REPUBLIC OF NAMIBIA

MINISTRY OF FISHERIES AND MARINE RESOURCES

ANNUAL REPORT 2012 - 2013

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Our Mandate

To sustainably managed the living aquatic resources and promote the aquaculture sector

Our Vision

Namibia to be a leading fishing nation with a well-developed aquaculture

Our Mission

To responsibly manage living aquatic resources to continuously ensure a conducive environment for the fishing and Aquaculture sector to prosper

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LIST OF ABBREVIATIONS

ANN	Aquaculture in Northern Namibia
ASPM	Age Structure Production Model
BCC	Benguela Current Commission
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CP	Crude Protein
CPEF	Catch Per Unit Effort
CPP-NNE	Community Based Project-Namibia Nature Foundation
EEZ	Exclusive Economic Zone
EU	European Union
EUS	Epyzootic Ulcerative Syndrome
FIOC	Fisheries Inspector Observer Course
FOA	Fisheries Observer Agency
GDP	Gross Domestic Product
HAB	Harmful Algal Bloom
HIAC	Hardap Inland aquaculture Center
ICCAT	International Commission for the Conservation of Atlantic Tunas
IWP	Individual Wrapped Portion
KIFI	Kamutjonga Inland Fisheries Institute
Km	Kilometre
MANCOSA	Management College of Southern Africa
MCS	Monitoring, Control and Surveillance
MFMR	Ministry of Fisheries and Marine Resources
MSYL	Maximum Sustainable Yield Level
N$	Namibian dollar
n. mile	Nautical mile
NAMFI	Namibian Maritime and Fisheries Institute
NPC	National Planning Commission
OIA	Onavivi Inland Aquaculture
PQ	Prime Quality
PV	Patrol Vessel
RFMO	Regional Fishery Management Organization
RV	Research Vessel
SA	South Africa
SANUMCRC	Sam Nujoma Marine and Coastal Research Centre
SEAFO	South East Atlantic Fisheries Organisation
SG-ASAM	Subgroup Acoustic Survey and Analysis Methods
SSFF	Small Scale Fish Farm
TAC	Total Allowable Catch
UK	United Kingdom
UNAM	University of Namibia
UNDP	United Nation Development Programme
UNISA	University of South Africa
USA	United Stated of America

FOREWORD

It is my outmost pleasure to introduce the 2012/ 2013 Annual Report to you. As a tradition, the Annual Report of the Ministry gives us an overview of all the activities that the Ministry undertook during a specific financial year.

Although the industry had experienced an overall under catch, landings of all quotas allocated during the 2012/2013 fishing season due to external influences, the distribution of marine resources in our waters proves to be constant and with adequate stock level.

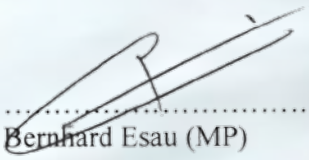
The Ministry conducted inspections, patrols and monitoring of fishing activities, which resulted in the confiscation of fishing materials, issuing of fines and warning to non-compliance with rules & regulations. In addition, public awareness campaigns were conducted to reduce, if not wipe out, illegal fishing activities; hence a decline in the number of illegal activities was recorded during 2012/2013 compared to that of last year's fishing season. As part of the Monitoring Control & Surveillance, the multi- disciplinary research vessel "Mirabilis" that was acquired by the Ministry during the financial year 2012/2013, was received and inaugurated in Walvis Bay, 31st July 2012.

Despite a few setbacks incurred during 2011/2012, such as fuel price fluctuations, unfavourable change in weather conditions, exchange rate instability, the fishing sector evidently continued to contribute significantly to GDP. Its contribution increased by 0.2% to 3.9% in 2012. As for 2013, the preliminary contribution was 3.45%, a decrease of 0.45%. With the exchange rate and weather conditions favourable, and a recovery in some fisheries in 2013, a positive contribution to GDP is expected positive in 2013/2014. Namibian fish products such as the Rock Lobsters, Hake, Horse Mackerel, Seal products, Canned Pilchard persist to receive favourable prices on the international markets due to increase in demand, high-quality and the value addition that meets the clients' conditions.

A number of farmers continue to benefit from the aquaculture sector although it is still relatively small. If groomed accordingly, it has the potential to contribute to food security, generate income to rural households as well as contribute to general employment.

The Ministry still maintains its commitment to human resources, and skills development training as well as funding long term study training for its staff members in areas considered essential to the growth of the Ministry. More bursaries and training skills development had been offered during the 2012\2013 in comparison to the 2011\2012 financial year.

I urge all stakeholders and readers to continue contributing to the growth of the industry as expected of them, while our obligation is to guarantee accessibility of the fishing industry's information to the public as a whole.



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Bernhard Esau (MP)

MINISTER OF FISHERIES AND MARINES RESOURCES

THE MINISTRY OF FISHERIES AND MARINE RESOURCES

The Ministry of Fisheries and Marine Resources is responsible for the management and development of fisheries and aquaculture.

1.1. OBJECTIVES

The overall objectives of the Ministry are derived from the mission statement. Our objectives are to:

- Promote and regulate the responsible and sustainable utilization of living marine and freshwater resources and aquaculture within the context of environmental sustainability.
- Establish a conducive environment in which the fishing and fish processing industries can prosper and derive optimal income from marine resources.
- Further Namibia's interests within the international fishing sector.
- Provide professional, responsive and customer-focused services.
- Deliver our services efficiently and effectively providing best value for money.
- Continuously invest in human resource development so as to enhance Namibia's capacity to manage fisheries and marine resources, develop and participate in domestic fishing and fish processing, and play an effective role in regional and international fisheries affairs.

1.2 ORGANISATIONAL STRUCTURE

The Office of the Minister is the overall responsible for the running of this ministry whilst, Permanent Secretary provides administrative management. The Ministry has four directorates and one division that provide support services. The directorates roles are define below

1.2.1 Directorate of Operations

Main responsibilities:

- Regulating fishing activities within the Namibian EEZ.
- Monitoring, control and surveillance activities both at sea and onshore through the operation of fisheries patrol vessels, cars for coastal inspection and fisheries patrol aircraft by Fisheries Inspectors.
- Fisheries legislation enforcement

1.2.2 Directorate of Resource Management

Main responsibilities:

- Provides advice on the state of commercially important marine fish stocks and recommendations on their appropriate yields;
- Appropriate management measures in relation to species and fish size limitations, closed seasons, closed areas, and limitations on the types and effectiveness of fishing gear.

1.1.3 Directorate of Policy, Planning and Economics

Main responsibilities:

- Co-ordinates the formulation, implementation, as well as monitoring and evaluation of fisheries policies and legislation.
- Carries out continuous policy and economic research and analyses.
- Responsible for the management of information services of the Ministry
- Administration of fishing rights and quotas
- Collection of fees
- Analysis and publication of fisheries statistics.
- Co-ordinates overall planning of the Ministry.

1.2.4 Directorate of Aquaculture

Main responsibilities:

- Ensure the responsible and sustainable development of aquaculture to achieve socio-economic benefits and environmental sustainability.
- Facilitate an efficient, coordinated administrative and institutional framework for aquaculture.
- Ensure that the genetic diversity and integrity of the aquatic ecosystem is maintained.
- Promote responsible aquaculture production practice

1.3 MINISTRY'S STRATEGIC PLAN AND CUSTOMER CHARTER

The Ministry reviewed the 2007-2012 Strategic Plan, and developed a new plan that start from 2012-2017. The Customer Charter was also reviewed to accommodate aquaculture services. The Strategic Plan and Customer Charter can be accessed via the Ministry's website www.mfmr.gov.na.

1.4 FINANCE

The Ministry's total budget allocation for 2012/2013 financial year is N$ 257,463,000.00. This is broken down into N$ 204,463,000.00 for Operational expenditure and N$ 53,000,000.00 for Capital expenditure. The budget execution of the Ministry as at **31 March 2013** stood at N$ 235,533,301.00.

Table 1: Rate of Budget Execution

BUDGET	N$ (000) ALLOCATION	N$ (000) EXPENDITURE	% EXECUTION
Operational	204,463	197,765	96.72%
Development	53,000	37,769	71.26%
TOTAL	**257,463**	**235,534**	**91.48%**

Source: MFMR, 2011/2012

The development budget for 2012/2013 was N$53,000.00. About 20 projects were identified of which only thirteen projects were funded under the review period. It is also important to note that some of the projects have continues phases.

Table 2: Development Budget for 2012/2013

Project	Estimate (N$,000)
1. Renovation of MFMR Head Office in Windhoek	10,000
2. Construction of New Research Vessel	3,000
++	12,000
4. Construction of MFMR Regional Office in Caprivi	1,000
5. Construction of MFMR Regional Office in Kavango	3,000
6. Extension/Construction of Offices of Fisheries Observer Agency in Walvis bay	0
7. Extension of the Arandis Airwing Hanger	0
8. Hentis Bay Satellite Office	0
9. Extention of Luderitz Inspectorate office/Garages Research	0
10. Kamutjonga Inland Fisheries Institute	2,000
11. Aquaculture development Project in Kavango	1,100
12. Aquaculture Development Project In Caprivi	1,100
13. Upgrading of Hardap Facilities/Ponds	1,000
14. Leonardville Fish Farming Project	8,800
15. Upgrading of Keetmanshoop Fonteintjie Fish Farm Community Project	3,000
16. Construction of Fish and Vegetable Market Outlet	1,000
17. Construction of Noordoewer Fish farm	6,000
18. Construction of Onakalunga Fish Farm	0
29. Luderitz Water Front Development: Maritime Museum	0
20. New Maritime Safety Training Center at Walvis Bay (NAMFI)	0
Total	**53,000**

Source: MFMR, 2012/2013

2. FISHERIES RESEARCH

2.1 STATE OF THE MARINE ENVIRONMENT

The upwelling favourable winds off the coast of Lüderitz continue to show a negative trend in 2012. The sea surface temperature off Namibia was average to above average for the last three months of 2012, becoming below average during the first two months of 2013. Shelf waters off central Namibia exhibited the normal seasonality of low bottom oxygen during summer/autumn going over to oxygenated conditions during winter/spring. Satellite derived surface chlorophyll-a levels, which serve as an indication of primary production, showed high values off Namibia throughout 2012, decreasing slightly toward the end of 2012. The copepod abundance index for both the Walvis Bay and the Dune Point monitoring lines show an increasing trend after the lower abundances during 2009 to 2011.

The distribution of the hake densities in relation to environmental factors measured during the January/ February biomass 2013 survey showed that deep-water hake was only found outside the severely hypoxic shelf regions in a cooler water temperature range of 5-10°C while Cape hake was caught in the warmer bottom water just outside of the severely hypoxic shelf areas. The Southern Oscillation index has changed from a slightly positive phase to a negative phase in January 2013. This index influences rainfall patterns globally; however, clear links with the Benguella Ecosystem have not been established.

2.2. SEA SURFACE TEMPERATURE

Summer (February/March) is an important time of the year off central & northern Namibia - sea surface temperatures usually increase due to a combination of solar radiation and a relaxation in the equator-ward, upwelling favourable wind. The latter initiate the southward shift of warm subtropical water from Angola as well as the inshore advection of warmer oceanic waters from farther offshore.

This period is also the manifestation period of the Benguella Niño phenomenon, which is an equivalent of the well-known Pacific El Niño but occurs on a much smaller scale, and less frequently than its Pacific counterpart - approximately every ten years. These events typically last three to four months, usually between January/February to April/May and it is believed that the Benguella Niños are remotely forced and originate from sustained anomalous atmospheric conditions in the tropical Atlantic, farther north.

The time overlap of these processes, of which all contribute to increased sea surface temperatures, makes it very difficult to distinguish between them i.e. a normal year, where sea temperatures increase during summer/autumn as a result or combination of relaxed upwelling and solar radiation, and a Benguella Niño year where all these factors contribute towards the temperature increase.

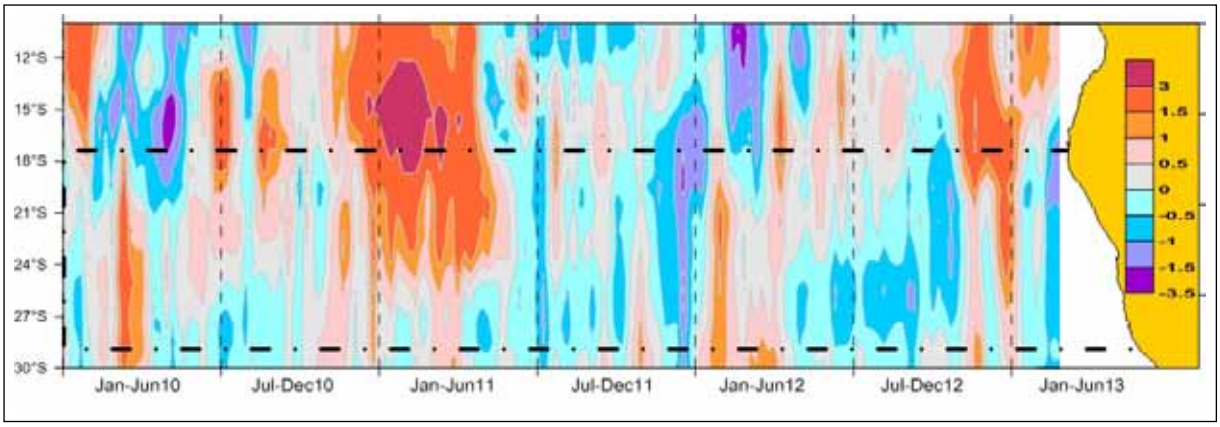


Figure 1: Time shows the weekly SST anomalies along the southern Angolan and Namibian coastlines since January 2010. This illustration clearly shows the development of a warm water anomaly off southern Angola and how this warm water (red colouration) extends into Namibian territory towards the end of 2012. In 2013 surface waters along the Namibian coast experienced mainly negative anomalies, while in Angola positive anomalies remain.

2.3 THE SOUTHERN OSCILLATION INDEX (SOI):

The SOI (southern oscillation index) index in Figure 2 indicates a change from a slight La-Nina condition to El-Nino conditions in early 2013 in the Pacific Ocean. Negative values (blue) suggest an El-Nino mode, whereas the red resembles a more neutral to La Nina type mode. No direct correlations between ocean conditions in the Pacific (El Nino or La Nina) and the South East Atlantic (Benguella) exist. However, atmospheric conditions influencing rainfall patterns around the world and also in sub-Saharan Africa are influenced by these phenomena.

