of a resource, should be established.

Recent political change has raised expectations that the industry has scope for many new small operator entrants. This is not the case. In fact, most of South Africa's marine resources are already being harvested at sustainable levels and in some cases are under severe pressure. If we are to avoid the demise of some of our fisheries, as has occurred so often elsewhere in the world, pressure on the resources must be reduced in order to sustain them. In some cases this might even mean the number of fishers would have to be reduced. Under the current incentive quota system, coupled with the desire to broaden participation, the temptation exists to allocate rights in those fisheries which are relatively healthy to fishers facing hardship in declining fisheries. However, within these constraints, redistribution must occur speedily and the fragmentation and fragility minimized and eventually eliminated. Redistribution and empowerment must take place without destabilizing the industry unduly.

Any restructuring process is difficult and painful. The number of persons and organizations who harvest the resource has to be limited. The proposals in this Chapter will cause a necessary restructuring of the industry, but will help to put in place a sustainable industry able to contribute to South Africa's macro-economic objectives of employment, competitiveness and economic growth. Those who purchase rights (see 4.4) will have a real, long-term asset and will be able to take a long-term view and make investment decisions which will allow them to sustain their competitiveness.

If South Africa is to achieve fair and equitable access to its fisheries while ensuring sustainability, speedy and urgent action is required. It is proposed that changes be introduced in two phases. Two phases are necessary because of legal constraints (rights cannot be summarily withdrawn) and because it will take time to restructure the access rights regime fundamentally. The first phase should be implemented immediately, because certain steps can be taken immediately to address problems facing the industry. The second phase would require time to implement, but preparations for implementation of Phase 2 should start immediately.

4.2 Current industry structure and conditions

The commercial fishing industry has quota and non-quota sectors, the former being significantly larger in terms of value and quantity. Quotas (catch controls) to catch a stipulated quantity of a specific species are allocated to individuals or companies. In addition, permits are granted to individuals or companies to catch unlimited quantities of non-quota species using defined technologies and subject to other limitations (effort controls).

The quota sector of the industry is made up of a few large companies and a number of smaller ones. Both types have, however, invested large sums in plant and machinery, with the consequence that some sectors of the fishing industry are overcapitalized. The current quotas have been allocated by the Quota Board (see 2.3.1 and 5.10.2), an unpopular system. Although the Quota Board makes its allocations according to agreed criteria, the quotas are generally perceived to have been allocated arbitrarily, and often unfairly. Consequently, the industry is steeped in uncertainty and insecurity throughout, i.e. in companies large and small.

The system cannot be reformed by changing the character of the board, or by giving the power to allocate quotas to another body or individual. The defects are fundamental and structural. As long as quotas are allocated annually, without requiring payment commensurate with the value acquired and by a discretionary administrative decision-making process, the current problems will remain.

The present system also places an unnecessary burden on the Ministry, the Department and Sea Fisheries. The fishers understandably believe that the party that lobbies most actively has the best prospects of getting a quota. Excessive lobbying is inefficient and results in wastage of productive time. If the structural paradigm through which quotas are obtained is fundamentally altered, the lobbying activity will diminish considerably.

4.3 Participation and broadening access

The global community of sectoral actors accessing South Africa's living marine resources may be divided roughly into three main groups of participants:

- Commercial sector
- Subsistence sector
- Recreational sector.

A specific resource is affected by the total pressure brought to bear on it by the combined harvesting activities of all sectors. To achieve the objective of long-term sustainable utilization, all fishing activities must be subject to regulation.

The permits of the individual rights-holders will specify the technical resource control measures which will be applied to their rights. Sea Fisheries can change the permit conditions if scientific research and other information supports and justifies such changes. However, the permit conditions will be restricted to control measures and will not impact on the fundamental nature of the right nor its purchase price.

Participation in the subsistence and recreational subsectors is already broad. The management challenge in relation to those two sectors is to achieve more reliable registration, monitoring and control of participation. (Proposals in respect of these two subsectors are made later in this chapter.) The same is generally not the case in the commercial sector in which, for historic reasons, a relatively narrow pattern of participation and quota distribution prevails. The actual situation for some major commercial fisheries is summarised in table 4.3.1.

TABLE 4.3.1: QUOTA DISTRIBUTION IN SOME KEY FISHERIES IN SOUTH AFRICA IN 1996

FISHERY	TAC (TONS)	NUMBER OF QUOTA- HOLDERS	% OF TAC HELD BY		
			LARGEST QUOTA-HOLDERS		
			3 TOP	10 TOP	20 TOP
Hake	148 300	49	72	82	87
W Coast Rock Lobster	1 500	104	23	51	73
S Coast Rock Lobster	427	6	82	100 (6 all)	-
Abalone	615	16	75	95	100 (16 all)
Pilchard	105 000	59	30	55	63
Anchovy	70 000	18	36	79	100 (18 all)
Sole	872	11	71	100 (11 all)	-

Source: Sea Fisheries

This illustration of the present concentration of access may be elaborated by introducing the aspect of colour or ethnic group associated with the respective quota-holders. If so analysed, the picture displays an overwhelming quota-holder dominance by the formerly advantaged sector of the population. This is on its own merit strong testimony of previous unequal opportunity and likewise a strong argument for broadening future participation.

The promotion of small and medium enterprises within the context of creating a globally competitive industry is crucial. Some activities require large-scale highly capitalized operations, whereas others require small operators with lower capital requirements. Many players in the industry view small as good and big as bad or *vice versa*. This belief is unfortunate because the different niches and markets require different operators to operate competitively. What is needed is a vibrant, dynamic and competitive industry comprising players which, while competing, also need to cooperate to make the South African fishing industry competitive. Such a cooperative spirit will also allow subcontracting under fair conditions which will benefit both parties mutually.

4.4 Proposed new access regime

It is proposed that, in future, rights of access not be made available as at present through the allocation of permits and quotas, but rather be converted to real rights or other forms of secure rights purchased through a transparent and competitive process. Instead of perpetuating the current system of dominant players and adding to it a new group of smaller players, which will only create further surplus capacity in the industry, it is proposed that the new policy include the following components:

- current holders of fishing rights will be encouraged to restructure their ownership and control to achieve empowerment objectives throughout the industry;
- initial allocation of rights would make provision for a range of players of varying sizes, to avoid excessive domination of some fisheries by a few large players, but avoiding excessive proliferation of the industry which would reduce the ability of the State to effectively regulate it;
- as not all participants may wish to acquire permanent rights, provision would be made for the establishment of a vehicle to enable players to lease rights for shorter time-periods of one or more seasons.

This last objective can be achieved by holding an auction whereby rights are allocated on a competitive basis to bidders who compete on the basis of empowerment criteria and previous participation in the industry and by creating a company to acquire fishing rights from the State to on-lease to private players. Such an approach will achieve a rapid transformation to a more representative industry, make provision for a range of new smaller players to enter the industry, ensure that the State, as representative of the peoples of South Africa, receives adequate compensation for its protection of a sustainable industry, avoid the creation of additional surplus capacity in an industry which is already fully harvesting most resources, permit a competitive industry to develop, and help in maintaining sustainable fishery resources for the nation.

4.5 Methods of empowerment

There are several ways whereby the existing large players can enable others to achieve the empowerment criteria which will enable them to compete for access rights:

- expanding equity ownership in companies;
- restructuring of the industry in order to move in the direction of larger proportions of the quota being sold to small-scale fishing operators;
- encouraging contracts with fish-processing companies;
- helping small-scale operators improve efficiency;
- unbundling, mergers and the formation of co-operatives and other forms of formal commercial cooperation.

4.5.1 Expanding equity ownership in companies

This is one of the ways of broadening participation. The process does not render existing capacity redundant, but it does facilitate transfer of ownership to the previously disadvantaged, allows economies of scale and for transfers of skills and experience.

Equity transfers will occur by:

- a previously disadvantaged group buying a significant portion of equity in a large company;
- a portion of the equity being sold to employees in terms of a share participation scheme;
- a Share Trust being established which would allow previously disadvantaged people to purchase shares by paying a deposit and the balance of the purchase price over several years. There are several financing mechanisms which facilitate this type of transaction.

Ideally, a combination of all the above three methods will result in a significant percentage of the equity being transferred to the previously disadvantaged.

4.5.1.1 The Share Trust

A Share Trust is an instrument that maximises the participation of ordinary South Africans and creates empowerment. Its main features would be:

- a low cost investment with payment over an extended period;
- a guaranteed minimum return with at least the capital invested being protected;
- full leveraged participation in any improvement in the share price of the company invested in.

It is possible to structure such an investment to offer an attractive proposition that would, if marketed properly, be taken up by a large number of people. Successful implementation of the Share Trust will require the cooperation of various parties. The main requirements are:

- the vendor (a listed fishing company) to offer shares on the basis of a deferred option to purchase at an attractive price;
- these shares to be sold through a public offering to previously disadvantaged persons at a discount;
- the offer if subscribed to foster the widest possible empowerment;
- the vendor to offer to buy the shares at the purchase price if the price falls below the purchase price during the three-year period. Such a mechanism would protect low-income investors.

4.5.2 Encouragement of small-scale fishing operations

Small-scale operators can only be independent if real rights are sold to them. If they were to be given rights on an annual basis they would still suffer from the uncertainties facing others in the industry. This statement implies a gradual transformation towards preferring smaller vessels and in some cases less sophisticated or more affordable fishing methods, especially inshore.