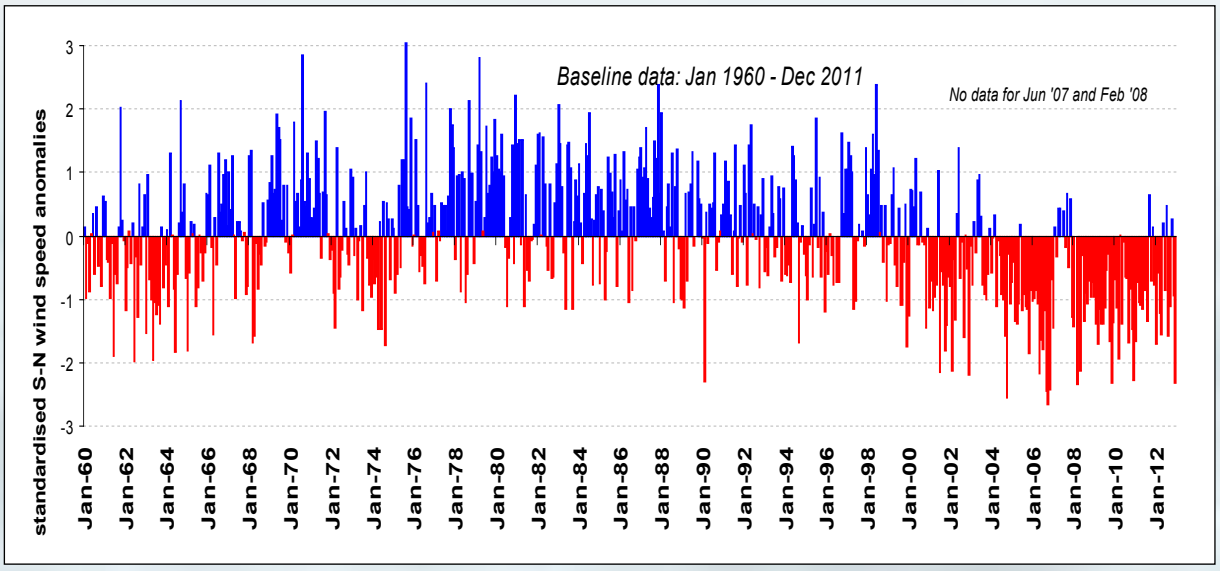


Figure 2: Southern oscillation index (SOI) for the Pacific Ocean (Jan 2000-Jan 2013).

2.4 WIND

An upwelling index, based on a 50-year time-series of wind data collected at Lüderitz, is shown in Figure 1. The series shows two distinct periods at the beginning and at the end of the time frame with strong negative anomalies, indicating below average upwelling at the Lüderitz cell. The middle phase, covering the 1970's and 1980's, experienced positive anomalies, indicative of strong upwelling. During the past eleven years we have experienced below average upwelling favourable winds in the Lüderitz region, except in 2007 when the anomaly was close to average. Monthly standardised anomalies presented in Figure 3, which is up to date till December 2012, were still well below the long-term average.

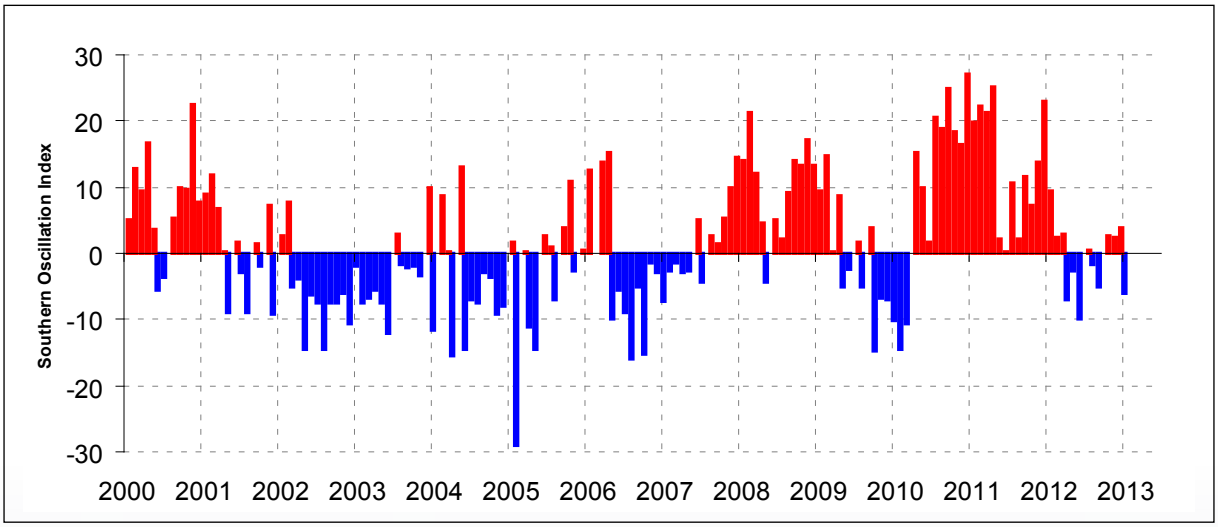


Figure 3: Monthly along-shore wind anomalies recorded at Lüderitz over the past 53 years (Jan 1960-Jan 2013).

2. 5 OXYGEN

Persistent oxygen-depletion or even anoxia is a perennial feature of sub-thermocline waters along the central Benguella shelf region with significant impacts to ecosystem function and habitat suitability of economically important fish stocks. However, fish species occurring in coastal upwelling regions have adapted either physiologically or behaviourally to survive in these extreme conditions. Data from the monthly sampling line off Walvis Bay has been used to calculate an oxygen index for the central Namibian shelf (% area of water column £0.5ml/l O_2) from 1999 to February 2013 (Figure 4).

A seasonal trend can be seen in the time series – lower oxygen levels during summer/autumn and higher oxygen concentrations with the onset of winter/spring upwelling. Although the same trend is seen throughout the time series it does show inter-annual variability. During 2012 the normal low-oxygen summer to autumn conditions were experienced that were then flushed out with the onset of winter upwelling off central Namibia, although there was a brief reappearance of low-oxygen water in October 2012, probably due to remineralisation of organic matter from a spring bloom.

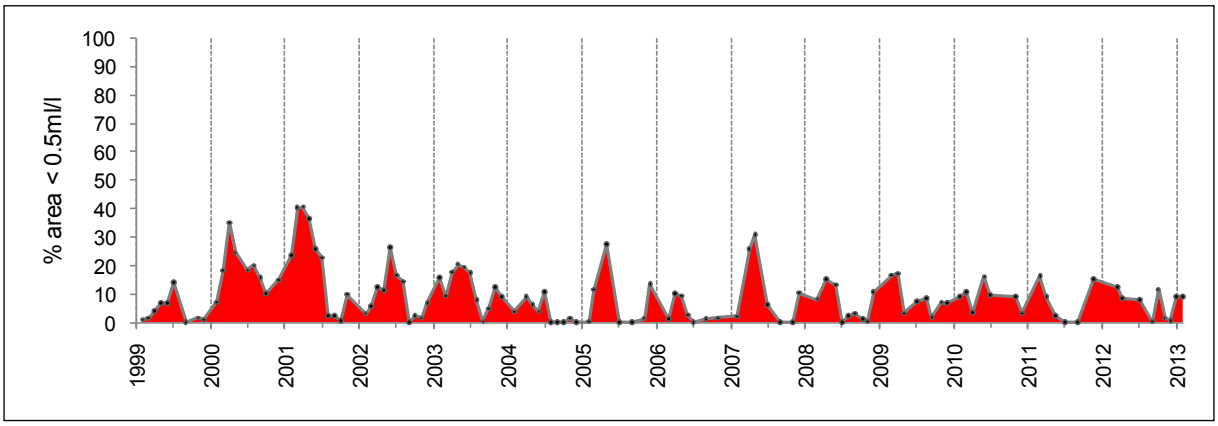


Figure 4: Percentage area of low oxygen water (£0.5ml/l oxygen) on the shelf off Walvis Bay (Jan 1999 – Feb 2013).

2.5.1 Secondary production: Copepod (*zooplankton*) PHYTO- AND ZOOPLANKTON

The enrichment of the surface water through upwelling stimulates phytoplankton growth (primary production), which forms the basis of the food chain in the ocean. This is followed by secondary production initially consisting mainly of zooplankton. Both phytoplankton and zooplankton are important food sources for the larval stages of many of the fish species found along the Namibian coast.

A satellite derived chlorophyll-a index, representing chlorophyll-a concentrations (phytoplankton) along the Namibian coast is shown in Figure 5. Highest chlorophyll-a concentrations usually occur off central Namibia, which is located downstream of the Lüderitz upwelling area. The upwelling centres, e.g. Lüderitz, usually have low chlorophyll-a concentrations due to the intense turbulence in the water column during active upwelling. The concentration of chlorophyll, indicative of the primary productivity of the system, was relatively low in 2006 but has been increasing since then. During the first half of 2012 high surface chlorophyll was measured.

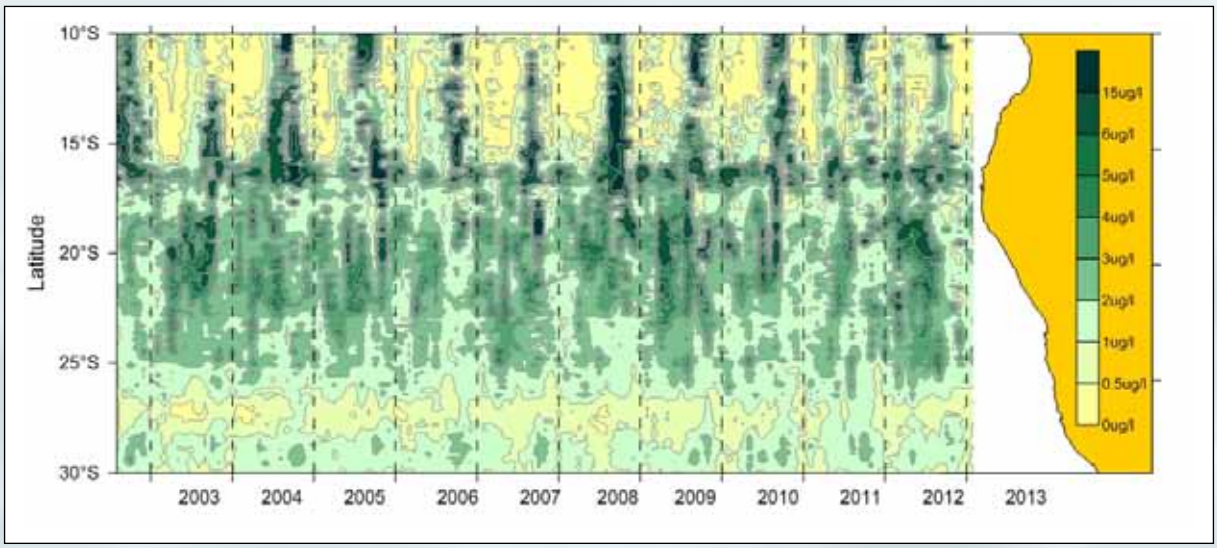


Figure 5: Monthly chlorophyll-a concentration (July 2002 – January 2013).

Copepod abundance was calculated from the monitoring lines off Walvis Bay (23°S) and Dune Point (20°S) to provide an indication of secondary production. Figure 6 shows a steady increase in copepod abundance from January 2000 until 2004 off Walvis Bay. However, despite the monitoring being coarser, it showed a decrease since 2005. Lowest abundances were measured between 2009 and 2011, with numbers increasing again since late 2011. The copepod abundance at 20°S has been lower compared to that at 23°S but both display a similar trend.

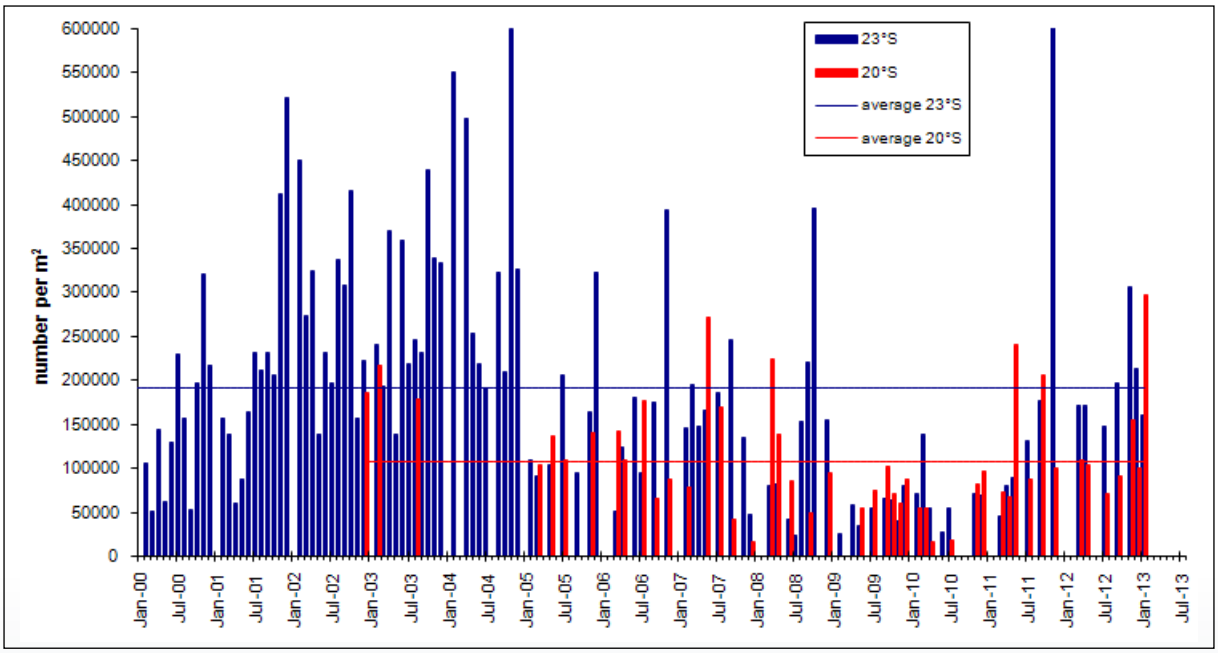
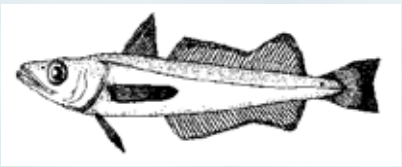


Figure 6: Copepod abundance in number per m2 (averages for the 10 – 70 nm stations for 20°S and 23°S, and 10 – 50 nm stations for 25°S) on the 23°S (blue), 20°S (red) and 25°S (green) transects from February 2000 to February 2013. Straight lines represent the average abundance of each transect for the time series.

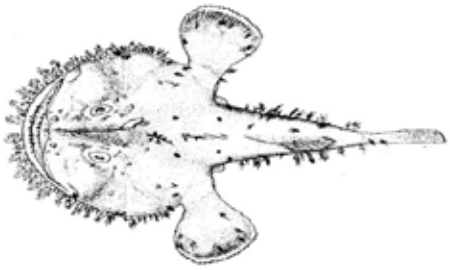
2.6 STATE OF MARINE RESOURCES

2.6.1 Hake (*Merluccius Capensis and M. Paradoxus*)



The January/February 2013 swept-area biomass survey has estimated the relative total hake biomass to be around 1.39 million tonnes. This reflects a 70 % increase in the total biomass (from 819 954 tonnes of 2012). The increase in total biomass is mainly due to the huge increase in the non-fishable biomass (hake size <36 cm) that has increased by 119 % since 2012 estimates. The fishable biomass (hake size >35 cm) has decreased. The decrease in fishable biomass has been observed since 2011. The 2013 survey estimates of the recruitment potential (2011 cohort) was above the long-term average, at about 7.2 billion small fish (1.5-2 years old). This cohort is expected to recruit to the fishery by the second half of year 2013. The bottom trawlers catch rates (CPUE, which is used as an index of stock abundance) has decreased from 1400 kg/ hr (2011) to 1000 kg/hr (2012) while Long liner CPUE has increased in 2012. The commercial catches in 2012 were made up of 51% (in weight) of *M. capensis*, while 49% was *M. paradoxus*. The mean length of *M. capensis* catches decreased from 48 cm (2011) to 44 cm (2012), while that of *M. paradoxus* catches increased from 39 cm (2011) to 41 cm (2012).

2.6.2 Monkfish



The recent swept-area survey of monkfish resource conducted during November 2012 indicated a drastic decrease in the relative total biomass estimates by 54 % (from 48 000 tonnes to 22 000 tonnes). The recorded length distribution showed a decrease in all length classes of the monkfish population, affecting both the recruits (small fish) and spawners (large fish). The observed decrease has resulted in the downward trend record of the relative total biomass for the 2012/2013 season, as compared to the 2011/2012 fishing season. The CPUE (catch per unit effort) continued to increase as recorded in the previous seasons since 2007. The size structure from the commercial fleets recorded less landing of small fish with the modal length of 40 cm in 2012 whereas 38 cm in 2011.

2.6.3 Horse mackerel (*Trachurus Capensis*)

The 2012 acoustic survey biomass was estimated at 1,579,000 tonnes. The annual average Midwater catch-per-unit effort (CPUE) has decreased from 22.0 tonnes/hour recorded in 2011 to 16.7 tonnes/hour recorded in 2012. A total allowable catch (TAC) of 320,000 tonnes was allocated for the 2012 fishing season. The Midwater fleet landed about 195,000 tonnes and the Purse seine fleet landed only 13,000 tonnes. The length frequency distribution of the Midwater catches ranged from 11 to 33 cm with a modal length of 23 cm. The purse seine length frequency distribution ranged from 11 to 28 cm with a modal length of 17 cm. The combined horse mackerel landings for 2012 were 208,000 tonnes for the two fisheries targeting horse mackerel.

2.6.4 Pilchard (*Sardinops Sagax*)

Two years of good recruitment (2008/09 and 2009/10) resulted in an increase of the sardine biomass in the last three years. The recruits of those years reached big sizes last year and sustained a good fishing season. Unfortunately during both the 2010/11 and 2011/12 recruitment-seasons the recruitment of new sardine into the stock was very low. This together with the prevalent high natural mortality of sardine resulted in a drastic decline of the stock, which is expected to continue in the near future. The sardine directed October surveys estimated a decline from 331 000 tonnes in 2011 to 116 000 tonnes in 2012. The stock assessment model estimated the spawning stock biomass to be below the Limit Reference Point, namely at 260 000 tonnes in January 2013, decreasing from 800 000 tonnes estimated for January 2012.

32therefore guarantee sustainable harvesting and improved socio-economic gains. Given the central role of the sardine in the ecosystem, this would also benefit the ecosystem functioning and other fisheries.

2.3.5 Deep sea red-crab (*Chaceon maritae*)

Considering the period April 2012 to March 2013 the Deep-Sea Red Crab (DSRC) Industry performed considerably well in that the industry not only fully landed the 2012 TAC but exceeded it with 3%. Catch rates were cyclical throughout 2012 following two gradual declines over the periods February to April, and June to October, respectively. These declines were generally succeeded be short periods of rapid increases in catch rates during the periods of May, and November to December 2012, respectively. The start of 2013 saw an increase in the number of vessels that was granted access to the resource from three to four. However, the activity of crab vessels (i.e. frequency and duration of fishing trips) varied greatly over the first four months of 2013 with one vessel even recording a fishing trip as short as 9 days. Overall, however, catch rates followed a highly variable trend with certain months recording exceptionally high records (i.e. in excess of 10 kg/trap).

The annually conducted fisheries-independent abundance assessments have revealed a 64% increase in the total DSRC biomass from 2011 (estimated at ~7000 tons) to 2012 (estimated at ~11000 tons). In terms of growth parameters the 2012 assessment recorded a 7 and 1% increases in the male and female average sizes respectively, from that of the 2011 assessment. Recruitment, on the other hand, revealed a different picture in that total number of crabs <60mm carapace width (i.e. juvenile crabs) recorded during the 2012 assessment declined by 54% from that recorded during the 2011 survey indicating very poor recruitment cycle for the resource during 2013.

2.3.6 Rock lobster (*Jasus lalandii*)

Although catch rates at the start of the season were similar, the 2012-13 rock lobster fishing season produced noticeably better results than that of the preceding season (i.e. 2011-12). This is because soon after the start of the season the 2012-13 catch rates broke away from that of the 2011-12 catch rate and remained at an elevated level for the most part of the season. On a month-by-month comparison, all months (with the exception of November 2012 and January 2013) recorded higher total landings than those for similar months of the previous season. This resulted in the Rock Lobster Industry (RLI) landing a total of 196t of the allocated 323t for the 2012-13 season – which is an improvement of 38% over the 2011-12 season's performance by the industry.

Given that there was no marked change in the effort output by the RLI during the 2012-13 season from that of the 2011-12 season it stands to reason that the improvements in catch rates are a result of positive changes in the abundance of the resource itself. This, however, still needs to be confirmed with assessments on the biological data which will only be clarified by mid-September 2013 in time for the annual TAC review of this stock.

2.3.7 Large Pelagic

The large pelagic fishery consists of a Bait Boat Fleet using chartered vessels to target tuna (mainly Albacore, Big Eye and Yellowfin) while the Pelagic Longline Fleet targets Swordfish and large pelagic sharks (mainly Blue and Shortfin mako). Since the 2008 fishing season the number of chartered Bait Boats have declined from 39 to 25 in 2009 and finally to 21 in the 2010 fishing season. This decline is due to the effect of vessel chartering arrangements where a certain percentage of the crew must be Namibians. For the same years this fishery landed 1856 tons of Albacore in 2008, 1958 tons in 2009 and 1792 tons in 2010, and 3711 tons for the 2011 fishing season. Similarly, for Bigeye tuna 146 tons were caught in 2008, 108 tons in 2009 and 75.1 tons in 2010 and 263 in 2011.

There was no Skipjack tuna landings recorded for 2009, in 2010 and 2011 calender years but an amount of 70 tons was landed in 2009. Interestingly, for the first time the Bait Boats managed to land 9 tons of Swordfish, 48 tons for Shortfin Mako and another 48 tons for Yellow fin tuna, and 324 tons for Blue shark. Similarly, from 2008 the number of Longline Boats has halved from 22 to 11 in 2009 and risen to 12 in 2010.

The main species targeted by this fishery are Swordfish of which 1239 tons were caught in 2008, 534 tons in 2009 and 526 tons in 2010, and 366 tons in 2011.Blue shark with 1828.5 tons caught in 2008, only 207 tons in 2009 , 2351 tons in 2010, and a high 2633 tons in 2011, and Shortfin Mako shark of which 294.5 tons were caught in 2008, only 23 tons in 2009 and 306.5 tons in 2010 and 328 tons in 2012. A range of by-catch species caught by this fishery for the 2011 season include 80 tons of Albacore, 26 tons of Bigeye tuna, 42 v of Yellowfin tuna, 11 tons of Thresher shark, 10 tons of Blue Marlin and finally 2 tons of Skipjack tuna.

2.3.8 Snoek

As snoek is a highly migratory, seasonal species, it is not managed by an annual TAC allocated to the lineboat fleet targeting this species - they harvest as much as they have a market for annually. The Fleet produce either high-value fresh/frozen snoek the lower-value vlekked & salted snoek. Snoek is caught relatively close to Walvis Bay. Catches of snoek had increased steadily from 500 tons caught in 2001 to an average high of ±1000 tons maintained over the past seven fishing seasons. For 2012 a total of 1803.6 tons were caught by the industry which shows an increase of 228.2 tons more than the 1575.4 tons harvested in 2011. This sector also targeted kob in the past until in 2008 when a moratorium was enforced.

2.3.9 Silver Kob

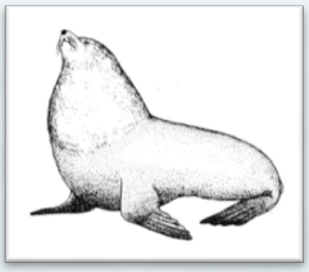
Kob is the most important species of line fishery and it is exploited by rock and surf anglers together with ski-boat fisherman in waters shallower than 20m deep. In 2012, recreational anglers caught 37,034 individuals of silver kob and this relates to about 54 tons which has been declining from 2006 catch of 100 t. Ugab area is a hotspot for steenbras catches and the least catches are reported in the Swakopmund area. Management regulations introduced in 2001 are intended to protect smaller sized fish and productive adults stock. These measures permit an angler to retain only 10 fish per day of total length not less than 40 cm and only two may be larger than 70 cm.

2.3.10 West Coast Steenbras

Two distinct West Coast steenbras populations occur in Namibian waters, a southern population found in the closed area; Namibian Islands' Marine Protected Area (NIMPA) around Meob Bay and it is thus unavailable for recreational activities. The second population occurs in central and northern regions of Namibian coast and is this stock that is exploited by anglers.

During the 2012 fishing season, 5,271 individuals were caught by recreational anglers which relates to 14 tons which is a decline from previous reports (e.g. 2006). Similar to kob, high catches were caught around Ugab area, with the least being caught around Swakopmund. The same management measures enforced for Kob also applies to steenbras, except that the maximum permitted total length is 65 cm.

2.3.11 Cape fur seals (*Arctocephalus pusillus pusillus*)



Cape fur seals occupy twenty-six colonies along the Namibian coastline. Historically, the highest recorded numbers of seal was in 1993/4, when the population reached 840000. After that, the population was severely reduced by 30% due to the Benguella Nino event in 1994. It took approximately six (6) years for the population to stabilize and start increasing. Currently the population is at its highest record of 1.2 million individuals. Since the Benguela Nino, 1993/4 year has been used as a reference point where harvest decision are based on.

Seal harvesting is based on the three year rolling TAC which was adopted in 2001. The TAC is done after the aerial survey is conducted. Over the past seven (7) years, a TAC of 80 000 pups and 6000 bulls has been recommended. Since 2008, an average of 43 994 and 4898 of pups and bulls were harvested respectively.

The 2011 aerial census estimated a total number of pus at 254 000 as compared to 220 200 in 1993, this represent a 16% increase of pup counts from the 1993 level. The model also shows that the stock continues to grow; both adult male and females are steadily increasing. Average birth weight has been fluctuating over the years; however an increasing trend is clearly observable from 2009 up to current. In 2012, the mass at weaning for both males and females were above the long term average. -+-It is predicted that the stock will continue to increase with the current harvesting rate and will remain above the target reference point.

3. MONITORING, CONTROL AND SURVELLANCE (MCS)

Hon. Bernhard Esau, Minister of Fisheries and Marine Resources (middle) flanked by RV "Mirabilis" Marine Officers and Engineers.

3.1 SEA AND AIR SURVEILLANCE

The Patrol Vessel "Anna Kakurukaze Mungunda" undertook 9 sea patrol missions and spent 120 days at sea, sailed for 11 044 nautical miles and inspected 32 fishing vessels. She further made observation on 107 vessels. Whilst Patrol Vessels "Nathaniel Maxuilili" undertook 6 sea patrols and spent 105 days at sea, sailed for 6673 Nautical Miles and inspected 42 fishing vessels. She further made observation on 119 vessels. During the operations the inspectors issued seven 7 fines amounting to N$ 200.00 for 6 round straps and 1 hold layout.

The fisheries Patrol Air Craft's undertook 6 patrol flights/aerial surveillance covering 8 491 nautical miles.

3.1.2 Coastal Patrol

The Ministry deployed fisheries inspectors to enforce fisheries legislation along the country's coastline. The Walvis Bay and Luderitz inspectorate offices undertook 2758 daily coastal patrols (2236 from Walvis Bay and 522 from Lüderitz), covering 528 664 km. In addition, the Ministry jointly with Nampol and the Ministry of Home Affairs attended to 38 roadblocks.

Six hundred and forty eight illegal activities were reported during these operations (602 from Walvis Bay and 46 from Lüderitz). The notices to appear in court or fines were issued amounting to N$ 222 435.00 (N$209 235.00 from Walvis Bay and N$13 200.00 Lüderitz). Walvis Bay office executed and finalized 75 warrants of arrests amounting to N$16 200.00.

Table 3: Number of offences recorded during coastal patrols and road blocks in 2012/13

Offences/non-compliances	Walvis Bay			
	Total Recorded	Paid cases	No. Cases Withdrawn	Outstanding Cases
Prohibited species, annelid worms	149	52	3	94
Without a fishing permit	222	97	0	125
Undersize fish	139	54	2	83
Undersize white mussel	49	8	4	37
Undersize lobster	10	4	4	2
Berried Rock lobster	1	1	0	0
Excess Rock Lobster	7	5	0	2
Fishing in a closed area	15	9	1	5
Contravening permit conditions	1	0	0	1
Threatening/Obstruction	1	0	0	1
Total	**602**	**230**	**14**	**349**

Source: MFMR, 2012

Walvis Bay fisheries inspectors seized 154 fish:

- 24 Kob,
- 38 Galjoen
- 72, Steenbras

Further, 15 undersized rock lobsters of which one was in berry were confiscated. Twelve warrants of arrest amounting to N$5 800.00 were executed and finalized at the court. The Fisheries Observer Agency reported 20 violations amounting to N$ 20, 300.00.

3.2 ONSHORE MONITORING AND CONTROL: WALVIS BAY

The monitoring and inspection of fishing activities at harbours, onshore processing plants and and Midwater is undertaken on a regular basis. The Walvis Bay Office inspected and monitored 1953 fish landings by Namibian fishing vessels. They further cleared 164 Namibian fishing vessels, and monitored the landings of 75 foreign fishing vessels especially from ICCAT / SEAFO.

(Far right) Inspectors Claudius Ikera and Jesaya Nambundunga (in blue overall) inspecting the fishing gear onboard a fishing vessel.