4.5.3 Contracts with fish-processing companies

Small-scale operators will, if they have real long-term rights, be in a stronger position to negotiate fair prices for their catches. Some small-scale fishers are currently completely at the mercy of some fish-processing factories because such factories determine the price, place of delivery and other conditions under which the small operators are contracted. These arrangements barely enable small-scale fishers to survive and are unfair. Real rights will improve their bargaining power considerably and tilt the scales in favour of smaller operators.

4.5.4 Helping small-scale operators improve efficiency

As support services for small operators have been inadequate up to now, they do not have access to the latest technology, new innovations, research and other support services that would improve the efficiency of their operations and their competitiveness. They should be assisted, perhaps via the UFMD (see 5.10.3.3).

4.5.5 Unbundling, mergers, cooperatives and formal cooperation

The established, larger fishing companies can and should play an important, active key role in the process of structuring the industry in ways leading in the direction indicated by the policy objective of broadening participation in fishing activities. Such an attitude would no doubt be in the long-term interests of those companies from the point of view of securing reliable supplies of raw material for fish processing, seeing that they cannot in future rely on maintaining equally substantial proportions of available *TACs* as they have today. One approach could be to reorganize their fishing operations, unbundling (or "privatizing") them into separate, independent fishing companies. The original owner company could still maintain some minority ownership in the new independent companies, and would of course have the opportunity to negotiate mutually beneficial arrangements with regard to buying, processing and marketing the catch. Access rights and corresponding quotas formerly belonging to the original owner company would then be gradually transferred to these new, independent fishing companies, in step with provisions on maximum relative proportions of available quotas or total applied effort taking place.

Further, to obtain efficiencies and competitiveness, smaller operators could combine their efforts to benefit from economies of scale and to share the expenses of resources which are important but not used extensively. Cooperatives could, for example, provide shared refrigeration facilities, marketing, bulk purchases of raw material and capital equipment. Such avenues of sectoral development within the fisheries of South Africa will be encouraged.

4.5.6 Other measures

Other measures to broaden participation include:

- giving new players access to rights which have been forfeited by others;
- through a "buy-back" option, where applicable;
- increased value-added products;
- better use of material currently discarded (including by-catch);
- underutilized resources;
- mariculture;
- new resources;
- stock enhancement.

Opportunities offered by these measures will be evaluated and implemented by the Implementation Committee (see 4.6.1.2).

4.6 Implementation of the restructuring process

It is important to effect the restructuring as soon as possible and over as short a time-period as feasible to reduce uncertainty and to enable the industry to focus on maintaining and strengthening its international competitiveness. However, rights currently allocated cannot be immediately withdrawn without significant disruption to the industry, and other imperatives make it necessary to undertake the restructuring in a phased manner.

4.6.1 Phase 1

Two measures are proposed for urgent implementation:

- the establishment of a Commercial Public Company to which quotas are allocated and which in turn rents them to fishers who do not have quotas;
- the establishment of an Implementation Committee of finite life.

4.6.1.1 The Commercial Public Company

This company will purchase quota from the State as set out later. The purpose of the company is to rent, lease or contract the quota to small and medium-sized enterprises with some capacity. Further,

- the State will be the sole shareholder;
- the company will be governed by the provisions of the Companies Act and the Act establishing it;
- its main objective and purpose will be to allow small-scale fishing operators to catch fish on a commercial basis;
- its ancillary objective will be to run as a pilot project in the run-up to Phase 2;
- it will have an independent board of directors, who will be experienced business persons but will not have any interest in the fishing industry except as government advisors;
- the directors will be empowered to employ the managing director and staff;
- the company will not require a large staff complement because it will not be permitted to catch fish directly, but will sell or rent its rights to catch fish to others;
- the fishers to whom the right is leased, rented or contracted will pay to the company a negotiated price for catching the fish.

4.6.1.2 The Implementation Committee

A small Implementation Committee with the necessary background experience, skills and expertise should be established speedily to evaluate, develop and implement the proposed restructuring. The Department would be represented on the committee by an official from the Chief Directorate of Sea Fisheries because it must work closely with the Department. The Implementation Committee's tasks will include:

- drafting guidelines on royalties and payments which will be payable on future rights;
- simplifying the tendering process of Phase 2, developing tender criteria, calling for tenders and adjudicating them;
- developing proposals on dealing with the rights to by-catches;
- developing guidelines on the maximum and minimum number of fishers each fishery can sustain;
- developing guidelines for criteria and parameters that future new entrants will have to meet to be eligible for tendering for rights;
- developing guidelines for the introduction of an ultimate ceiling in terms of tonnage above which any percentage of the *TAC* cannot rise as a consequence of sustained growth in the resource - this may offer an opportunity for allowing new entrants in future;
- investigating mechanisms which can be used to transform permit fishing rights into secure rights.

4.6.1.3 The transformation process

Opportunity to tender for rights will be open to new entrants who can demonstrate that they will be able to establish the capacity to harvest the resource and to disadvantaged individuals and companies who have invested in the industry or have a history in the fishery. In addition, previously advantaged companies who have made significant progress in transforming themselves and in broadening participation will be eligible to tender. The industry will be given a reasonable period to implement empowerment and affirmative action strategies. As the current holders of rights will know that long-term property rights will be sold in the not too distant future as well as the conditions that must be met for them to be eligible to bid, they will have an incentive to broaden participation. Transformation and broadening participation will include:

- Transferring significant equity to previously disadvantaged persons and communities. Several companies already have some processes in place to effect such transfers. These efforts should be evaluated and suggestions made on how the process can be improved and accelerated.
- Changing the boards of directors by bringing in new directors from previously disadvantaged sectors. These directors should not be token appointments and be placed on the boards merely to change their colour. They should rather be able to bring fresh perspectives, add value to the deliberations and help in formulating and implementing internationally competitive strategies.
- Transforming management. Companies will have to run management training programmes and promote or recruit previously disadvantaged persons to occupy senior and top management positions. The transformation will not result in "Black" managed companies but will change them from "White" managed to "Rainbow" managed companies.
- Transferring skills. Currently, sufficient effort and resources are not allocated to transfer management, technical, financial and administrative skills to previously disadvantaged persons. The tender requirements for eligibility to bid will accelerate the process of skills transfer.
- Restructuring to become globally competitive and to use appropriate technologies where circumstances warrant. For instance, companies are making efforts to comply with the requirements which give their products entry into foreign markets.

4.6.2 Phase 2

The new Sea Fisheries Act (see Chapter 7) will introduce a new resource-management system. Fishers will be invited to purchase real, long-term rights through a once-off bidding process.

Those fishers who are successful in their bid for rights will acquire real, long-term assets which will be transferable and inheritable. The system will be established as soon as feasible. However, in the longer term, attempts will be made to extend such rights to non-quota species. The rights may specify the technology (level of effort) to be used at the time the rights are offered for purchase. (For example, the hake quota will state whether the specific proportion of quota sold will be caught by trawling or longlining.)

4.6.2.1 Definitions and characteristics of the right

An access right is the right to catch or to harvest one or more specified species of South Africa's living marine resources through the exercising of some specific fishing effort, subject to and conditional upon certain restrictions, constraints or limitations of the following nature:

- the amount of fishing effort that may be exerted in terms of type and size of fishing vessel, type of fishing gear or fishing method, area, areas or zones where the right may be exercised, size of individual fish species caught, or time periods (seasons) within a year in which the right may be exercised;
- quantity of target species and of other species taken as unavoidable by-catch, limited in terms of a percentage of the *TAC*.

Some of its characteristics are:

- the quota will be a percentage of the *TAC*;
- the *TAC* will be determined annually;
- the value of a right will enhance that of a business because it will be reflected as an intangible asset on the balance sheet;
- the right will have to be purchased, and the purchase price, including the costs of managing the resource, will be paid annually;
- the right will be sold for a long period and will revert to the State within that period (e.g. a maximum term of 50 years will revert at a rate of 2% per year; a minimum term of 10 years can revert at a rate of 10% per year or, for that term only, in total - i.e. 100% - after the 10 years). The characteristics of different fisheries may require different time-horizons and corresponding schemes of attrition;
- the right will be divisible, subject to a minimum specific quota size for a particular technology;
- there would be a ceiling on the maximum tonnage associated with or a direct percentage of a *TAC* which can be accumulated by a single quota-holder.

4.6.2.2 The process of allocating long-term rights

- Companies and fishers will be advised that rights will be sold through public tender to which they will be invited to submit bids.
- All tenderers must demonstrate that they will have the capacity to harvest the resource for which they are tendering.
- Fishers who bid will be required to pay for their right.
- The State will not necessarily accept the highest bid, but will take account of empowerment criteria, the bidder's participation in the industry and its efforts to restructure.

The State, after consulting its own advisers, will sell to the successful bidders the rights as percentages of the *TAC* or as a right to deploy effort. The rights will be sold to a mix of small and large companies and will facilitate the emergence of a financially sustainable and internationally competitive industry.