3.3 INLAND FISHERIES ACTIVITIES

3.3.1 Lüderitz Office

The inspectors conducted 27 Southern inland patrols to Oranjemund, via Naute dam, Aussenkehr settlement, Hardap and Karasburg covering 28142 km. Inspectors confiscated 36 nets, 113 fresh fish, and 1136 dry fish. They issued 1 notice amounting to N$4,200.00.

3.3.2. Katima Mulilo Office

The inspectors undertook 304 land patrol missions covering a distance of 52 831 km, and 150 river patrols covering a distance of 8 456 km. About 69 fines, in the amount at N$25,250.00 (8 fines for drag netting valued at N$1,800.00 44 fines for failure to produce a certificate of registration valued at N$13,200.00. 7 fines for using a net which is longer than 100 meters in length as prescribed by law valued at N$1,050.00, 3 for bashing valued at N$1,350.00, 1 fine for transferring a certificate of registration valued at N44,800.00, 2 fines for failure to be in possession of a recreational fishing license valued at N41,850.00, 2 fines for failure to register a net valued at N$600.00, one (1) fine for failure to renew an expired certificate of registration valued at N$300.00 and one (1) fine for using an expired certificate of registration valued at N$300.00.

Fish traders loading into the truck the bundles of dried fish at Katima Mulilo Fish Market

Fisheries Inspectors confiscated 14 drag nets, 22 multi filaments, 15 mosquito nets, 3 multifilament, 1 shade net, 2 canoes, 2 bags of mixed species estimated at 60 kg of fish and 254 pieces mixed fish from fishermen who failed to produce fishing licenses.

In June 2013, the Katima Mulilo fisheries inspectors jointly with the Namibian Police, Namibian Defence Force, and immigration officials conducted the “Hammer on Spike” operation. The latter was a Nampol initiative aimed to combat illegal activities including fishing at inland water bodies in Caprivi region. Two hundred (200) illegal fishermen and women were rounded up while some managed to flee their fishing camps during this operation. The operation “Hammer on Spike” has served as a deterred to potential fish pirates, and kept illegal fishing activities to minimal in Caprivi region during the year.

Fisheries inspectors conducted 13 awareness campaigns at 9 different places. Another 5 awareness meetings were held during joint patrols with law Enforcement Agencies from Botswana and Angola.

Above: The Namibian fisheries inspector jointly with Nampol official inspecting the fishing activities during the Operation "Hammer on Spike" in June 2012.

3.3.3 Ongwediva Office

About 170 Patrol missions were undertaken, of which 64 were water patrols and 106 were land patrols, covering 53 517 km. Some 233 illegal fishing nets that were confiscated (180 unregistered gill nets, 110 mosquito nets, 56 shade nets, 50 anchovy nets, 8 drag nets, 5 gill nets longer than 100 m, and 4 nets used for bashing). The fisheries inspectors further confiscated 10 bashing sticks and 3 spears.

Fisheries inspectors issued 25 fines (10 for failure to register fishing nets, 10 for gill nets longer than 100m, 4 for fishing at prohibited fishing areas, 1 for drag netting) amounting to N$7,500.00. The fisheries inspectors issued 7 verbal warnings (2 for bashing, 2 for drag netting and 3 for fishing within one hundred meters of a bridge/culvert).

A total of 153 gill nets were measured to be registered during this financial year. The Inspectors managed to conduct 2 public awareness meetings during the financial year.

3.3.4 Rundu Office

Undertook 436 inland patrols and 38 river patrol missions covering 89 014 km (87.468 km on land, 1 546 km on the river). The inspectors issue 84 fines (65 failure to register nets in all region intended to be used, 7 for drag netting, 12 for failure to renew certificates of registration), amounting to N$32 600. 00.

The inspectors further confiscated 107 gillnets, 163 mosquito nets, 23 shade nets and 35 kg of fish. Further, the inspectors issued 69 verbal warnings.

3.4 ACQUISITION OF RESEARCH VESSEL "MIRABILIS"

The Ministry of Fisheries and Marine Resources acquired a N$300 million Research Vessel "*Mirabilis*" during the 2012/2013 financial year. The construction process of the vessels started in September 2011, in Rauma, Finland. This was followed by the systematic construction of the steel work and hull erection for the super structure pursue by the launching of the vessel on the 14th April 2012. Thereafter, the shipyard installed and tested the machineries and accommodation facilities under the joint supervision and coordination of the Finnish and Namibian Marine Engineers.

The pictures below depict the Namibian captain receiving the delivery documents.

(Above Left), Captain Vilho Hango receiving the delivery documents while the Marine Superintendent Theophelus Kamberuka looks on. (Far right), Captain Vilho Hango delivers an accepting speech while Hon. Bernhard Esau (middle) and H.E. Daniel Smith (right), the Namibian Ambassador to Sweden and Scandinavian countries look on.

The Research Vessel "*Mirabilis*" left for sea trial on 16-19 June 2013. On 28th June 2012 and after the successful sea trial, the vessel builder STX Finland officially handed over the research vessel to the Namibian government. On 6th July 2012 RV "*Mirabilis*" left the STX Finland ship yard for the port of Walvis Bay. The RV is manned by Namibian crew, undertook her maiden voyage for 25 days and arrived at Walvis Bay on 31st July 2012. The commissioning of RV "*Mirabilis*" took place on the arrival day.

Below: RV "Mirabilis" Captain Vilho Hango, Ms Graça D'Almeida-Director of Resource Management, and Mr Jari Lausmaa of STX Finland share a light moment after the official signing of delivery documents.

4. ECONOMICS PERFORMANCE OF MARINE RESOURCES SECTOR

It is a known fact that the fishery sector plays a vital role in the Namibian economy with respect to employment creation, value addition to fish and fishery products, investment opportunities, export earnings and general contribution to GDP. The sector remains the second largest earner of foreign currency after mining and the third largest contributor to GDP behind agriculture and mining. The contribution of the fisheries sector to GDP showed an increase and is forecasted to slightly improve in line with the global economy recovery. The fishing sector contributed 3.9% in 2012 to GDP which translates into a 0.2% increase from 3.7% recorded in 2011.

Due to poor catches experienced during the winter months of 2012/2013 harvesting season in the hake fishery, the performance was not of the best. The small sizes were experienced in 2012/2013 affected the prices in the market. Nevertheless, the fishery managed to record good catches towards the end of 2012 and beginning of 2013 hence a modest performance was recorded. In respect of the Rock Lobsters, the performance of the fishery in terms of landings improved in 2012/13, the start of the fishing season was characterized by good weather and good catches. The vessels managed to land 33mt in two months of the season, by December 2013 as compared to less than 10mt that was landed at the same time of the season in 2011/12, due to poor weather.

The year 2012 saw development of new value added products, for example, canning of horse mackerel in beans with tomato, in brine, tomato and pepper. This product is already in the market and it serves as an excellent form of protein. With respect to the seal sector, right holder explored the possibility of producing 'sealtong' which is similar to 'biltong'. Furthermore, the hake fishery also plans to develop more value added products in the hake fishery such as fish crumbs and fish burgers to add more value to the existing products such as hake fillets and medallions. Also important to note that the Ministry reviewed and assessed fishing rights that expired during 2012 and 2013. Table 4 provides more details to such an assessment.

4.1 NUMBER AND DURATION OF FISHING RIGHTS

Table 4: Number and duration of existing harvesting rights for each species during 2012/13.

Fishery	Duration of Rights				Total
	Seven-year	Ten-year	Fifteen-year	Twenty-year	
Hake	62	2	33	3	100
Monk	18	2	7	0	27
Horse Mackerel	55	5	3	4	67
Large Pelagic	24	3	12	4	43
Red Crab	4	0	2	1	7
Rock Lobster	4	1	20	0	25
Line Fish	9	0	10	1	20
Orange Roughy	0	3	0	0	3
Pilchard	0	0	21	1	22
Mullets	0	0	13	0	13
Seals	4	0	2	1	7
Guano	2	0	1	0	3
Seaweed	0	0	1	0	1
Total	**182**	**18**	**127**	**11**	**338**

Source: MFMR, 2012

The Ministry in 2012/2013 embarked on a process to review the fishing rights for those right holders that were due to expire on 31st December 2012 and 31st December 2013 respectively. During this process a total of eleven fishing rights which held 15 year duration were extended to 20 year duration. The result of this evaluation process will explain the shift in the table for the different years. Therefore, it is important to note that, for the first time that right holders qualify for a 20 years fishing rights.

A number of 4 horse mackerel fishing rights, 4 large pelagic fishing rights, 3 hake fishing rights, one small pelagic right, one seal right and one crab fishing right which was all at a 15 year term of right and was due to expire on 31st December 2012, was extended to be 20 year term of right. Furthermore, in the hake fishery 2 right holders duration of fishing right was extended from 10 year to 15 year. In the small pelagic fishery, **four** right holders duration of fishing right was extended from ***10 year to 15*** year. Horse Mackerel Fishery, **two** right holder's duration of fishing right was extended from ***10 year to 15*** year. In line fish fishery, **one** right holder was extended from a ***10 year term to a 15 year term*** whilst one from ***15 year term to 20 year*** term. In crab fishery **one** right holder was extended from ***10 year to 15*** year term of right. All these rights were due to expire 31st December 2013.

The Ministry is in a process reviewing rights expiring 31 December 2014.

4.1.1 Exploratory Rights

Namibia's Marine Resources Policy states that the Government will continue to issue exploratory rights with a view to develop new fisheries provided that the exploratory harvesting does not adversely impact quota – controlled species. During the period under review a total of 10 exploratory rights were granted for several species. Currently these experimental rights are still continuing and it is expected from the operators to provide the Ministry with reports on a quarterly basis, reporting on their activities. In return the Ministry's scientists will study these reports and provide technical advice to the Minister on the biologically sustainability of these species.

4.2 VESSEL LICENCES

During 2012/2013 a total number of 256 vessels were licensed to operate in the Namibian Exclusive Economic Zone (EEZ). It is observed that there is a slightly increase in the total number of licenses when compared to those licensed during 2011/2012. This increase was mostly in the demersal trawlers, line fish, mid-water, crab and monk fisheries. This increase may be attributed to an increase in the Total Allowable Catch (TAC) of some fisheries. In addition, the increase might also attributed by the new entrants that were granted fishing rights at the end of 2011.

Table 5: Number of Licensed Vessels by Fishery:2007-2012

Fishery	2007	2008	2009	2010	2011	2012
Small pelagic	9	11	10	8	8	7
Demersal Trawlers	87	91	71	63	68	85
Long liners	30	18	18	13	11	11
Midwater	13	10	9	9	11	18
Deepwater	2	0	0	0	0	0
Large pelagic	67	88	48	40	71	50
Line fish	15	15	15	14	18	29
Crab	2	3	3	3	3	5
Rock lobster	32	31	29	33	33	27
Monk	20	25	16	16	16	18
Total	**277**	**292**	**219**	**199**	**239**	**256**

Source: MFMR, 2012

4.3 TOTAL ALLOWABLE CATCHES

Table 6 below indicates the TAC of selected species. From the table, it can be observed that during the year 2011, an increase in the Total Allowable Catches occurred in the Hake, Horse Mackerel, Red Crab, Rock Lobster and Monk fisheries, indicating signs of improved stock levels. Since 2010, the Pilchard TAC has remained constant at 25 000mt, as indicated in the table below. For the 2012/2013 fishing season, the Hake fisheries experienced a slight decrease in the TAC, from 180 000mt in 2011/2012 season to 170 000mt in the 2012/2013 season, while the Horse Mackerel, Red Crab, and Monk fisheries experienced an increase in their Total Allowable Catches during the same period. Furthermore, for the Pilchard and Rock Lobster fishery the TAC was maintained at the same level during this reporting period. As for Orange Roughy, this fishery is still in moratorium. Table 6 below shows the TAC's set by fishery from 2007 – 2012/2013 fishing season.

Table 6: Total Allowable Catches, 2007-2012/2013 in tonnes

Year	Pilchard	Hake	Horse Mackerel	Red Crab	Rock Lobster	Orange Roughy	Monk
2007	15 000	130 000	360 000	2 500	350	900	9 500
2008	15 000	130 000	230 000	2 500	350	900	9 500
2009	17 000	149 000	230 000	2 700	350	N/A	8 500
2010/11	25 000	140 000	247 000	2 700	275	N/A	9 000
2011/12	25 000	180 000	310 000	2 850	350	N/A	13 000
2012/13	25 000	170 000	350 000	3 150	350	N/A	14 000

Source, MFMR, 2012/13

Table 6A: Total Allowable Catch

Year	TAC			
	Pups	Bulls	Pups	Bulls
2009	80,000	6,000	80,000	6,000
2010	80,000	6,000	72,000	6,000
2011	80,000	6,000	72,000	5,400
2012	80,000	6,000	80,000	6,000
2013	80,000	6,000	80,000	6,000

Source: Ministry of Fisheries and Marine Resources, 2014

4.4 LANDINGS

The allocated TAC of 537 450mt during 2012, the industry managed to land 475, 386 metric which reflects an increase of 21% when compared to the 2011 landings of which 391, 465 metric tons were landed. For instance, hake sub-sector managed to land 81% of the allocated quota of 180 000mt. This shows an under caught of 19% when compared to 2011, where the hake fishery over-caught with about 5% of the allocated 140 000mt. During 2012, horse mackerel was allocated 310 000mt as in 2011 and 93% of the TAC was landed. This shows a significant improvement of 44% when compared to what was landed in 2011, where they only managed to land 64% of what was allocated. Pilchard fishery also recorded an under-caught of about 15% contrary to the over-caught of 27% of the allocated quota recorded in 2011. Overall all the landing of the quota species have recorded an under caught of the quota allocated to each fisheries during 2012.

Table 7: Landings [1] of Quota Species: 2008-2012

Species	2008	2009	2010	2011	2012
Pilchard	18,755	20,137	23,424	31,774	26,259
Hake	117,286	137,312	146,353	146,676	145,931
Horse Mackerel	186,996	215,051	217,094	198,666	286,934
Monk	7,270	6,922	9,028	7,243	10,763
Crab	2,100	1,648	2,007	2,285	2,795
Rock Lobster	195	43	82	166	118
Orange Roughy	0	0	0	0	0
Tuna	3,281	4,241	2,884	4,655	2,586
Total (MT)	**335,883**	**385,354**	**400,872**	**391,465**	**475,386**
Seals (Numbers	70,656	56,023	67,799	67,764	57,880

Source: MFMR 2013

During 2012, the harvesting seals declined by 15% in 2012 when compared to 2011, this was attributed by various reasons such as new right holders who come onboard and could not harvest their quota due to lack of infrastructure development at some colonies.

Table 8: Landings 2 of By-catches and non-quota species 2008-2012

Species	2008	2009	2010	2011	2012
Kingklip1	3,424	4,380	3,069	3,045	4,140
Others	12,973	15,791	16,791	43,975	34,388
Total (MT)	**16,397**	**20,171**	**19,860**	**47,020**	**38,528**

Source: MFMR 2013

During 2012, a kingklip by-catch landing has shown an increase of 36%, when compare to 2011. Others by-catch decreased by 22% in 2012 as compared to 2011 where an increase of 62% was recorded. This implies that overall landing of by-catches have decrease by 18% in comparison with 2011 where the overall increase of 37% was recorded.

4.5 CATCH VALUE

The three value indicators for fish and fish products as explained in detail below:

4.5.1 Landed value

Is the value of the fish immediately on landings, before any transformation (at ex vessel prices). During 2012 the landed value increased by 27% from N$4,609 billion to N$5,833 billion. The increase in the landed can be attributed to improvement in the quality of fish landed in most of the subsectors during the 2012 fishing season.

[1] It is very important to note that some species such as Pilchard, Horse Mackerel and Crab fishing season start from January to December, while that of Hake, Monk and Tuna fishing season start from May to April. As for Rock Lobster fishing season commence from November to April.

4.5.2 FINAL/process value

This represents the value of fishery products in their final form at export (ex factory) prices. During 2011, final value was N$5,334 billion which, increase by 58% to N$8 433 billion in 2012. The reason behind the 2012 increase was due to an increase in value added products produced.

4.5.3 Export value

This indicator gives the Namibian dollar parity of foreign currency earnings brought into Namibia due to the sale of fish and fishery products. Export value increased by 16% between 2011 and 2012 from N$4,984 billion to N$5,766 billion respectively.

Table 9: Value of Fish and Fish products - 2008-2012 (N$ billions)

Value	2008	2009	2010	2011	2012
Landed Value	4,290	5,087	4,620	4,619	5,833
Final/Process Value	5,084	4,789	4,889	5,334	8, 433
Export Value	5,935	4,637	4,264	4,984	5,766
% of total export of goods	**14%**	**15%**	**14%**	**13%**	**12.83%**

Source: MFMR & Namibia statistics agency (NSA), 2012/2013

4.6 CONTRIBUTION TO GROSS DOMESTIC PRODUCT

During 2012, the fishing industry contributed 3.9% to GDP an increase of 0.8% from the 2011 contribution. This was brought about by an increase in the fish and fishing processing on board, which is an increase of N$1,415 million during 2012. The overall performance of the industry can be attributed to Midwater fisheries output recorded a growth rate of 3.2 per cent that is much lower compared to 57.5 per cent registered in 2012. Furthermore, demersal fisheries recorded a decline in output of 4.5 per cent in 2013 as compared to an increase of 15.6 per cent registered in 2012.

Table 10: Fisheries contribution to GDP, 2009-2013, at current prices (N$ Million)

Values	2009	2010	2011	2012	2013*
Fishing and fish processing on board	2428	2539	2709	4181	4121
Processing onshore	951	60	548	94	60
Total	**3379**	**2599**	**3257**	**4275**	**4181**
GDP %	4.5	3.2	3.6	3.9	3.45

Source: MFMR/ Namibian Statistics 2013(*indicate the preliminary figure)

4.7 EXTERNAL FACTORS: THE FISHING SECTOR

External factors affecting the fishing industry are broadly defined as all factors which are beyond the control of the fishing industry but which have an impact on the performance of the fishing sector. As with all primary sectors, the fishing sector operates under a certain level of unpredictability in terms of price fluctuations and resource availability.

The factors identified below are related to Namibian fisheries but also endemic to other sectors worldwide. The impacts of certain economic problems such as escalating fuel prices and flat markets can be softened through various interventions, while others such as exchange rate volatility cannot be directly levelled as they are subjected to market forces.

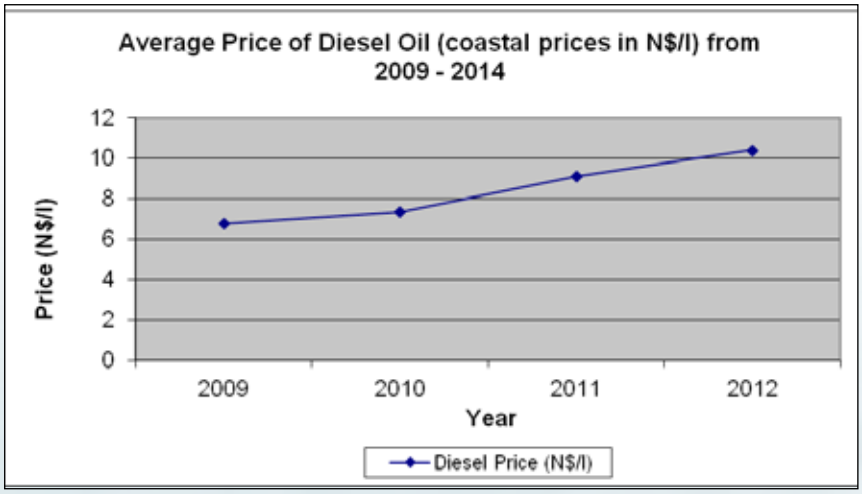
4.7.1 Fuel Cost

A change in the fuel price has direct repercussions on the income of fishing companies. In particular, a rise in fuel prices will have a negative impact on the fishing industry, in terms of their operating margins and ultimately their economic viability.

During 2011-2012 there was diesel price adjustment with significant price hike. The Walvis Bay pump price for diesel was N$11.04 in 2012 and increased several times during 2013 to N$12.27, representing an N$1.23 increase. That is a significant increase when compared to N$0.90 overall increase recorded in 2012.

Since 2009 the average price of diesel increased by 85%, from N$6.78/litre to N$12.55/litre in 2014. An increase in the price of any input by that amount puts severe pressure on the financial resources of any industry. The general perception in the fishing industry is that the cost of fuel is said to be high along with utility costs.

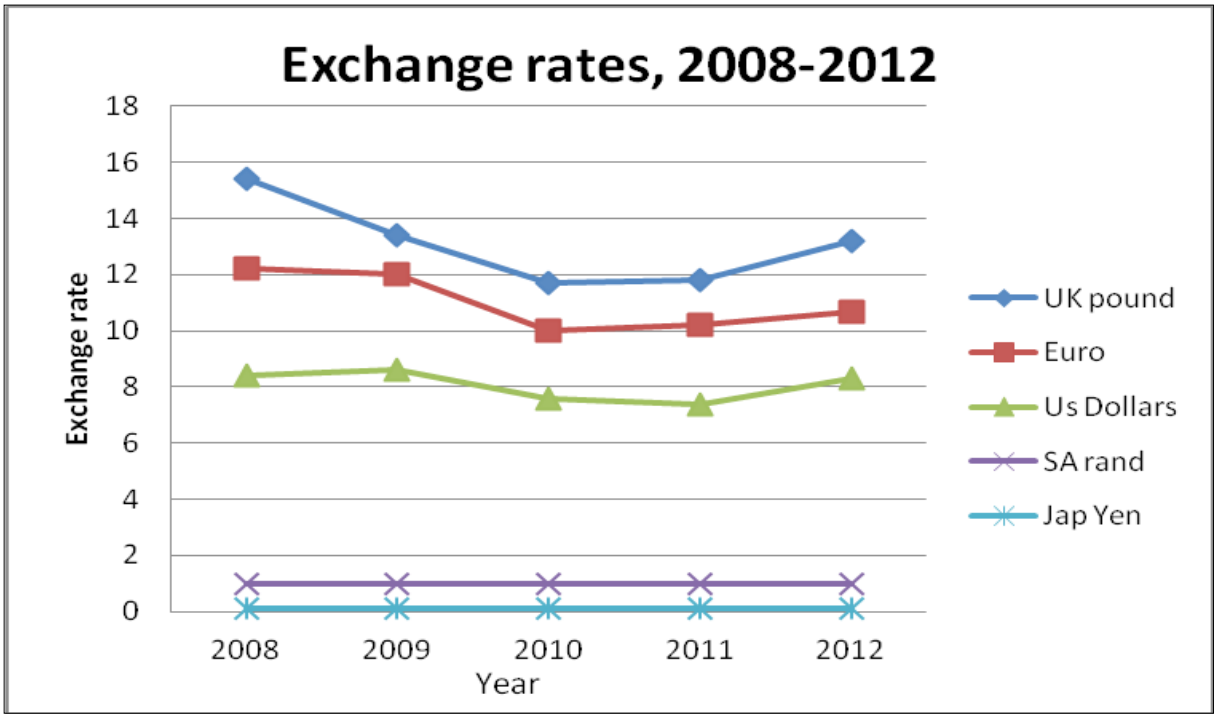
Figure 7: Average Price of Diesel Oil, 2009-2014



4.7.2 Exchange rate volatility

Apart from fuel price fluctuations, exchange rate volatility is equally a concern for any industry which trades on the international market. In the case of the fishing sector, the effects of exchange rate volatility manifest themselves in the form of reduced or increased income generation from fishing activities. The exchange rate of the Namibian dollar to the three major world currencies (Euro, US Dollar and the Pound Sterling) shows a steep upward trend, see figure 8. During 2012 the exchange rate stood at N$ 13.33/Euro. In 2013 the exchange rate had improved to around N$ 15.82/Euro. The exchange rate has continued to improve as the 2014 figure revealed that it stand at N$ 18.18/Euro. The exchange rate is denominated into Euro as most of the Namibian fish and fishery products are exported to EU.

Figure 8: Exchange rates, 2008-2012



The beginning of 2008 to2012 saw the Namibian dollar depreciate further against some of the major currencies as indicated below. However, the Yen has remained stable overtime. In 2013 the exchange rate had improved to around N$15.82/Euro. The exchange rate has continued to improve in 2014, and currently stand at N$18.18/Euro. The exchange rate is denominated into Euro as most of the Namibian fish and fishery products are exported to the EU.

4.7.3 International fish prices

The Namibian fishing industry is a price taker. It does not have control over prices, which are set at international or auction market, and ultimately by the consumers (through demand and supply mechanism). Some of the Namibian products are fetching good prices due to the quality of fish in some cases because the value added products are meeting specific client specification.

4.7.4 Flat Markets

Any business operation requires the ability to secure markets for products and services as well as the ability to maintain the markets. Competion that might be created by other players will offer the same products and services, can affect profit margins. In the case of marine resources in Namibia, the smaller fish sizes and good quality caught during 2012 gave the foreign competitors an unfair advantage over Namibian fish (such as Hake, Horse Mackerel and Lobster). In the case of declining markets, innovation and value addition become very important. During 2012 some companies pursued value addition and sought new markets to service. This might improve earnings in the medium to long term.

4.7.5 Resource Availability

TACs are set on the basis of resource availability, which is determined through scientific research and estimation, Table 6, shows the allocation of TAC for 2012 in all fisheries indicating an increase in all species. The purpose of the TAC is to ensure sustainable fishing operations: that the level of fishing effort does not undermine the status of each stock. Once a TAC has been set for a fishing season, it is distributed among right holders in the form of quotas. The main purpose of the quota allocation is to promote economic efficiency, to give right holders sufficient knowledge about expected catch levels for the year for proper planning of their fishing activities.

4.7.6 Predation and Prey

Predation and prey abundance are natural phenomena. The impact of predation on the fishing sector has far reaching consequence. In the case of Namibia, seal are said to be competing for certain resource with the fishing industry. For the past three years, the stock levels of species such as Hake, Pilchard and Horse Mackerel are negatively affected by the heavy predatory practices of seals for the past years.

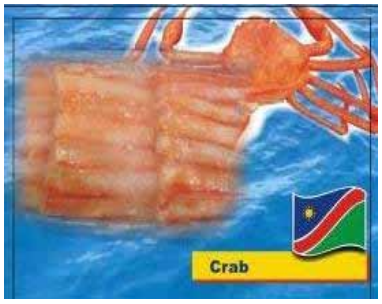
4.8 EXPORT MARKETS

4.8.1 Rock Lobster

About 90% of the Namibian rock lobster was exported to Japan during 2012/13. The Lobster was exported under the Namrock (Namibian Rock Lobster Packers) (Pty) Ltd and the Gaston Brand (which is a South African brand). Average prices for Namibian whole cooked and frozen were selling at N$264.2/kg on the international market. This represents a 5% increase in prices from those of 2011/12 when the lobster was selling at an average price of N$252.5/kg; the increase was due to the increase in demand for the smaller sized lobster and the favourable exchange rate. During October and November in 2012, the markets in Japan were weak and the importers were still sitting with stocks unsold, particularly the larger sizes. Whole Cooked and frozen lobsters is preferred by the Japanese market, while, Whole raw frozen lobsters are particularly for the European market. Live lobster is for the Chinese market. Only 4 mt was sent as 'live' lobster, since the prices achieved for whole cooked was better from the 196.5 mt of lobster landed.

The domestic market for Lobster has been insignificant around 10% and inconsistent. The products placed on the domestic market are mainly absorbed by the hotel industry, which takes very little because of the high price charged for lobster. No real increase has been noted in the local consumption of lobster, except during the lobster festival that only takes place annually. On the international market, demand for lobster has been very good, accounting for around 90% of the total catches. The demand has also been increasing over time. Competition for the species mainly comes from South Africa brand which tends to more price competitive. The lobster industry has been looking at alternative market such as the China as a possible export market.

4.8.2 Crab



The crab products exported are mainly frozen whole round, meat, flakes, sections and live crab. During 2012, China was the main importer of the Namibian crab, with 39% of total exports followed by South Africa 34%, Spain 16% and Japan 11% unlike in 2011 when Japan was the main importer of 40% of total exports, Spain and South Africa both increased their import share from 9% and 3% respectively. Live exportation of crab kept fetching the best price in the market as compared to other crab products; however its price has declined from N$250/kg in 2011 to N$212/kg in 2012 because its final price is mostly determined by the quality of the crab upon arrival at its destination. Frozen whole round crab and crab meat prices declined from N$172.50/kg to N$46/kg and N$128 /kg to N$ 45.5/kg due to local competition and consumers' preference respectively.

4.8.3 Seals

The main market for Namibian seal products are; Turkey, China and South Africa. During 2012 about 20,753 wet salted seal skins were exported to Turkey while 4,120 tanned seal skins were mainly exported to China. Turkey took up 16,878 of tanned seal in 2012. The demand of seal oil increased from 1000 litters in 2011 to 6200 litters in 2012 and is mainly exported to China and South Africa. During the reporting period some companies put more efforts on finding new markets for tanned seal skins such are: South Africa, Canada, Japan, Russia and Brazil. The demand for seal genitals has decreased generally between 2011 and 2012, China imported 520kg of genitals in 2011 and decreased to 246kg in 2012.