4.6.2.3 The legal nature of the right

- the right is transferable, inheritable and divisible;
- the right is to catch a proportion of the *TAC* or to exercise a certain amount of effort, determined annually by the relevant authority;
- the right will prescribe the technology to be used;
- the right will prescribe the quantity of by-catch that can be caught with the main species;
- the right will be subject to input controls which will be based on the results of scientific research and other evidence gauged against sustainability;
- the right will be sold with prescribed input controls, such as mesh size, geographically defined fishing area, type of vessel, and vessel licence, which will be the conditions to which the right will be subject;
- the contravention of any of the conditions will attract legal penalties which could result in forfeiture of the right;
- the right can only be sold to South African citizens or South African companies in which the majority of the shares are owned by South Africans;
- the right will prescribe that the holder must employ South African citizens to catch the fish and that processing be done preferably in South Africa;
- the right will prescribe conditions which allow the regulating authority to monitor and control the activities of the holder effectively;
- the right can be traded, leased and sold freely to another South African citizen, subject to the consent of the regulator. Transfer of the right is only effected upon registration by the regulator. (A procedure similar to the transfer of immovable property could be adopted. The immovable property owner is free to sell his property to any willing buyer. The property is always subject to the conditions of title detailed in the Title Deed. Delivery is only effected upon the registration in the Deeds Office.);
- the right will acquire an economic and monetary value which will be determined by the market. Any rights-holder wishing to borrow money on the security of the right will have to register a bond over it, similar to a mortgage or notarial bond;
- the right will be attachable by a judgement creditor who will be able to register an interdict preventing the rights-holder from alienating the right without withdrawal of the interdict;
- it is the prerogative of the Department to amend the conditions associated with the right in any manner considered beneficial to the holders of such rights, to the health of the resource, or to both.

4.7 Unutilized and underutilized resources

Such commercially exploitable resources exist, many of which are only to be found in deep water. Development of fisheries for such resources requires companies with substantial capital and may sometimes only be feasible to be undertaken by larger companies. Companies which plan to invest to develop fisheries on these resources may negotiate with the State to secure rights to a portion of the resource should they be successful in designing a technology to exploit it.

4.8 Recreational fishery

The importance of the recreational sector is indisputable. Approximately 750,000 people participate in recreational angling each year and spend at least R750 million per year (1995) in the process. The spin-off from these recreational activities in terms of investment in equipment and boats, in terms of employment in shops selling fishing gear and in the tourist industry, is significant. The actual annual catch, some 17,000 tons of high value species, is also significant in light of the substantial opportunity cost it represents by being unavailable to other potential user groups. Whether or not recreational users should be entitled to sell their catches to defray some or all of their costs is a hotly debated question.

However, there are a number of obvious dangers. First, sales of recreational catches could act as an incentive to increase total sector fishing effort and entail increased risks of overexploitation and illegal

fishing. Second, such sales may financially undercut commercial catches by selling at lower prices than viable for the latter, recreational users not being dependent on selling their catches for a living.

4.9 Subsistence users of marine resources

In parts of the country, coastal communities have traditionally made use of intertidal and shallow-water resources as a source of food. For those people, often the poorer sector of South African society, such resources can contribute a substantial proportion of their protein needs. If legally entitled to sell part of their catch according to traditional patterns and volumes of trade, these extremely needy people may utilize their resources to provide a modest, but important source of income. The nature of these fishing activities, knowing the difficult conditions of life experienced by the population in the communities in which they take place, may easily jeopardize the soundness of the vulnerable resources on which they depend and therefore also their long-term sustainability.

Recent demographic changes in the coastal areas have enlarged the subsistence fisheries sector. Some of the activities justified under the term subsistence fisheries have put pressure on the resources and it is necessary to have a clearer definition of subsistence fishers. The following criteria shall be used to classify people as subsistence fishers:

- only people who catch for consumption as members of coastal communities;
- people who sell only surplus they do not consume;
- the sale of surplus is by the fisher that caught the fish;
- the surplus is sold locally;
- the surplus may not be accumulated, i.e. at any given time no more than the daily bag limit is held;
- fishing is done using some prescribed gear.

Educational programmes need to be launched to foster and promote an adequate understanding of the inter-relationships between responsible fishing, resource soundness, ecosystem health and community prosperity, i.e. the basic principles of sustainable resource utilization.

4.10 Access rights policy objectives

From the information and discussion outlined above flow certain policy objectives. They are summarized simply below.

It is a policy objective that

- *An appropriate percentage of the TAC of all quota species be sold to a Commercial Public Company to rent, let or contract to emerging fishery operators;*
- *As soon as feasible, all rights be sold by a tender and competitive bidding process. The price will be paid over the period of duration and the right will diminish at an appropriate rate to the State;*
- *Opportunity to tender for rights will be open to new entrants who can demonstrate that they will be able to establish the capacity to harvest the resource and to disadvantaged individuals and companies who have invested in the industry or have a history in the fishery;*
- *Established companies who have made significant strides in transforming themselves will be eligible to tender, as will others who have a history in the fishery and a demonstrated capacity to fish;*
- *The rights sold be real, transferable, divisible, saleable and inheritable, subject to sustainability constraints;*
- *An Implementation Committee of finite life be established by the Minister urgently to investigate, evaluate, integrate and implement these recommendations;*

- *In order to promote long-term sustainable resource utilization, a comprehensive register of the participants in all sectors be established and maintained, and that all fishing activities be subject to permit;*
- *The actual as well as the potential total fishing effort be curtailed and kept under control in order to arrive at a situation where, on average, the installed fishing capacity and the available quotas, non-quota-regulated harvesting activities included, is in a sound balance based on precautionary principles of judgement;*
- *Taking into account the overwhelming, basic development needs competing for financing from State budgets and the need to improve the legitimacy of resource utilization privileges, payments for the use of the resource be made by all users. Payments should suffice to cover most of the global recurrent operational costs of adequate fisheries management (including research, development and control) administered ideally in a single Sea Fishery Fund.;*
- *Structuring and broadening of participation take place while maintaining reasonable stability within the fishing industry, in order to minimize adverse effects on existing stakeholders and the economy in general. Instruments of broadening participation could include, inter alia, a shift of focus for entitlement to fishing (permits and quotas) towards others already involved in activities related to fishing, giving preference to small and medium-size enterprises and to upliftment enterprises or schemes. This statement implies a gradual transformation towards smaller vessels and in some cases less sophisticated or more affordable fishing methods, especially inshore. Legislation should be introduced to the effect that no single quota-holder (person or legal entity) be allowed to control more than a certain relative proportion of any given TAC. The wisdom of allowing a single quota-holder to hold broad access within the whole fishing industry will also need to be addressed;*
- *The development of fisheries on unutilized or underutilized resources be encouraged subject to the Precautionary Principle, involving initial experimental operations, and appropriate research monitoring and trial periods of fishing. In allocating rights for such resources, private initiative, innovation, investment and risk will be given due acknowledgement and preferential consideration;*
- *The utilization of all marine resources within South Africa's 200-mile Exclusive Economic Zone be the prerogative of South African interests, but in cases where inadequate local capacity prevails, and conditional upon specific authorization, South African national interests may be considered best served by allowing limited foreign participation, when and as appropriate;*
- *The rights of people to harvest living marine resources for recreational purposes be recognized, and they be subject to registration and licensing. Recreational fishers will not be allowed to sell their catch;*
- *People in coastal communities, within specified areas and zones and within sustainable limits and appropriate fishing management constraints, have access to local marine resources in order to provide for their subsistence needs according to traditional patterns of use. They should also be subject to registration and licensing.*

5. FISHERIES MANAGEMENT

Fisheries management can take place within a diverse variety of institutional frameworks. Its basic purpose can be seen as the pursuit of certain objectives through the direct or indirect control of effective fishing effort or of some of its components. At one end of the scale are local, informal customary law practices based on participants controlling each other. At the other end is highly formal, sophisticated management consisting of inputs from multidisciplinary research, formal consultation and advisory processes, detailed legislation and regulatory measures, as well as monitoring, control and surveillance and enforcement and development units. All fisheries management has as its point of departure a range of more or less clearly defined policy objectives aimed at achieving the best possible use of its living marine resources. To define and to establish priorities between criteria of such best possible use and their qualities is a political matter. Fair and legitimate distribution and allocation of scarce resources is the very essence of fisheries policy. The administrative structures of management are the government's instrument of policy implementation. In any fishing nation, they must be designed accordingly. The implementation of fisheries management systems able to meet their objectives within available and

sustainable resources, i.e. cost-effectiveness, by ensuring a maximum objective achievement with a minimum input for enforcement and monitoring, is the key test of the institutional capacity of the overall system of government institutions in fisheries.

5.1 National, regional or provincial resource management

5.1.1 General

South Africa's diverse and rich coastal ecosystems have been exploited as a food source for centuries. Gleaning of mussels and other marine organisms from the intertidal zone and the capture of fish in rivers and estuaries as well as in the sea have provided important sources of protein. However, there are clear signs that increasing population pressure and the consequent potential for overexploitation and environmental degradation of coastal resources are reducing the ability of coastal systems to sustain human activities. The ecosystems and associated renewable and non-renewable resources found within the coastal regions of South Africa play a major role in sustaining the economic and social development of the nation. While it is difficult to put precise values on the economic and environmental goods and services generated by coastal ecosystems, their contribution to the national economy and to the employment and food security of local populations plays an important role in sustaining the well-being of millions of people. These same coastal resources offer potential for the expansion and diversification of economic activities.

If these ecosystems and resources are well managed, they will continue to serve a strategic role in meeting the needs of current and future generations.