Prices for bull and pup skin have increased from N$45/skin and N$35/skin in 2011 to N$60/skin and N$53/skin in 2012 respectively. Namibia has a competitive advantage in the international market when it comes to seal skins; this is because Cape fur seals have under fur which is sheared to produce a softer, velvety 'duvet', much like preparing sheared beaver. It is for this reason that the Cape fur seals' skins are sought after and fetching better prices due to the high demand and limited supply year-after-year.

The demand for seal products in the domestic market is increasing especially with the oil capsules and other by-products. However, the main market for seal products still remain international market: Turkey and China.

4.8.4 Monk

The Monkfish sector produces skinless and skin on Monk tails, Monk heads as well as whole round Monk. During 2012, the average price of Namibian Monkfish tails increased by 4.76%, from N$63/kg in 2011, to N$66/kg in 2012. The improvement in the prices can mainly be ascribed to the weakening of the Namibian Dollar against the Euro, as this has seen positive improvements in returns for the fishery. During the 2012/2013 fishing season, Spain imported 52% of Namibia's monkfish, followed by Italy with 30%, while Portugal and France imported 13% and 5% respectively.

There is not viable market for local consumption for monk, except a few restaurants that cater for monk delicacy. About 99% of monk products are geared for the international markets such as Spain, Italy, Netherland and Korea.

4.8.5 Pilchard export products

The Namibian products exported are mainly canned pilchard in tomato and chill sauce; fishmeal; canned pickled hake; canned smoked snoek; fish oil and cutlets. South Africa remains the main importer of Namibian canned pilchard taking up about 95% of total exports every year. The products are then distributed from South Africa within the region such as Mozambique, Zambia, Ghana, Cameroon, etc. Canned pilchard is marketed through two brands namely; lucky star and ocean fresh. The other products such as frozen cutlets are exported to Thai and Malaysian markets. Fishmeal goes to Japan, China, South Africa, Chile and Turkey; while fish oil is exported to Turkey.

The price for canned pilchard was positive for the year 2012 as it increased by 12% from N$77.50/carton in 2011 to N$86.58/carton in 2012. The price increase is attributed by the market forces of supply and demand of the canned pilchard. Prices for fish meal remained constant at N$8,500/mt for 2011 and 2012. The price of fish oil increased by 65%, from N$8 160/mt in 2011 to N$13,500/mt in 2012.

Pilchard has remained a sought after resource both on the domestic and international market. Canned pilchard and fishmeal are particularly constantly in demand. Competition for canned pilchard has been posed by the availability of fresh and frozen horse mackerel products in the domestic market.

4.8.6 Large Pelagic

Large pelagic sector is made of species such as tuna, swordfish and sharks, whereby the main markets for these species are Spain, Japan and the United States of America. During 2012 the prices increased by 5.8% selling at N$21,500/mt, due to an increase in demand. The price of tuna caught by long lining destined for the sashimi market decreased slightly from N$29,775/mt in 2011 to N$29,500/mt in 2012. The decrease in price was attributed to the turmoil of earthquakes and tsunamis in Japan, which is the main importer of this product.

The demand for tuna related products is insignificant in the local market. 100% of the companies exported their products internationally.

4.8.7 Hake

The demand for hake in the international market has been very high and increasing consistently. Most hake exports destined for Europe with Spain, Vigo topping the list. At the regional level, SA remained a high consumer of Namibian hake. Other major consumer includes USA, Australia, Norway, Germany, Holland and Russia. During 2012/13, the European market took up 74% of hake exports while exports to South Africa accounted for 18%. The Australian market and other African markets imported 4%, and 3% of Namibian hake products respectively during the 2012/2013 fishing season.

Hake is exported either as frozen skin-on and skinless fillets or any other product varying from headed and gutted (H&G); baby hake; cutlets; tails; minced; blocks; sausages; glazed hake steaks; pin bone in and pin bone out to wings, roes and prime quality (PQ) fresh chilled products. The average price of hake fillets increased from N$24.50/kg in 2011/12 to N$28.50/kg in 2012/13.

The demand for hake in the domestic market has been very low. This pattern has persisted for many years. The situation is still the same that no viable market for fresh hake in Namibia. As a result, many companies are 100% export-oriented. Recently, MFMR compel industry to locally consume 30% of the allocated quota. Therefore, the Ministry is enthusiastic that there will be a change in the pattern of hake consumption locally.

4.8.8 Horse Mackerel

The Horse Mackerel TAC for the 2012/2013 season was set at 350 000mt, which is an increase of 12.9% compared to the 2011/2012 season when the TAC was set at 310 000mt. Namibian horse mackerel is mainly exported to African markets, with DRC being the main importer. During 2012, DRC and Mozambique decreased their imports from 55% in 2011 to 50% and 15% to 13% respectively. Angola increased its imports from 3% in 2011 to 7% in 2012 and other markets such as Ghana, Cameroon, Zimbabwe, Benin and Nigeria also increased from 20% to 22% in 2012. Horse Mackerel sold locally increased from 7% in 2011 to 8% in 2012.

Sale prices of Namibian Horse Mackerel varied quite significantly in recent years due to the rule of supply and demand. During 2012, the average price of transhipped horse mackerel was N$7,693/mt which is a decrease when compared to 2011, when the price achieved was N$8,541/mt. This was attributed to the excess supply of fish to the traditional markets. The price of overland horse mackerel increased from N$8,448/mt in 2011 to N$8,673/mt in 2012, mainly due to the increase in demand of the fish transported by this means.. The average local price of frozen horse mackerel during 2011 was N$7.68/kg as compared to N$8.44/kg in 2012; this increase in price was due to the increase in the size of fish caught.

The domestic demand for HM has been good, despite the popularity of the fish; the proportion sold domestically is significant lower than the exported products within the SADC region. The African market, the demand for horse mackerel has been very good but stable. Shortage is being experienced in some market especially within the region, and this pushed up the prices of HM. Namibia, horse mackerel competes with that of Chile and Mauritania, the larger world suppliers of horse mackerel. .Competition is posed through the size of the fish as well as the fat content.

4.9 REVENUE GENERATED

The table below is indicating the revenue collected from fishing industry per year. During 2012 the collected fees decrease by 26.7% as compared to the 2011/2012 year. This reduction is mainly due to the fact that the Ministry has collected most of the outstanding revenue of the previously financial year.

Table 11: State Revenue from the marine fishing industry, 2007-2012/2013 (N$ thousands, current value)

FEES	2007	2008	2009	2010/2011	2011/2012	2012/2013
Quota fees	107,218	59,255	68,800	78,500	120 947	109,926
Marine Resources Fund levy	12,561	12,075	18,733	19,228	14,497	16, 424
By-catch fees	9,639	10,837	8,410	15,972	6,964	6,024
License fees	91	85	86	82	79	131
Total revenue	129,509	82,253	96,029	113,782	142,487	132, 505

Source: MFMR, 2012/13

Table 12: Quota Fees Per Fisheries Paid 2012/2013

Crab	2,035,955.56
Hake	64,469,146.05
Horse Mackerel	28,800,369.39
Monk	8,936,739.22
Pilchard	3,137,109.57
Rock Lobster	268,964.99
Tuna/Hake	473,508.94
Tuna	1,805,029.69
Total	**109,926,823.41**

Source: MFMR, 2012/13

4.10 THE MARINE AQUARIUM: VISITORS AND INCOME

The National Marine Aquarium was still under renovation during the first months of the 2012/13 period. It was re-opened for the public on18/10/2012 by the Hon. Minister Bernard Esau. Several new additions were added to the Aquarium, such as the Fish-Gym for kids, the interactive information system and the electronic displays to mention a few. The main tank was renovated and new rocks were erected. Much of the renovation focused on the supporting infrastructure, such as pumps, holding tanks, water cooling, a new ray-tank, etc.

Table 13: Monthly visitor numbers and monthly revenue figures for the period October 2012 to March 2013

MONTHLY TOTALS	VISITOR NUMBERS	REVENUE N$
10/2012	5280	46,312.00
11/2012	7262	62,222.00
12/2012	13291	108,976.00
1/2012	8873	80,518.00
02/2013	2424	24,315.00
03/2013	6520	56,202.00
Total	**43 650**	**378,545.00**

Source: MFMR, 2012

4.11 OLUPALE EVENTS

The Conference was held to highlight the importance of the fisheries and aquaculture sector in Namibia and to discuss and find ways to build on their current contributions to national development, food security, sustainable development, and the improvement of livelihoods in support of the realization of Vision 2030 as well as the achievement of the goals of the National Development Plans (NDPs). In his welcome, the Minister of Fisheries and Marine Resources, the Honourable Bernhard Esau, called upon all participants to identify and deliberate on what is necessary to "Raise the Bar" in the fisheries and aquaculture sectors.

The Conference proceedings provided valuable background and ideas for a Stakeholders Workshop which was held the following day and was tasked with the development of Blueprint for actions to be implemented by the Ministry and stakeholders. The outcomes of the Stakeholders Workshop and Blueprint are covered in separate reports.

The programme was very broad, covering all aspects of planning, implementation and management of the sectors from biological production through harvesting , processing, marketing and distribution. It was divided into 19 Sessions covering topics such as Management of Fish Stocks, Climate Change and Ecosystem Approach to Fisheries; Maximizing Value from Fisheries Resources, and Ensuring a Sustainable Resource; Employment in the Fishing Sector: Raising the Bar; Freshwater Aquaculture Development – the Namibian Experience; Product Development and Quality Assurance; Skills Development; and Who Consumes the Namibian Fish.

The pictures depicted below illustrate activities that took place at Olupale during 2012. The activities vary from presentation to exhibition and breakfast forum.


NOVAMARINE WALVIS BAY
NOVASHIP NAMIBIA
NOVAMARINE
Tunacor
NAMIBIA FISH CONSUMPTION PROMOTION TRUST
BENGUELA CURRENT COMMISSION
The Benguela Current Commission
Benguela
HANGANA SEAFOOD (PTY)LTD
JCS SEAFOOD NAMIBIA
OSONA FISHING COMPANY
JCS SEAFOOD NAMIBIA
EREMA SEAFOOD COMPANY
MERLUS GROUP OF COMPANIES
KUISEB FISHING ENTERPRISES
SEAWORK FISH PROCESSOR
eawork
LUCKY STAR
LUCKY STAR
FISHERIES OBSERVER AGENCY

5. INLAND FISHERIES AND AQUACULTURE SUB-SECTORS

The Ministry of Fisheries and Marine Resources continues to promote the role of inland capture fisheries and aquaculture to enhance food and nutritional security, improve rural livelihoods and increase investment.

5.1 INLAND FISHERIES

The subsistence fishery from rivers, lakes and oshanas in the Zambezi, Kavango, Oshana, Ohangwena, Oshikoto and Omusati regions play an important role in the daily lives of rural communities. The fishing season in the Omusati, Ohangwena, Oshikoto and Oshana regions are only seasonal when the oshanas are flooded during the rainy season whereas the fishery in the Zambezi and Kavango regions are done throughout the year. Fishing does intensify during the low water periods in these regions when fish are concentrated and catches may be higher than during the flooding season. The Katima fish market sold 1963 ton of fish during 2012 with an estimated value of N$15 million. The estimated fish yield from the Zambezi region floodplains is estimated at 5340 ton per annum (N$ 41 million) with the majority coming from Lake Liambezi. It is difficult to monitor the sale of fish from Lake Liambezi as not all of it is sold at the Katima Fish Market.

Where subsistence fisheries from natural inland water bodies might not be possible, fresh water aquaculture is promoted in all Regions at suitable sites in order to improve rural livelihoods and nutrition in such areas.

5.2 RESEARCH AND BIOLOGICAL FISH SURVEYS

The Directorate Aquaculture and Inland Fisheries is continuously involved with the monitoring of Namibia's inland water bodies/lakes and rivers to collect biological data for analysis and to identify trends in fish population structures over time. The surveillance/monitoring schedule for these important inland water bodies is available on the aquaculture and inland fisheries website (http://aquaculturenamibia.blogspot.com/p/survey-programme.html). Technical reports of these surveys are produced with summaries of these reports available on the aquaculture and inland fisheries website (http://aquaculturenamibia.blogspot.com/p/research_4.htm).

Two Biological surveys (one in each river system) were conducted on the Okavango River and Zambezi/Chobe river systems. Final report draft on the Caprivi Biological surveys from 2007 to 2012 was completed and sent for input and editions by other scientists.
Six Lake Liambezi monitoring surveys took place and 3 technical reports have been produced.

Six water quality assessment and monitoring of fish disease/parasites surveys were conducted on the Okavango River and flood plains. The projects were undertaken on academic level by two MFMR staff studying towards their Masters and they are in the process of finalizing the reports. One Genetic survey took place on the Kunene River.

5.3 FRESHWATER AQUACULTURE

There are currently four aquaculture centers producing fingerlings for the production of fish by fish farmers, cooperatives and MFMR fish farms (Epalela and Onavivi). These centers include Onavivi Inland Aquaculture Center (Onavivi IAC), Ongwediva Inland Aquaculture Center (OIAC), Kamutjonga Inland Fisheries Institute (KIFI) and Hardap Inland Aquaculture Centre (HAIC). The Katima and Rundu Inland Aquaculture Centers are still under construction with the office complex of the Katima Inland Aquaculture Center completed and in operation since 2012.The HAIC is awaiting additional structural adjustment and addition of fish production facilities to be funded by the Chinese Government. KIFI is also the main center for inland fisheries research in the MFMR.

The Hardap Inland Aquaculture Centre is responsible for Aquaculture development in the Omaheke, Hardap, and Karas Regions and partly in the Erongo and Khomas Regions too. The Onavivi Inland Aquaculture Centre focuses on the production of tilapia and catfish fingerlings and aquaculture, while production of market-size fish is conducted by the Epalela fish farm. Kamutjonga Inland Fisheries Institute (KIFI) is also involved in research and training of farmers and staff in the field of freshwater aquaculture in conjunction with tertiary education institutions in Namibia.

5.3.1 Fingerlings Distribution and Fish Production

During the period under review1 110 148 tilapia fingerlings, 1492 374 catfish (before rearing) fry and 11 000 common carp fingerlings were cultured successfully. A total of 36.13 ton of tilapia and 1.26 ton catfish was produced at Epalela Fish Farm, Onavivi IAC and Karovo Fish Farm during 2012/13.

Table 14: Fingerling and fish production at aquaculture centers

Aquaculture Center	Fingerling production (#)			Fish Production (tons)	
Onavivi IAC+ Epalela Fish Farm	Tilapia	Catfish	Carp	Tilapia	Catfish
	655148	977374	0	33.7	1.26
KIFI	250 000	500 000	0	0	0
Karovo + Mpungu Fish farms	0	0	0	2.43	0
Hardap IAC	205000	15000	1100	0	0
Total	1 110 148	1 492 374	1100	35.7	1.26

At KIFI, 250 000 tilapia fingerlings were produced and 150 000 were stocked in production ponds at Karovo Fish Farm, Mpungu Fish farm and farms in Otjozondjupa Region.