5.1.2 Resource biological concerns

The marine resources of South Africa vary widely in their biological characteristics, the way they are distributed, and in their life history patterns. Many marine organisms are distributed throughout the waters adjacent to one or more provinces, and whereas some resources may be amenable to other than national management, almost all of significant utilization interest are not. It is simply not realistic, from a biological and fisheries management perspective, to refer to all the marine communities of a single province as a single marine resource. So, for example, an expression such as "the 'XX province' marine resource", widely used in the politico-economic context, is a misnomer from the viewpoint of practical fisheries management.

Fisheries are, by definition in the Constitution, a national competence, one of the underlying rationales being that their biological and life history characteristics are such that, if overfishing were to take place within one province, then the sustainability of the fishery for the same organisms in adjacent provinces could be affected adversely. As the primary concern of fisheries management is to ensure sustainable use, it is clearly apparent that, in almost all cases, regional management could not guarantee sustainability of the resource as a whole. Therefore, management and control on a national basis is crucial.

5.1.3 Research quality and management funding

The principle of sustainable utilization is currently and probably also in the future best served by the retention of the research facility under national responsibility. Scientific excellence is, however, rarely developed in geographical isolation. Therefore, and bearing in mind that fisheries research involves a number of disciplines other than biology, there is a good case for dispersing research responsibility more widely to institutional networks including, e.g., such institutions as the State's own Sea Fisheries Research Institute, the Oceanographic Research Institute in Durban, the Port Elizabeth and South African Museums, the University of Transkei, Rhodes University, Port Elizabeth University, the University of the Western Cape, the University of Cape Town, and the Natal Sharks Board.

It is obvious that any moves towards regional, provincial or local fisheries management would carry consequences in terms of significantly increased total cost, involving financial as well as human resources. For this reason and others already mentioned, the department advocates retention of the *status quo* in terms of national fisheries management, research and control, as stated in the country's Constitution.

5.2 Fisheries research in management

The role of fisheries research is to produce the knowledge base needed by government when it is to conduct fisheries management and to produce a conducive environment for fisheries development. Multidisciplinary inputs of knowledge are needed, both concerning the resource base of the fisheries and the social, economic and cultural contexts of fisheries and fisheries development. Therefore, research on management systems should play an important role in the development of fisheries management in the future. It is crucial that research on the resource base and socio-economic aspects be integrated in such projects. There is in general a need for better integration of all research closely linked to management or development issues.

Integration is also relevant in order to improve cost-effectiveness in primary data collection and to ensure compatibility of data. Future systems for data sampling from artisanal fisheries should cover both biological/technical, cultural and socio-economic aspects. The development of integrated data bases would further support integrated analysis and eventually lead to appropriate and relevant advice on management and development issues.

Integrated projects represent a new approach which demands new professional skills and special attention to the development of methodology. Special attention should be given to both human resource development (capacity building) and the methodological development aspects of integrated projects.

5.3 Research on marine resources and its capacity to foster fisheries sector development

5.3.1 Introduction

Marine science in South Africa is one hundred years old, the first government marine biologist having been appointed in 1896. It developed tremendously throughout, but as in the rest of the world, the past few decades particularly have witnessed exponential growth in the understanding of the marine systems.

The development of marine science in South Africa took place during a time of increasing political isolation from the rest of the world. Therefore, it is perhaps surprising that the quality of marine research in the subcontinent remained at such a high level. One of the reasons for this achievement undoubtedly lies in the increasing trend in South Africa towards cooperative research between the major marine research establishments in the country. Programmes such as the Benguela Ecology Programme, which has now completed its third five-year phase, is a fine example of how this need has been addressed.

5.3.2 Role and focus of research

Following the significant political change that South Africa has recently undergone are expectations of an upliftment of the conditions of life of many of those formerly disadvantaged. Fisheries is one of the sectors that can contribute to the upliftment. It is with this background in mind that the question may be posed as to the role marine science can play in bringing about the desired change in society.

The first element in an answer to this question must be to maintain focus on long-term sustainable utilization, i.e. the responsibility of biological and other stock-assessment-related research to provide reliable management input on the expected impacts on any resource or resource group in terms of key stock soundness parameters, resulting from alternative levels and patterns of exploitation. This implies regular and ongoing activities related to collection and analysis of statistics related to fishing effort and catches, and any other basic data needed to conduct assessments of status, trends and ecological health, i.e. the interdependence of the relevant parameters. This will necessitate marine environmental research, ecosystem analysis and studies of biodiversity.

A second element would be to link biological research with socio-economic studies of the fishing industry and also to look at the non-consumptive uses of living marine resources, e.g. ecotourism, so providing a comprehensive background for choice between available management and policy options.

A third element should be to focus some of the South African marine research potential in the direction of possible areas for sector development or for conflicts, such as

- mariculture and mariculture technology
- improved fish processing, product quality and marketing
- problems and opportunities associated with by-catch
- unutilized or underutilized marine resources in South African and international waters, including certain marine mammals (seals)
- stock and capture enhancement techniques
- optimizing the benefits from ecotourism and other non-consumptive use of marine resources, taking into account possible conflicts with commercial and subsistence use
- integrated coastal zone management schemes
- development and improvement of fishing harbours and other required infrastructure facilities
- effects on living marine resources, their environment and on the fisheries resulting from activities related to the investigation and exploitation of offshore oil and gas resources.

A fourth element is, in a well-planned, structured manner, to exploit the inherent potential of research activities, institutions and personnel for fisheries sector educational purposes. This is necessarily a long-term objective, but also a very important one. For fisheries management to be efficient and for consultation and advisory procedures to be functional, as much common ground as possible should be established and developed between the key players in the different arenas of fisheries sector decision-making. Fisheries research can play an instrumental role in bringing about such common ground, thereby narrowing differences in perceptions of reality and improving mutual trust and understanding between government institutions and the fishing industry, between individual operators and sectors of the industry, and also between fisherfolk themselves and others having a stake in the industry. Experience from other fishing nations indicates that those involved in research and fisheries sector general education have contributed significantly over time to policy and management decisions becoming more widely accepted and hence to more legitimate fisheries management. To make progress in this direction, scientific researchers should be allocated time and other resources (especially financial resources) to consult with and disseminate information on a regular basis to fisheries management and enforcement agencies, to the fishing industry, fishing communities, NGOs and other interested parties. This can be organized and take place formally and informally, for instance by scientists attending and giving presentations at industry organization meetings, and at seminars on particular issues.

Realizing that the list of desirable areas for increased research effort is long and that available human and financial resources will always be limited, austere prioritizing and strict planning will be continuously called for. In other words, research management needs to be integrated as an essential discipline within a total fisheries management framework.

The State's research component, the Sea Fisheries Research Institute (SFRI), has already prioritized and rationalized its activities to be able to meet some of these demands, and so too have NGOs such as the Oceanographic Research Institute in Durban and much of the SANCOR (South African Network for Coastal and Oceanic Research) family. They must continue to do so in light of changing priorities while also addressing representivity issues. Clearly, a holistic rather than an individual agency approach is needed, especially if education is to become a major thrust of activities. Simply, the SFRI cannot alone cover all the development needs of the fishing industry and its stakeholders.

5.4 Management plans

Long-term management plans, which include operational management procedures, will be developed and published to ensure optimal utilization of all significant marine resources. They will:

- be developed through a cooperative process involving all interested parties
- be binding, though with procedures to allow amendments
- include appropriate and cost-effective monitoring and control programmes and strict enforcement of fishing regulations
- consider the socio-economic implications of altered levels of utilization (e.g. the effect of a reduced *TAC* on employment).

Operational management procedures will be based on scientific principles recognizing the inherent variability of resources and the interdependence of the components of marine ecosystems.

Finally and importantly, conservative interim approaches will have to be adopted where insufficient scientific information is available; research will be dedicated to filling the gaps in knowledge.

5.5 Management tools and fisheries regulations

Integrated environmental management (IEM) principles will be applied to South African fisheries management, within the context of CONNEPP.

In principle, the harvesting of any one species must not endanger the continued existence, or cause the substantial depletion of, any other species. Destructive methods of harvesting which are detrimental to species or any resources (living or non-living) should be minimized. That is why, for example, the collection of live shell and coral will be prohibited, except under special circumstances. Unauthorized collection of living marine organisms for research or sale will be prohibited.

Dumping of fish at sea and unauthorized transshipment of fish at sea will not be permitted.

Traditional and artisanal fishing practices will be identified, recognized and managed within the limits of the resource.

The setting of fishing seasons shall be determined principally by biological factors, but will take into account economic factors, pertinent to the species and fishing sectors concerned.

Appropriate fishing gear and methods of harvesting and resource utilization must be used, and innovative techniques developed to increase the selectivity of fishing for desired species and sizes of fish. Where feasible, selective and environmentally safe fishing gear will be used with a view to maintaining biodiversity and conserving ecosystems.

Size limits and restrictions on gear may be applied where appropriate, but changes in gear restrictions will take into account costly disruption to resource users.

Marine protected areas (MPAs) may be designated for the purposes of scientific study, experimental fishing or conservation, and may include special areas for the protection of particular species. Controls will be applied to all users at all levels. MPAs will be considered as an appropriate means of control, and they will be carefully zoned to minimize their effect on the activities of users, including subsistence users. User zones will be considered as a means of separating different user groups.

Certain species or populations thereof may be fully protected. In such cases the following considerations will apply:

- there will be explicit criteria which can be applied consistently in facilitating the granting or refusal of fully protected status to any species or population
- there will be a record of a decision as to whether fully protected status is granted on a scientific, cultural, ethical or aesthetic basis.

5.6 Environmental disturbance and pollution

Investigations will continue into the impact of the following activities on marine and estuarine species and the environment:

- transport of hazardous substances
- mining activities in the marine environment
- activities related to the exploitation of offshore oil and gas resources
- oil or other toxins spilt or discharged
- dumping of dangerous toxic materials
- organic and inorganic pollutants and other industrial effluents
- stormwater, waste disposal and untreated sewage.

There will be adherence to national and international treaties and legislation. Participants in fisheries shall minimize air, land and water pollution, and improve the environmental appearance and standard of facilities in areas where they operate.

It is clear also that some of the above listed activities could result in the production of structures, e.g. capped wells, that could impact on the ability of fisherfolk to conduct their activities in areas or by means of methods regarded as traditional. The effects of such activities should be carefully monitored and, where feasible, limited.

5.7 Training

The fishing industry and its associated infrastructure has for a long time provided training as a means of developing and retaining skills in the sector. However, development of a new policy offers a means of affirming training as a crucial element of the future South African fishing industry. Training in fishing and maritime techniques is available on a formal basis and should be offered to an even broader section of the community, not just to the active labour force. However, as a means of capacity building, emphasis should logically be placed on training and even education in all sectors of the fishing industry, for instance management, product development and processing, marketing, conservation as well as science itself.

5.8 International cooperation

The democratization of South Africa has brought with it opportunities for international cooperation and collaboration that were for many years impossible. Within the fishing industry, there are many disciplines in which meaningful cooperation can be developed to the benefit of local participants and entrepreneurs. It is imperative that such opportunities be seized, albeit not at the expense of local possibilities. Benefit could accrue from interaction in the fields of processing, product development, fishing technology, scientific evaluation, Monitoring, Control and Surveillance, and many other spheres. South Africa has much to offer the international community too, so the cooperation should not be seen as a one-way process.

5.9 Monitoring, Control and Surveillance

5.9.1 General

The Monitoring, Control and Surveillance (MCS) unit of fisheries management is based on the need to monitor and to control fishing activities in order to verify that industry practices and behaviour are consistent with the regulations established to implement the government's fishery policy objectives, and to correct behaviour and practices which are not.

Although several organizations can and do undertake MCS activities in collaboration with Sea Fisheries (e.g. S.A. Navy, S.A. Policy Unit for Coastal Patrols), the control of access to the exploitation of marine resources is vested in the Department of Environmental Affairs and Tourism. It is exercised by enforcing catch control (*TACs*), effort control, technical control measures (e.g. closed seasons, closed areas, minimum mesh size) and other appropriate means. Where possible, methods of control should be applied uniformly, but if necessary they can be flexible and tailored to the requirements of different species, resource users, regions and zones. They should also be sensitive to non-consumptive use of an ecosystem and its component parts.

Regulatory measures have little effect unless they are implemented and enforced. However, monitoring, control and surveillance tend to be costly activities, and the optimal extent of their use will depend critically on the industry response, i.e. how actual behaviour is modified and the magnitude of resources devoted to evasion. The fisheries policy objectives and the regulatory measures of policy implementation should, therefore, take full cognizance of the costs of the monitoring, control and surveillance necessary to undertake the programme, aiming at maximum objective achievement with a minimum burden of MCS. International experience indicates that individual and industrial propensity for compliance to fisheries regulations may depend, apart from the calculation of potential private economic benefits from an infringement against the risk of detection and punishment, to the degree the regulations are perceived as fair and just. In the ideal case, in which management directives are accepted as legitimate, the cost of enforcement should be within appropriate limits. If not, effective control and enforcement will certainly be prohibitively costly. The question of legitimacy is generally considered to be closely linked to industrial involvement in the deliberation processes leading to management decisions on regulations, in other words to adequate consultation and transparent decision-making. It is also considered to be closely linked to general public awareness and consciousness of the needs of resource conservation, of the basic principles of sustainable resource utilization and the consequential requirements of responsible fishing practices. Therefore the MCS structures of South Africa will also have an important role to play in the future as a key contributor to the provision of public education, to develop and maintain a sufficient degree of favourable public attitudes to resource conservation and responsible fishing.

From a management point of view, the key questions are whether the applied control and enforcement efforts actually work in real life, to what extent control and enforcement contribute to biological, economic and social goals and, eventually, whether the range of benefits justifies the costs. If a comprehensive cost-benefit analysis does not yield convincingly positive conclusions, there may be a case for reconsideration of the corresponding regulations and underlying policy objectives.

5.9.2 The challenge of MCS in South Africa

A variety of different regulatory measures is currently applied in South Africa's fisheries. They include:

- output control on the *TAC* of different species
- input control on the amount of effort used, e.g. number of boats, traps or nets
- technical control measures, i.e. indirect control through, for example, closed areas, closed seasons, fish size limits or restrictions on fishing gear.

Some of these measures are sophisticated by any standard, whereas others are in principle less so. The global burden of MCS associated with already existing regulations is reported to be very high compared to the scarce human, technical and financial resources available.

The new fisheries policy has a comprehensive registration of all harvesting activities and a gradually broadening pattern of participation within the commercial sector as two main features. This will in itself add to the demands placed on MCS. Given that the allocation of human and financial resources for MCS purposes will remain scarce, innovative new approaches need to be developed.

5.9.3 Vessel monitoring systems and their application

Vessel Monitoring Systems (VMS) are now being introduced worldwide as a means of increasing and improving MCS of fishing vessels in order to combat illegal fishing. In addition to the monitoring value of a VMS, it can also be used for real-time fisheries management, and has direct application as a scientific tool. A VMS uses satellite communications. The system being tested in South Africa requires a small sophisticated unit to be installed on a vessel. This unit reports independently via satellite to a base station giving frequent positions and can be programmed to identify such vessel activities as fishing, steaming or illegal shut-downs.

In the case of South Africa, installation of such a system should be a prerequisite for the granting of an access right, especially if fisheries continue to develop. Monitoring fisheries in South Africa is currently under severe stress. Understaffing and use of an increasing number of ports and harbours has resulted in a sharp decline in the reliability of data. Accurate catch data and control of illegal fishing are essential components of resource assessment as well as quota control. Several examples of the value of VMS to South Africa can be given:

- The offshore longline fishery for Patagonian toothfish - This fishery operates within the local Exclusive Economic Zone (EEZ), in adjacent international waters, in the South African EEZ around the Prince Edward Islands and also in adjacent CCAMLR waters (the Antarctic Convention - to which South Africa is a signatory). Management and control of this fishery, given the spatial extent of the fishery and the exclusion of fishing activity in many areas, requires a tracking system that not only reports on the location and activity of the vessels, but also has a facility to give daily reports on the catches and catch rates. The fishery is potentially large, with both local and foreign vessels operating.
- The foreign and local tuna longline fleets - Large numbers of foreign vessels (distant water fleets of Japan and Taiwan) operate into and out of South African waters. There is currently no method of knowing the movements of these vessels and reported illegal fishing will continue to be unsubstantiated until such time as an effective monitoring system is introduced.
- Deep-water orange roughy (and other species) fishery - Both South Africa and Namibia are in the process of developing deep-water fisheries. Vessels will be moving into and out of the economic zones of both countries as well as operating in adjacent international waters. Control of these fleets will be facilitated by VMS.
- Locally within the South African EEZ there is likely to be a strong shift towards alternative fishing techniques, with a view to capacity building and greater utilization of available resources. A prime example is the present hake-directed fishery. If large-scale longlining is ultimately introduced, it is expected to have serious management implications even if the resource implications have been assessed. Worldwide, there is a trend to avoid increasing levels of effort and to retain catches at a sustainable level. The introduction of more vessels into the hake fleet will place a huge additional burden on the monitoring and control of the largest and most valuable fishery in South Africa. VMS will facilitate tracking of vessels into and out of zones that may be introduced for separating trawl and longline fleets. It will permit real-time tracking and control of vessels (longline and trawl) as well as instant data capture once a suitable database support system has been introduced.

In summary, if South Africa is to retain control of many of its valuable offshore resources, a viable monitoring system is urgently needed. VMS, if sensibly initiated, has the potential to provide such a facility. Also, it is a valuable regional tool for countries such as Namibia and South Africa that have shared stocks and migratory species passing through the waters of both countries. Ideally, a regional VMS (Southern Africa) is what is needed. Given the present satellite and communication possibilities available,

a VMS system can be cost-effective by applying a user-pays principle. Ultimately, the advantage is a long-term gain to the country and its people through the improved preservation of South Africa's living marine resources.

5.10 Institutional management structures

5.10.1 Instruments of policy implementation and management

When developing South Africa's future institutions of fisheries management, requirements linked to their core roles and functions must remain in focus. These are to provide capability and capacity to effect, and to act as a broadly recognized instrument of the effective, implementation of Government fisheries policy by sound, legitimate management. To achieve this, well-defined delimitations of functions and responsibilities between management bodies in line with their roles, are required. The distinction between responsibilities related to policy decisions, to administration and fisheries control, to scientific advice and other management advice, and to the consultation process with the fishing industry and other user groups is of particular importance in this respect. Such delimitation and clarification is essential to allow for management transparency and even more so for management accountability. Efforts to allow adequate opportunities for user groups to raise concerns and to gain access to communicating with decision-making bodies and to promote the necessary research, advice and communication channels should be balanced against the need to minimize institutional bureaucracy and costs.