Catfish fries were produced with artificial reproduction/spawning of the brood stock at KIFI, but experienced high mortalities of more than 90%. About 11000 catfish fingerlings were stocked at Karovo for grow out. New spawning techniques are being put in place by the Vietnamese experts through the South-South Cooperation Programme.

The HIAC produces Mozambique tilapia (Oreochromis mossambicus) and common carp (Cyprinus carpio) fingerlings during the summer season. These are then sold and distributed to small scale fish farmers in the above-mentioned regions as per their request. With the assistance of two Cuban aquaculture experts HIAC staff managed to try out catfish (Clarias gariepinus) breeding on a small scale, which was also successful. Unfortunately because of a recurring bird predation most fingerling production during this period was lost. The number of fish farmers who approached us for fingerlings has been lower during this period because insufficient surface water due to low rainfall experienced during the reporting period.

5.3.4 Fish feed production

A total of 233 ton of fish feed was produced as compared to the 164 ton of the previous year. This is an increase in production, which is evident to two key private farmer's request of feed. Generally, feed production should be directly proportional to fish production, however such a trend is not observed, as small scale farmers remain challenged by the low rainfall which feed their ponds for grow-out of fish.

Table 15: Quantity of fish feed (ton) produced and distributed during 2012/2013.

FEED DISTRIBUTED DURING 2012/2013						
DIET TYPE (%)	**TOTAL PRODUC-TION 2012/2013**	**NORTH EAST (ZAMBEZI & KAVANGO REGIONS)**	**SOUTH HARDAP REGION**	**EPALELA FISH FARM**	**ONAVIVI IAC**	**NORTH CENTRAL (ONGWEDIVA IAC & SMALL FISH FARMERS)**
Pre-starter (38%CP)	1	0	0	0	1	0
Breeders and fingerlings (30%CP)	38	0.2	0.3	4.2	10	26
Semi-intensive II(25%CP)	168	20	2	95	35	16
Semi-intensive I(15%CP)	26	15	0.1	0	4	8
Total production (Ton)	233	35.2	2.4	99.2	50	50

Source MFMR, 2012/2013

5.3.5 Aquaculture advisory/extension services

The Ongwediva extension component is still observing a slight drop in the fish farmers' response to fish farming activities, due to less rain received during the last rainy season. This resulted only 20 502 fingerlings being distributed to farmers in the Oshana, Ohangwena and Oshikoto regions. Onavivi hatchery distributed 370 088 tilapia fingerlings of which 80% was taken up by Epalela Fish Farm with the remaining 20% going to farmers in Omusati and Kunene regions.

The KIFI and Rundu extension component serve the community in terms of site assessment, stocking of fingerlings and giving advice and guidance as they venture into fish farming. KIFI staff teamed up with Rundu staff to do extension in Otjozondjupa Region resulting in the distribution of 150 000 (113500)tilapia fingerlings to Karovo and Mpungu Cooperative Fish Farms and Farms in Otjozondjupa region.

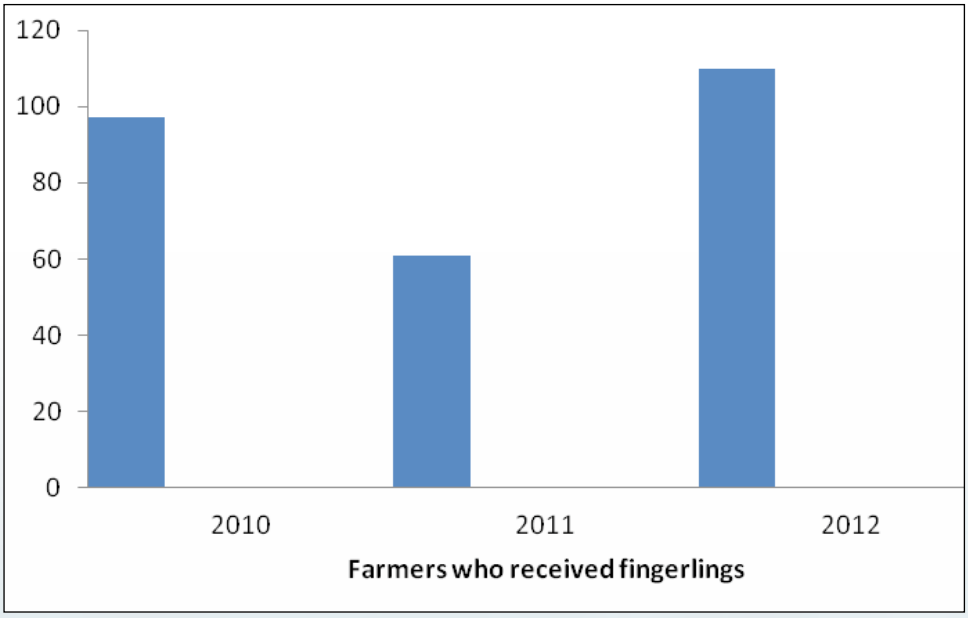
The Hardap Inland Aquaculture Centre visited several small scale fish farmers to assist them with the biological sampling and monitoring of the fish in their ponds/tanks and to carry out site assessments for some. The HIAC made a combined 49 visitations to farmers in Hardap, Karas and Otjozondjupa Regions.

6. Economic Performance of Freshwater Aquaculture

The Namibian aquaculture sector is still in its infant stage, however there is great potential to significantly contribute towards sustained food security, income to rural households, enhance revenue generation for the State through exports, re-enforcement of employment and inwards investments. Below is the economic performance of the fresh water aquaculture for the period of 2010-2012.

The graph below shows the numbers of famers who received fingerlings from 2010-2012. About 97 farmers received fingerlings in 2010, mostly from Caprivi and Omusati region. The numbers of farmers decreased to 61 in 2011 because of the draught experienced, most of the farmers were from Oshikoto and Ohangwena region. As for 2012, the farmers increased to 110 and the distribution was mostly made to the farmers from Oshikoto and then Ohangwena region, this was because of better rainfall during 2012 in the northern part of Namibia.

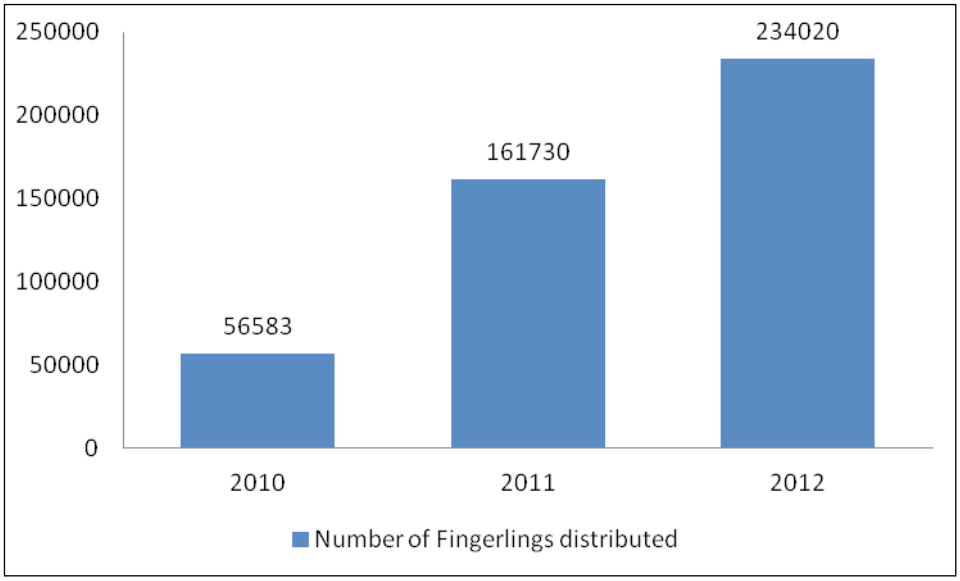
Figure 9: Farmers who received fingerling, 2010-2012



Source: Ministry of Fisheries and Marine Recourses, 2014

The graph below shows the number of fingerlings distributed in 2010 to 2012. The fingerlings distribution has been increasing over the years under study, with the largest number of 234020 finger-lings distributed in 2012. Over the period of three years, a total of 534045 fingerlings was distributed to farmers, for the most part was allocated to Omusati region with 28% followed by Oshikoto with 22% and Ohangwena with 16%. The remaining 34% of 534045 fingerlings was distributed to farmers in Kunene, Oshana, Otjozonjupa, Hardap, Omaheke, Karas Erongo, Kavango and Caprivi region.

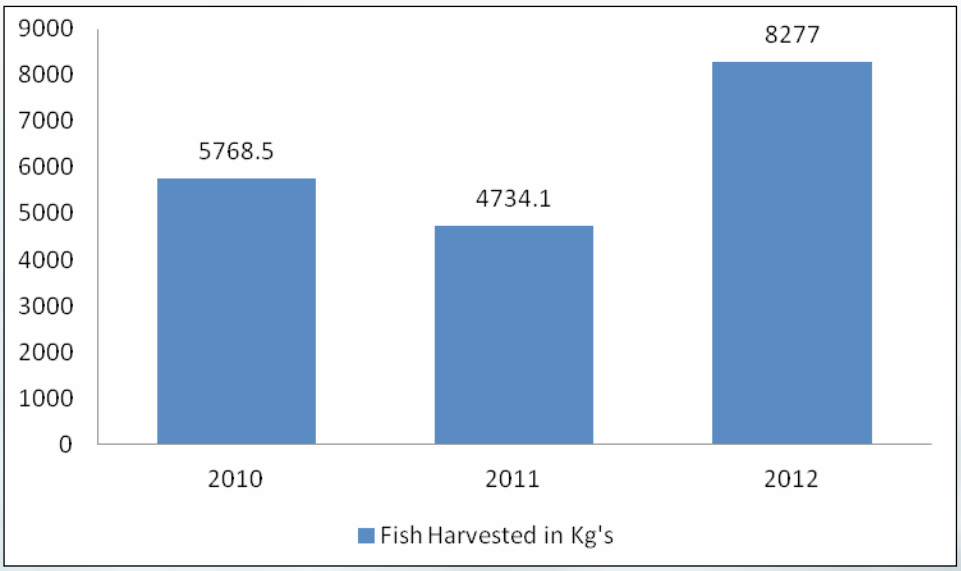
Figure 10: Number of Fingerlings distributed during 2010-2012



Source: Ministry of Fisheries and Marine Resources, 2014

The graph below shows the fish harvested in during 2010-2012. In 2010, the fish harvested from all regions, with the exception of Hardap weighted 5768.5 kg which is equivalent to 5.7 mt while in 2011, only Seven out of fourteen regions harvested fish that weighted 4734.1 kg/ 4.7 mt. During 2012, the fish harvested weighting 8277 kg, translating into 8.3 mt.

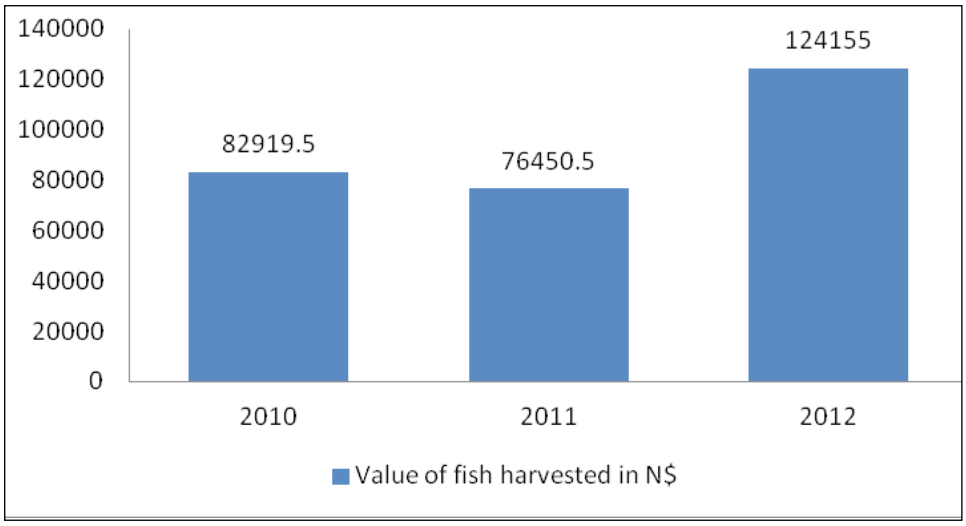
Figure 11: Fish harvested in Kg's in 2010-2012



Source: Ministry of Fisheries and Marine Resources, 2014

According to the graph below, the value of the fish harvested in 2010 is worth N$ 82 919.5 and declined in 2011 to N$ 75 450.50. In 2012, the value harvested increased to N$ 124 155 which is an increase of N$ 48704.5.

Figure 12: The value of fish harvested in N$ during 2010-2012



Source: Ministry of Fisheries and Marine Resources, 2014

6.2. MARICULTURE

Mariculture in Namibia focused on molluscan shellfish because these species are best suited to the productive upwelling system of the northern Benguella. The total marine aquaculture production in Namibia for 2012 was valued at about N$ 25 million. For instance, the oyster industry sold about 500 metric tonnes of oysters during 2012. In 2012 the oyster hatchery at Swakopmund produced 14 million oyster spat. Namibian oysters are sought after because of their excellent quality and Namibia looks forward to access to European markets.

7. HUMAN RESOURCE DEVELOPMENT

The Ministry places much emphasis on the development of human resources; our employees are our main assets. This is achieved through enrolling staff members on skills development courses. The other mode of achieving the development of our staff members is funding for studies that lead to attainment of qualification in areas that are deemed relevant to their duties and responsibilities. The following have been recorded during the period under review:

Table 16: Staff Development

LEVEL	TYPE	MALE	FEMALE	TOTAL
Staff below management	Skills development (non-qualifying)	27	39	66
	Bursaries (qualifying)	24	11	35
TOTAL		**51**	**50**	101

7.1 SKILLS DEVELOPMENT TRAINING

The Ministry, in its continued commitment towards professional services, has provided staff members with opportunities to pursue short term skills development especially in fields relevant to the jobs that they have been assigned to perform.

Various skills development courses were attended by sixty six **(66**) staff members from various directorates of the Ministry. These included Information Technology (IT) related, finance, EDRMS, customer care, aquaculture, record management, marine and sea related as well as mandatory courses such as basic safety at sea. Most of the short term training were attended locally, whereas few of the courses were attended outside the country; mainly due to lack of capacity in our local institutions.

During the period under review, an amount of **N$ 161,610-00** was utilized for the purpose of improving skills for staff members under the short term courses.

7.2 BURSARIES AND SCHOLARSHIPS

The training office has administered thirty five (**35)** bursaries and scholarships as granted to our staff members by funding their long term (qualifying) training from the Main Budget; at various institutions of higher learning both locally and abroad. Staff members studied in areas deemed relevant to the daily operations of the Ministry. Areas of consideration were: accounting, finance and administration; aquaculture, biology and fisheries and aquatic sciences; marine engineering, information technology as well as policy and public management.