5.10.2 The Ministry and the allocation function

Whereas some fishing nations avail themselves of a separate Ministry, and/or Department of Fisheries, most countries do not. In the latter group of countries, the fisheries portfolio resides under some other Ministry, organized with other sector portfolios, such as agriculture, industry or commerce, or as currently in South Africa, Environmental Affairs and Tourism. There is no general convention regarding which configuration of sector portfolios is best suited to be grouped alongside fisheries under joint Ministerial responsibility. It is a matter of a practical and political nature that can only be decided in each country according to the situation prevailing at any time in its history or stage of development; and the solution may therefore also change over time. Indeed, as stated earlier, South African Sea Fisheries has over time resorted under or in association with portfolios such as Economic Affairs, Industries and Agriculture. Its current siting as part of the dual portfolios of Environmental Affairs and Tourism is, in the opinion of the department, a most appropriate one. Environmental Affairs brings with it the combined ethic of conservation and ecosystem health, crucial considerations in an industry based on finite, wild, and therefore to a large extent unpredictable, natural resources.

In South Africa, it is highly questionable whether a separate Ministry and Department of Fisheries is justified. The sector-specific responsibilities of fisheries management in most countries would normally be vested in some specialized management structure that commands a human resource with a relevant profile of professional skills, and the capacity and the capability to use it efficiently. The Chief Directorate of Sea Fisheries (Sea Fisheries) holds these responsibilities in South Africa. Whether Sea Fisheries reports to a separate Fisheries Ministry or to a Ministry also incorporating other sector portfolios can hardly be considered an issue of major importance. In any case, the Minister responsible for fisheries will take decisions and act on the basis of comprehensive advice from scientists, managers, groups of resource users and in particular from the Consultative Advisory Forum (CAF), i.e. from specially assigned, representative advisory bodies. Ultimately politically responsible for management decisions, their implementation and consequences, the Minister, in order to be fully accountable, needs to be empowered to make his own comprehensive assessment of all advice and other information available. On that basis he must also ultimately decide on all management matters that he considers to be of political significance, including the setting of TACs and their allocation to resource users.

The department therefore advocates a retention of the *status quo* in terms of the siting of Sea Fisheries, at least for the foreseeable future. What follows is based on the assumption that this suggestion is accepted.

Allocation

In future, allocation of commercial exploitation rights should revert back from being the province of an independent statutory body (the Quota Board) to being the responsibility of the Minister on advice of his department and any others he deems appropriate to consult (a consultative committee is not ruled out) . The same persons will become responsible for the granting and reviewing of all commercial rights, and for reviewing the performance of rights holders. Such a system will bring South Africa back in line with that in many other fishing nations.

Policy comment.

Earlier proposals were that "... allocation of commercial rights shall be the responsibility of an independent statutory body called the Allocation Board", and "... the Allocation Board will be responsible for the granting and reviewing of all commercial rights, and for reviewing the performance of the rights holders". This would have been a direct continuation of the current Quota Board, a board originally instituted in 1986, following a proposal from the Diemont Commission stating that:

"it is not right in principle that the Minister should be called upon to determine individual quotas.....Inevitably there is lobbying for the rich prizes and the Minister is subjected to political pressures. Factors which are not strictly relevant to the promotion of the fishing industry are pressed on him and the danger of wrong decisions being made is increased."

The idea, which was approved by the then government, was to remove the quota decisions from the political arena, arising from the perception that different ministers in the past had distributed quotas to followers and friends, some of whom were not actively engaged in fishing. From this background, creating an "independent statutory body" made some sense.

In a new, democratic South Africa, the concept of an "independent statutory body" responsible for the allocation of commercial exploitation rights, thereby looking after the distribution of scarce resources, which are national assets and the heritage of the country as a whole, by nature a political activity, is highly problematic. Some of the reasons of concern are:

- No management institution, instrument or body exists in supreme isolation. There will, naturally, always and unavoidably be lobbying directed at any person, institution or management body empowered to allocate such valuables as commercial exploitation rights. It is hard to find any evidence, in theory or in experience, why an "independent Allocation Board" would be less susceptible to be influenced by lobbying than a Minister.
- An Allocation Board needs administrative support of different kinds. This support must be supplied either from structures and staff within the Chief Directorate of Sea Fisheries, or by setting up new administrative structures around the Allocation Board itself. Both options consume scarce human and financial resources, add to the volume of bureaucracy, and therefore conflict with the policy objectives of economically efficient management and of minimizing bureaucracy.
- The Minister is and should be ultimately responsible for fisheries management decisions. An independent allocation board does not fit in with this concept at all. As the political head the Minister is accountable. To enable him to be accountable, he must have ultimate powers of decision-making.

From this perspective, the department does not consider an Allocation Board to be a suitable long-term instrument for the granting of commercial exploitation rights.

It is the department's opinion that all tasks currently undertaken by the Quota Board are prime fisheries management responsibilities that should reside under itself, the Minister holding ultimate power of decision-making. However, to help him with the decision-making, he may deem it appropriate to establish a committee for certain procedures. It is a policy objective that these tasks and responsibilities take place within the State's fisheries management structures.

5.10.3 Sea Fisheries

5.10.3.1 Department of Environmental Affairs and Tourism

The Director-General will be responsible for the following functions:

- fisheries administration
- fisheries research
- protection of marine resources, i.e. control and enforcement
- co-ordinating development.

The department will promote cooperation between management, scientists and all user and other interest groups.

The Chief Directorate of Sea Fisheries will be the instrument of implementation in carrying out these tasks, as appropriate.

5.10.3.2 Sea Fisheries Research Institute

Through the Chief Director of Sea Fisheries, the Sea Fisheries Research Institute (SFRI) will:

- have national responsibility and a statutory requirement to carry out and coordinate multidisciplinary research by, *inter alia*, interacting with other statutory and independent institutions, and to provide and retain information for fisheries and resource management
- make recommendations on management plans (which include operational management procedures), and on levels of TACs and other appropriate means of control
- make recommendations, including those on fisheries-sourced research funds, to the CAF
- establish and maintain appropriate fora, for instance Industry-Sea Fisheries Fora (INSEFs), for exchange of scientific information and ideas on the management of the resource; they should be open to representatives of all user and interest groups
- be responsible for appointing working groups composed of accredited scientists to advise on management, research and environmental issues. These groups will be open to participation by scientists who are considered to have inputs to make on marine resources.

5.10.3.3 Fisheries sector development

In chapter 2.2 it was pointed out that the total commercial catch in 1995 was approximately 580,000 tons at a wholesale value of approximately 1.7 billion Rand. This is a very modest percentage (substantially less than half a percent) of South Africa's Gross Domestic Product. It is also pointed out that the total number of people employed in the commercial sector is around 26-27,000, whereas another estimated 60,000 people find employment in other sectors closely related to the fisheries sector. Whichever angle of approach is chosen, it is evident that the commercial fisheries sector of South Africa accounts for a very small proportion of the country's total employment. Also bearing in mind that almost all fish resources of significant utilization potential are fully utilized, leaving little leverage for expanding total volume of fishing activities, the conclusion that development potential within the sector must be accordingly small seems obvious. That conclusion would, however, probably be wrong. Although South Africa's fishing industry is relatively small in terms of contribution to Gross Domestic Product and total employment, and although

resource-related concerns put strict limits on any growth in total fish catches, there may still be potential for development. This potential is best illustrated by highlighting the three most striking features of today's fishing industry, namely:

- a skewed distribution of resources between a dominating few large companies and a weak segment of small and medium-sized enterprises
- a totally uneven regional distribution of fisheries activities and the notable underdevelopment which characterizes the majority of local, small fishing communities
- an extremely uneven distribution of access to resources between white and black people.

The prevailing situation has a historic background that is well known and therefore needs no reiteration here. The department therefore strongly advocates meaningful sector development and what follows herein are some of the main policy principles and objectives needed to bring it about. In this manner, the major policy vehicles of broadening of popular participation in, and of permitting access to the commercial exploitation of living marine resources, could be achievable. Development, however, unless appropriately encouraged by realistic measures, may be unpredictable and slow. Therefore, an integrated strategy of development and a coherent plan of strategy implementation, including the addressing of funding requirements, need to be developed in order to create a favourable environment for fisheries sector development.

The department therefore feels that we should adopt short-, medium- and long-term perspectives, realizing that processes of development are difficult and complex, and that they take time. Further, there should be established, in cooperation with the Ministry of Trade and Industry and its established agencies Khula, NEPA and the Industrial Development Corporation, plus others (including the development agency itself), a specialized unit for fisheries and mariculture sector development (UFMD). It should be sited within the agency and sufficient human and financial resources allocated to provide for its operational requirements. Obviously too, efficiently functioning channels of communication and bodies of joint management should be created between Sea Fisheries and the UFMD, and with any other development bodies established.

The profile of activities to be undertaken by the UFMD cannot, and obviously should not, be outlined in too much detail in advance, in order to leave options for subsequent adjustments of practices in the light of accumulated experience and lessons learnt along the way. General experience, however, indicates that certain basic requirements for inducing positive, self-strengthening processes of development should be given special attention, such as schemes of and support for

- education, training and transfer of technology
- the organizing of some decentralized structure of advisory service units to cater for, for instance, support to improving local capacity of organizing and managing small business enterprises, disseminating information related to the supply of goods and services, markets, research, fisheries and other governmental management institutions
- the establishment of basic infrastructure facilities in order to minimize post-harvest loss, improve on the soundness of working conditions, on product range and product quality.