During the period under review, an amount of **N$ 518,140.34** was utilized for the purpose of developing staff members under the long term /qualifying courses. The amount was used for tuition, registration, books, accommodations and transport.

7.3 CAPACITY BUILDING

Capacity building conducted as follows:

- In-service training for Polytechnic students (6 months attachment): 3 students mentored and completed their research project at KIFI:
- UNAM graduates for six week filed attachments: 2 students mentored
- UNAM/MFMR practical training course ongoing at KIFI attended by 10 …? MFMR, aquaculture staff and farmers.

8. REGIONAL FISHERIES RELATIONS

8.1 BENGUELA CURRENT COMMISSION (BCC)

On 18th March 2013, Ministers of Angola, Namibia and South Africa respectively signed the Convention of the Benguela Current Commission in Bengela, Angola. The Ministers responsible for fisheries and aquaculture from the participating countries.

As depicted in the picture below are: Hon. Victoria de Barros Neto of Angola, Hon. Bernard Esau of Namibia, Hon. Edna Molewa of South Africa signed the Convention that would enhance the sustainable conservation and utilization on marine resources.

8.2 SOUTH EAST ATLANTIC FISHERIES ORGANISATION (SEAFO)

SEAFO is an International Organisation responsible for the conservation and management of fisheries resources in the high seas of the south east of the Atlantic Ocean. Namibia attended the SEAFO annual Commission meeting held in December 2012, in Busan, Republic of Korea. During this meeting, the Commission adopted several conservation and management measures in the SEAFO Convention area. The Commission also set the 2012/13 TACs for the major SEAFO species, such as Patagonian tooth fish, Deep-sea Red Crab, Orange Roughy and Alfonsino. The Commission was, however, unable to agree on the TAC of Armourhead and this matter was referred back to the Scientific Committee.

The Commission also adopted the SYSTEM OF OBSERVATION, INSPECTION AND COMPLIANCE that was earlier on reviewed by the Compliance Committee at its extra-ordinary meeting and recommendations forwarded to the Commission for adoption. The second phase of the SEAFO System will be discussed at another extra-ordinary Compliance Committee meeting, scheduled for end of 2013.

8.3 INTERNATIONAL COMMISSION FOR THE CONSERVATION OF ATLANTIC TUNAS (ICCAT)

The organisation is mandated with the conservation and management of tuna and tuna like species in the Atlantic Ocean and adjacent seas. In November 2011, Namibia attended the annual ICCAT meeting held in Agidir, Morocco. At that meeting, ICAAT adopted several recommendations aimed at improving and strengthening the conservation and management of tunas and tuna like species.

Namibia, as a member of ICCAT, strives to fully implement all ICCAT Conservation measures in force. Foreign fishing vessels which entered Namibian ports during 2011 were thoroughly inspected to ensure that they have not contravened national laws and regulations of Namibia or other states, as well as conservation and management measures were in place during 2011 to ensure that all products coming from license tuna fishing vessels, when entering or leaving the country, are accompanied by a dully completed and validated statistical document.

Namibia collects statistical data from its tuna fishing fleet, through information gathered from the log sheets applied to fishing vessels, as well as from that are filled in Fisheries Observers. Since 2011 the numbers of charted Bait Boats in Namibia have declined from 34 to 32 in 2012, as well as that of logline boats from 11 to 12 during the same period. Landings of Albacore decreased from 3800 to 2267 in 2012, and that of Swordfish from 413 in 2011 to 404 in 2012.

8.4 COMMISSION FOR THE CONSERVATION OF ANTARCTIC MARINE LIVING RESOURCES (CCAMLR)

The organisation is mandated with the conservation and management of marine living resources in the Antarctic and Southern Oceans, mainly, Toothfish, Krill and Crab resources. In October/November 2012, Namibia attended the annual CCAMLR meeting held in Hobart, Tasmania (Australia). Although, Namibia did not fish in the CCAMLR Convention Area during 2012, the country contributed to the formulation and adoption of many recommendations made at the annual meeting, some of which could have far reaching consequences for Namibia and the rest of the developing world.

The Commission deliberated at length on the creation of Marine Protected Areas (MPAs) in the CCAMLR Convention Area. Two proposals for the establishment of such MPAs were presented to the Commission: one for the Ross Sea Region by New Zealand and the USA and the other for the East Antarctic Region by Australia, France and the European Union. Several concerns were expressed on the proposal, one of them being that there does not seem to be scientific basis for identifying such areas to be declared as MPAs.

The other main concern expressed was that closing off such huge areas as MPAs would prohibit exploratory fishing by commercial vessels, which were very instrumental in collecting research data and hence, this would lead to the situation where the areas designated as MPAs remain poorly understood. Namibia shared these same concerns and, eventually, the proposals were not adopted, but referred to future meetings for further deliberations.

The meeting also discussed the EU proposal on trade sanctions. These sanctions would mean that if a vessel belonging to any country is found to be involved in IUU fishing of Tooth fish, all products of Tooth fish from that country shall not be allowed to enter the markets of the Contracting Parties to CCAMLR. Some Contracting Parties, including Namibia, felt that the trade sanctions being proposed by the EU are not in conformity with international law and the trade rules of the World Trade Organization (WTO), as they seek to punish flag states for the activities of individual fishing vessels and companies. Namibia is further of the view that these trade sanctions could end up destabilizing the economies of the developing world and other nations likely to be targeted for such sanctions.

The meeting also discussed another EU proposal for CCAMLR to look into the possibility of allocating quotas to Contracting Parties in future, in order to limit the fishing effort (number vessels) applied to the fisheries. It was pointed out that the current fishing practice in the CCAMLR Convention area is not efficient to limit the number of fishing vessels, as no quotas are allocated to the individual members, leaving the members to deploy the maximum effort possible in a rush to get a share of the allocated catch.

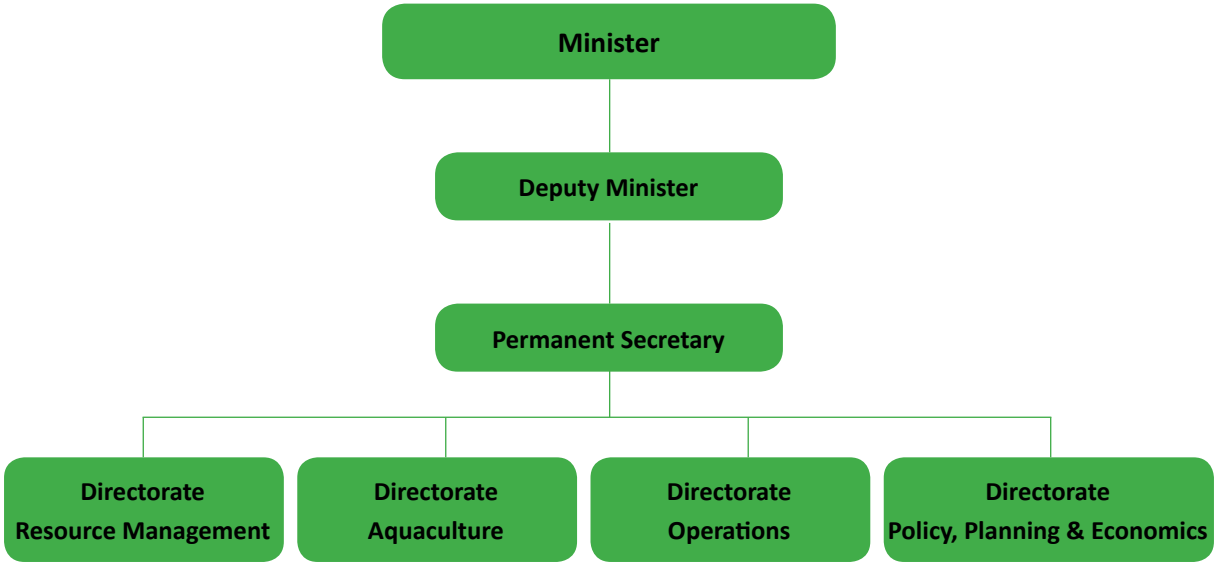
Many members of the Commission supported the idea of the possibility of allocating quotas and expressed hope that this proposal will be adequately deliberated upon during the next annual meetings of CCAMLR. Namibia supports the proposal to allocate quotas to Contracting Parties, as this might present the country a good opportunity to gain access to the fish resources in the CCAMLR area. Such an allocation could enable Namibia to enter into fishing agreements with those members who have the capacity to fish in the Antarctica, similar to the agreements the country is having in ICCAT. However, Namibia will need to closely follow the drafting of the criteria to be used in allocating such fishing possibilities, in order to ensure that all Contracting Parties have a fair chance of being allocated a quota.

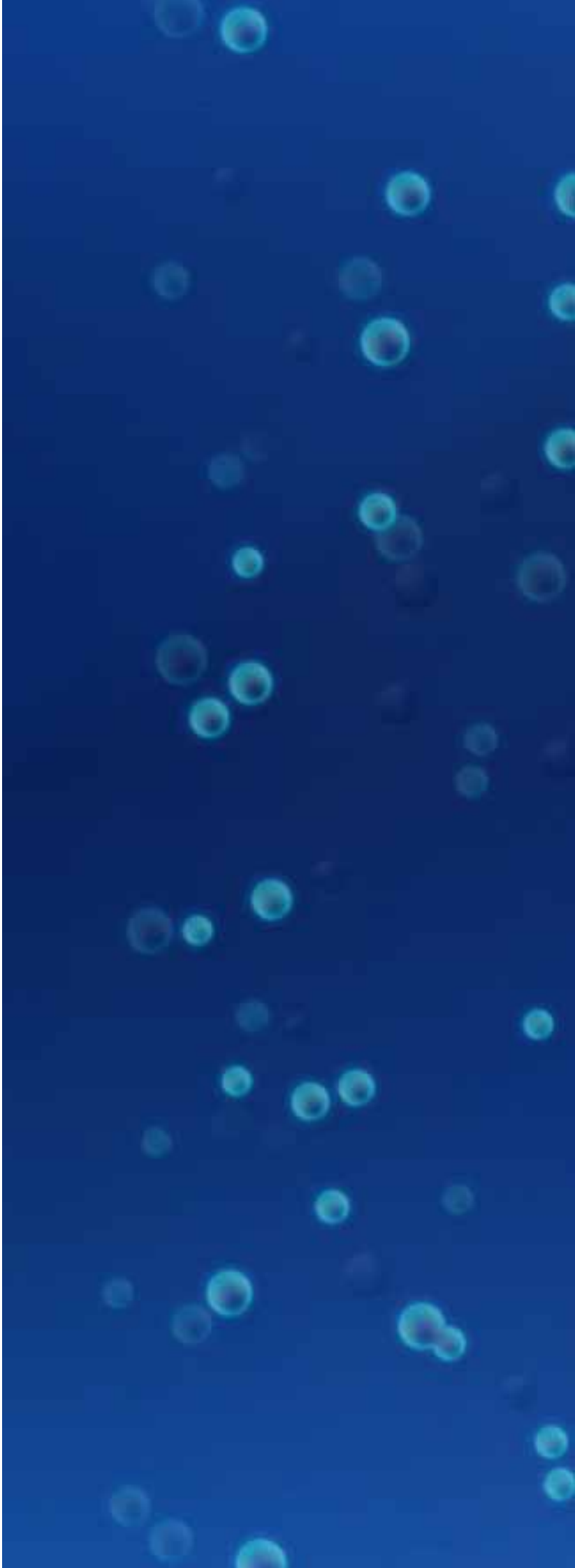
Annex 1: Useful contacts

Institution and contact details	Mandate
Ministry of Fisheries and Marine Resources (MFMR)	
Head Office, Private Bag 13355, Brendan Simbwaye Square, Block C, Corner of Uhland & Goethe Streets, Windhoek, Namibia. Tel: +264 61 2059 (switch) Fax: +264 61 233 286 www.mfmr.gov.na	Office of the Minister, sectoral policy, planning and economics, fisheries administration, legislative controls, data collection and analysis.
National Marine Information and Research Centre, (NatMIRC), Strand Street, Box 912, Swakopmund. Tel: +264 64 410 1000 (switch) Fax: +264 64 404 385	Applied fisheries and environmental research, physical, biological and chemical oceanography, stock surveys and stock assessment, advice to MFMR on TACs for commercial stocks and other management measures, regional programmes and research collaboration, aquaculture and inland fisheries research and development.
NatMIRC Research Centre, Luderitz. Tel: +264 63 202 415 Fax: +264 63 202 495	Branch of the Swakopmund head office. Main research activities include seals, seaweed, rock lobster as well as regular commercial fish stock surveys and assessment work.

Hardap Freshwater Research Institute, Private Bag 2116, Mariental. Tel: +264 63 240 361 Fax: +264 63 242 643 Inland Fisheries - Rundu Office Private Bag 2084, Rundu. Tel: +264 66 256 853. Fax: +264 256 867 Inland Fisheries – Katima Mulilo Office Private Bag 1004, Ngweze. Tel: +264 66 253 224. Fax: +264 66 253 226	Freshwater fish and invertebrate research, migrations of freshwater fishes using radio tagging, development of freshwater aquaculture techniques and assessment of candidate species.
Fisheries Inspectorate Office, Box 394, Luderitz. Tel: +264 63 202 905 Fax: +264 63 203 337	Monitoring, control and surveillance of marine commercial and recreational fisheries.
Fisheries Inspectorate Office, PO Box 1594, Walvis Bay. Tel: +264 64 201 6111 Fax: +264 64 201 6228	Monitoring, control and surveillance of marine commercial and recreational fisheries.
Aquaculture /blog/newsletter (http://aquaculturenamibia.blogspot.com/)	Website for Aquaculture active documents and acvtivities.
Namibian Maritime and Fisheries Institute (NAMFI), PO Box 3228, Walvis Bay. Tel: +264 64 203 114 Fax: +264 64 203 112	Main institute providing education and training for MFMR staff, including Fisheries Inspectors, Fisheries Observers, patrol boat personnel and fisheries scientists.
Fisheries Observer Agency, PO Box 2903, Walvis Bay. Tel +264 64 219 500 Fax: +264 64 219 547/8	Management and administration of the MFMR Fisheries Observer Programme.
Fishing industry associations: Pelagic Fishing Association Hake Association Midwater Trawling Association Monk and Sole Association Tuna and Hake Longlining Association Deepwater Fishing Sector	All have a common secretary. Write to: PO Box 2513, Walvis Bay, Namibia. Phone: +264 (0)64 20 9083. Fax: +264 (0)64 20 6158. E-mail: hardrud@iafrica.com.na

Annex 2: Ministry of Fisheries and Marine Resources Structural organogram.





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