In South Africa, special attention ought also be given to the undertaking of a comprehensive study on potential opportunities of developing a wider range of mariculture and/or fish-farming/ sea ranching activities, with a view to adopting any new technology continuously becoming available worldwide to prevailing South African conditions. Possibilities of attracting external donor financing and expertise to facilitate such a study should be investigated.

5.10.4 Advisory bodies

5.10.4.1 Consultative Advisory Forum

As an independent statutory body appointed by the Minister from nominations made by appropriate groups, the Consultative Advisory Forum (CAF) has an important role to play in future South African sea fisheries. Apart from collating and synthesizing the wealth of information available to assist the Minister in decision-making, it will advise him on

- management and development of the fishing industry
- proposed changes to fisheries management and related legislation
- establishment and amendment of management plans
- appropriate TAC levels
- research needs
- allocation of fisheries-sourced funds to contribute towards the funding of the recurrent costs of all Sea Fisheries activities, e.g. research, administration, management, control and development
- departmental structures
- any other matter referred to it by the Minister.

At times, too, the CAF will appoint *ad hoc* groups and individual experts to advise on matters including sociological and economic considerations, as necessary. However, its structure will be fixed; it will be multi-disciplinary and include persons with scientific, industrial and such pertinent expertise as conservation and recreational fishing, and representatives of the maritime provinces

Policy comment: It is the belief of the department that it is the onus of the interest groups to ensure that their interests are served by representatives on the CAF. It is also the belief of the department that the onus to organize such representation, whether based on local, regional or provincial levels, is on the people concerned.

5.10.4.2 Fishing fora

Where desired, fishing fora can be constituted. Membership of such fora should be as representative as possible and include environmental groups, civics, scientists and representatives of sectoral associations of the industry. Their aim would be to provide fishers and other user groups input to decision-making structures to ensure that management is impartial. However, their costs must be underwritten by their own constituencies and not by central government or the department.

Policy comment: Fishing fora cannot replace fishing industry associations in their role as instrumental channels of consultation between the industry and State fisheries management institutions. They would also need a financial basis which cannot be provided from central government. Seen in this perspective, there is an obvious risk that fishing fora will contribute significantly to increased bureaucracy and overall costs of fisheries management without contributing corresponding fisheries management benefits. The department is therefore of the opinion that, where instituted, they should be self-generative and self-supported.

5.10.5 Transparency and access to information

Technical deliberations concerning decisions on management issues will be transparent, and all scientific data bases gathered with public funds will be available to interested parties upon reasonable request, subject to the provisos that commercially valuable (and private or personally sensitive) information on the operations of individual enterprises will be held confidential and that adequate time is permitted for careful verification before release. Further, the reasonable right of intellectual property will be preserved in terms of analysed information from such data bases.

State-funded research agencies will publish their annual budgets and expenditures, and will justify the cost and priority of their research in terms of the benefits to the fishing industry and the nation.

The Minister and department will be fully accountable, and public hearings can be held to ensure such accountability. Those responsible for making decisions will be required to make full disclosure of beneficial and other personal interests.

All applications for the allocation of fishing rights will be made available on request for public scrutiny, and no politician holding office or any other public official / civil servant may be allocated commercial access rights or directly or indirectly benefit from such rights.

5.10.6 Consultation, fishing industry and other organizations

A variety of organizations has been established to look after common interests within the fishing industry and the fisheries sector. For example, the South African Deep Sea Trawling Industry Association, the SA Inshore Fishing Industry Associations, the South East Coast Inshore Fishing Association, the SA Tuna Association, the SA Squid Management Industrial Association, the Abalone Farmers Association, the South African Marine Linefish Management Association, Fishing Community Trusts, private fisheries development organizations and employer organizations. Such organizations will be important channels of communication and interaction between fisheries management institutions and industry. Initiatives to pursue include:

- involving a broader range of interests groups, including environmental groups, recreational fishing groups and others in the consultation process for developing and refining management arrangements and plans (including operational management procedures)
- improving relations with all interest groups and working with these groups to manage South Africa's living marine resources on behalf of all South Africans.

Requirements related to the clarification and delimitation of roles and responsibilities, of transparency, accountability and the need to minimize bureaucracy, also reflect on the desirable pattern of organizational structures within the fishing industry and other relevant user groups. The more numerous, narrowly scoped (specialized) and autonomous (independent from other, similar organizations) these organizations are, the more complex, time-consuming and bureaucratic becomes the process of consultation.

From a management perspective, and probably also from the perspective of fisheries sector interest group influence on future global management, there is a good case, therefore, for the fishing industry and other private sector user groups themselves to investigate options for constituting simplified, more broadly representative, visible organizational structures in order to foster efficient consultation with departmental structures of fisheries management.

5.11 Management policy objectives

It is a policy objective that South Africa should develop and maintain a cost-effective fisheries management structure with a broadly recognized acceptability that ensures that:

- *fisheries management in South Africa, within the constraints of limited human and financial resources, be conducted on a multidisciplinary basis and making use of the best available knowledge. Special attention should be given to broadening the scope and increasing the effort of fisheries research within economic, social, cultural and other relevant non-biological disciplines, and to integrating their results with those of numerical and biological studies, in order to advance a well balanced, comprehensive basis for important decisions on policy options;*
- *all fisheries sector practices conform to relevant international standards, laws and treaties;*
- *opportunities for meaningful cooperation between South Africa and those countries interested in helping development of the local fishing industry and its associated infrastructure be investigated with a view to enhancing the industry's development;*
- *levels and patterns of exploitation, determined on the basis of best available scientific information, do not jeopardize the soundness of the resource, its environment or the ecosystem on which biodiversity and long-term optimal sustainable yields depend;*
- *long-term management plans, which include operational management procedures, be developed to ensure optimal utilization of all significant living marine resources;*
- *the harvesting of one species does not endanger the continued existence, or cause the substantial depletion of any other species, and that a variety of regulatory measures be introduced to avoid such dangers, including the full protection of species, MPAs, restrictions on fishing gear and methods of harvesting;*

- *fishing sectors be subject to environmental audits where applicable, and investigations on potential detrimental effects on marine and estuarine species and their environment from activities causing environmental disturbance or pollution be initiated or continued;*
- *implications of economic and socio-economic nature, ensuing from various policy options, are properly identified, analysed and taken into account when decisions are made;*
- *the principle of national coordination and control over the use of South Africa's living marine resources and related research activities be entrenched, but on a basis of involving other authorities in cases of non-mobile marine resources which occur relatively nearshore and which do not overlap boundaries. When this is practicable, it may be necessary to involve networks of scientific institutions to assist in the process. The inherent potential of introducing co-management structures shall be given special attention in this respect;*
- *cost-effective capability and capacity is put in place to enforce fishery regulations effectively, to exercise adequate overall monitoring, control and surveillance and to provide for sufficient contributions to public education, to ensure that the extent and the practices of all exploitation of South Africa's living marine resources are consistent with the principle of optimum sustainable utilization. A well-functioning Vessel Monitoring System, tailored to be compatible also with future regional needs in Southern Africa, is considered as an essential tool in this respect;*
- *institutional structures of fisheries management in South Africa adequately meet functional demands linked to their core role of providing the capability and the capacity for the effective implementation of fisheries policy by sound management. Furthermore, institutional structures should minimize bureaucracy but allow adequate opportunities for user and interest groups to raise concerns and make inputs to decision-making, and should also promote the necessary research, advice and channels of communication for the implementation of responsible fisheries management through national and provincial participation and representation. Empowerments of authority and lines of communication between institutional levels and bodies should reflect realities of policy and management responsibility, thereby fostering realistic management accountability and transparency;*
- *an ethic of training in its broadest sense be promoted within the fishing industry and its associated community;*
- *adequate consultation takes place with representative, visible industry organizations and democratic public bodies, allied to open, transparent administrative procedures;*
- *that an integrated strategy of development and a coherent plan of strategy implementation, including the addressing of appropriate funding schemes, be developed in order to create a favourable environment for fisheries sector development. Some of the features of a fisheries sector development strategy should be, first, to adopt short-, medium- and long-term perspectives, realizing that processes of development are difficult and complex, and that they take time, and second, to support the establishment of an adequately funded specialized unit for fisheries and mariculture sector development (UFMD). Special attention should be given through this development plan to schemes of and support for*
- *- education, training and transfer of technology*
- *- the organizing of some decentralized structure of advisory service units to cater for, for instance, support to improving local capacity of organizing and managing small business enterprises, disseminating information related to the supply of goods and services, markets, research, fisheries, mariculture and other governmental management institutions*
- *- the establishment of basic infrastructure facilities in order to minimize post-harvest loss, improve on the soundness of working conditions, on product range and product quality*
- *- the undertaking of a comprehensive study on potential opportunities of developing a wider range of mariculture and/or fish-farming/ sea ranching activities, with a view to adopting any new technology continuously becoming available worldwide to prevailing South African conditions. Possibilities of attracting external donor financing and expertise to facilitate such a study should be investigated.*

It must be emphasized that all these need to be put in place to achieve long-term sustainable utilization of all natural living marine resources of South Africa, and of the environment in which they exist and in which mariculture activities may occur, to the benefit of the country as a whole.

6. LABOUR RELATIONS AND CONDITIONS OF EMPLOYMENT

The human resource needs of the fishing industry are multidisciplinary in nature. A culture should be encouraged where labour is seen not merely as a cost of production but as mankind with the dignity this entails. Good labour relations will be promoted. Fair, humane and acceptable labour practice, workers' rights, job creation and security, sound working conditions, health and safety, and welfare benefits of employees in the industry will be encouraged, and where appropriate, regulated. It is necessary to register all fisherfolk. Therefore, it will be necessary to find suitable parameters in order to establish a clear definition of "a fisher" and the level of activities which make him or her eligible for registration as a full time, or if deemed appropriate, a part time fisher.

It is a policy objective that holders of fishing rights and other fishing industry operators should provide acceptable conditions of employment for all employees.

Within the Government's administrative structures, policy matters related to labour and employment in all sectors of the economy are the special responsibility of the Department of Labour. The Ministry and the department will, however, within the constraints of its specified statutory terms of reference, its scarce human and financial resources, and its obligation to give priority to core activities and responsibilities, continue to lend support to efforts at fostering improved relations between fishing industry employers and their labour force. If required, it can also contribute in a facilitating and liaising role to improving communication and relations between the Department of Labour and representative organizations in the fishing industry.

7. ASSESSMENT OF LEGAL CONSEQUENCES - A SUMMARY

The full legal report (available separately on request from the department) identifies the instances in which it will be necessary to amend the present Sea Fisheries Act in order to achieve the policy objectives. It also indicates those instances where the policy recommendations are not achievable by means of legislation.

The more important changes proposed regarding the amendment of the Act include: inserting in the Act a statement of policy objectives and principles in order to ensure that the Act would be interpreted and applied in accordance with the policies identified in the policy itself, specifically with regard to the RDP and certain recent developments in international law; specific recommendations are also made for legislative changes to achieve the policy's objectives in respect of access rights, in particular commercial access rights, recreational fishing, subsistence fishing, foreign fishing and mariculture.

With regard to Institutional Structures, the Legal Task Team based its findings on the provisions contained in the original proposal submitted to the Minister in June 1996, because an approved version of the White Paper dealing with this topic was not available when their report was being drafted. Certain changes of philosophical nature would now be necessitated.

On resource management, the Legal Task Team recommended the incorporation of management plans into legislation.

Certain changes are also proposed to strengthen the enforcement aspects of the present Act. These included strengthening the penalties available and increasing the powers of fisheries inspectors, introducing provisions on the use of evidence gained from vessel monitoring systems, as well as the inclusion of a new offence of failure to stow fishing gear correctly.

A considerable number of amendments would be required to bring the present Sea Fishery Act into line with the policy objectives. If these amendments are introduced they would be of such a technical nature that they would have the effect of introducing further complexities to the Act.

The department accordingly recommends that the present Sea Fishery Act be repealed and that a new law with respect to utilization of living marine resources be drafted. However, it is further considered in any event that a new Act is justified in view of the new policies that need to be introduced. An example would be the need to establish a Commercial Public Company, as outlined in 4.6.1.1. New policies will only be fully effective in the context of a new Act. With a new Act, it will be possible to achieve both the necessary degree of transparency as well as ensuring effective participation in the decision-making process.

8. ABBREVIATIONS, ACRONYMS AND DEFINITIONS

8.1 Abbreviations and acronyms

This list includes those mentioned within the pages of the legal report, for the sake of completeness.

AB - Allocation Board

CAF - Consultative Advisory Forum

CONNAPP - The Consultative National Environmental Policy Process

EEZ - Exclusive Economic Zone

FAO - Food and Agricultural Organization of the UN

FP - National Marine Fisheries Policy for South Africa

FPDC - Fisheries Policy Development Committee

IEM - Integrated Environmental Management

Interim Constitution - Act 200 of 1993

LOSC - Law of the Sea Convention

LTT - Legal Task Team

MCS - Monitoring, Control and Surveillance

MPA - Marine Protected Area

New Constitution - The Constitution as adopted on 8 May 1996

NGO - Non-Governmental Organization

QB - Quota Board

RDP - Reconstruction and Development Programme

SANCOR - South African Network for Coastal and Oceanic Research

SFA - Sea Fishery Act No. 12 of 1988

SFAC - Sea Fisheries Advisory Committee

SFRI - Sea Fisheries Research Institute

TAC - Total Allowable Catch

UFD - Unit for Fisheries Sector Development

UN - United Nations

VMS - Vessel Monitoring System

1982 UN Convention - The United Nations Convention on the Law of the Sea, 1982

1995 Fish Stocks Agreement - The 1995 UN Agreement for the Implementation of the United Nations Convention on the Law of the Sea of 10 December, 1982, relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks.

8.2 Definitions

Artisanal: a type of fishing using traditional or simple devices to catch small quantities of marine life.

Biodiversity: the natural, diverse wealth of biological material (plant and animal) in an environment.

Buy-back: a process whereby the State purchases rights issued which enable holders of those rights to harvest a marine resource.

By-catch: the catch (of one or more species) made incidentally when targeting a different species.

Capacity building: expanding knowledge and possibilities to undertake certain activities.

Coastal communities: discrete homogenous populations at the coast, to some extent dependent on the sea for their livelihood.

Commercial fishery: a fishery conducted with the aim of earning money for the entrepreneur, his company and its employees (the last in the form of wages).

Deep-sea resources: living marine resources that are found at great depth in the oceans, either in the water column above the sea bed, or on or in the sea bed.

Ecosystem: the whole system in which an individual organism lives; the environment as well as all other organisms in the system form part of the ecosystem.

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Ecosystem analysis: analysis of changes (man induced and natural) in the ecosystem.

Effort: the quantum, be it measured in manpower, gear or period (or a combination of them), put into fishing in order to make a catch.

Extension services: provision of knowledge and expertise to people and groups of people who are in need of either.

Fully protected: an in principle restriction precluding consumptive utilisation, as distinct from temporary cessation of fishing (sometimes referred to as "protection") to allow a resource to recover from a heavily depleted level before harvesting is renewed.

Industrial: in the case of fisheries, generally large-scale and capital-intensive, and employing many people.

Inshore resources: living marine resources that are found at the surface, within the water column, or on or in the sea bed or close to the coast (generally within sight, which infers to depths that can be reached by diving) or within the tidal zones.

Joint ventures: commercial undertakings in South African waters between foreign businesses and local entrepreneurs and companies.

Local: in the immediate vicinity of; in the case of a resource, the term means within easy access and with limited mobility, so that harvesting in one location will not impact the status of population of the species in question at another location.

Local community: a homogenous group of people, or a population, in the immediate vicinity of something; where fishing is concerned, the term of necessity refers to a community resident at the coast.

Management plan: a written plan for managing a resource encompassing legal, enforcement, social, economic and natural scientific considerations (the last could, for example, be in the form of an operational management procedure.)

Marine Protected Area (MPA): any area in which one, a number or all species therein are protected; sometimes referred to as a marine reserve.

New resource: a resource currently not utilised for commercial, recreational or subsistence purposes.

Non-Governmental Organization (NGO): an interest body with its own mission organised to contribute to some overall objective, contributes to, but does not represent, the State's own machinery.

Offshore resources: living marine resources that are found at the surface, within the water column, or on or in the sea bed off the coast, but still over the continental shelf (generally accepted as down to depths of some 200 m) or upper continental slope.

Operational management procedure: a scientifically evaluated process which defines the manner in which the available data on a resource are used to determine the level of a control measure such as a TAC, thereby incorporating a harvesting strategy.

Precautionary Principle: in the absence of adequate scientific information, States should not postpone or fail to take measures to conserve target species, associated or dependent species and non-target species and their environment. Therefore the Precautionary Principle requires that risk resulting from uncertainty be taken into account in conservation and management measures, including, *inter alia*, that conservative catch and effort limits be put into place and remain in force until there are sufficient data to allow assessment of the impact of the fisheries on the long term sustainability of the populations of the species in question.

Product enhancement: the means whereby a natural product is improved (in flavour, size, etc., and thereby value) by processing.

Quota: a portion (preferably proportion) of a TAC allotted to an individual or group of individuals for a specified period.

Recreational: fishing for enjoyment, for the sport or the relaxation it offers.

Regional: refers to a geographical area from a province to a small section of the coast and its associated waters, but in the context of the policy tends to refer to discrete areas (a province is a discrete area).

Scientific data base: the information, derived in part from the fishing industry, used to improve knowledge of the biology and dynamics of the fish resources; many of the data are used in stock assessments.

Stock enhancement: artificial methods of improving the size of a wild stock, e.g. releasing of artificially bred abalone larvae into the sea.

Subsistence: fishing to live, by taking out only what one requires for oneself or for one's immediate family or community; the definition does not preclude local barter or sale of excess catch to obtain other materials necessary for life, but excludes commercial connotations.

Sustained growth in the resource: it is scientifically determined that the size of the resource is increasing, has done so for some time and, all other things being equal, is predicted to do so for some years to come.

Sustainable utilization: an extent of utilisation whereat, all other things being equal, levels of catch can be sustained *ad infinitum*.

Technical measures: means (other than catch or effort control) whereby control can be exerted over the catches taken from a resource; examples include limitations on gear, season, fish size and area.

Total Allowable Catch (TAC): the maximum allowed take (normally annual) from a resource, generally set on scientific (natural, social or economic) grounds.

Traditional: having a long established relationship (with a fishery).

Under-utilized resource: a resource that is utilised for commercial, recreational or subsistence purposes but not to its scientifically determined full potential.