

South Coast Rock Lobster
Palinurus gilchristi



**DRAFT ECOLOGICAL RISK ASSESSMENT WORKSHOP OF THE SOUTH
COAST ROCK LOBSTER FISHERY**

Glossary of Terms:

BCC	Benguela Current Commission
DAFF	Department of Agriculture Forestry and Fisheries
EAF	Ecosystem Approach to Fisheries
ERA	Ecological Risk Assessment
FCOs	Fishery Control Officers
FDWs	Fishery Development Workers
FR & D	Fisheries Research and Development
IUU	Illegal Unreported and Unregulated
MAST	Marine Administrative System
MCS	Monitoring, Control and Surveillance
MRM	Marine Resource Management
NGOs	Non-Governmental Organisations
NPOA	National Plan of Action
OLRAC	Ocean & Land Resource Assessment Consultants
OMP	Operational Management Procedure
SCRL	South Coast Rock Lobster
SE	Stakeholder Engagement
SMME	Small Medium and Micro Enterprise
TAC	Total Allowable Catch
TAE	Total Applied Effort
VMS	Vessel Monitoring System
WWF	World Wide Fund for Nature
SAFE	South Africa Fishing Ethically
SIU	Special Investigating Unit
I&IR	Intergovernmental and International Relations
SWG	Scientific Working Groups
AED	Aquaculture and economic Development
ICT	Information and Communication Technology
SCRLIA	South Coast Rock Lobster Industry Association
IDP	Integrated Development Plan

INTRODUCTION

The ERA workshop for the South Coast Rock Lobster took place in Fore Trust Building, South Africa, between the 20 and 21 of November 2013, however, due to poor stakeholder attendance, some of the EAF objectives could not be covered during day 2 of the workshop and were discussed and finalised via e-mail correspondences. The workshop was hosted by Department of Agriculture, Forestry and Fisheries (DAFF), and facilitated by Tandiwe Siyema. After wide distribution of invitations, the workshop was attended by a total of 19 participants. Most attendees were from different Chief Directorates of the Branch: Fisheries Management, DAFF, with few industry representatives. Please see Annex 1 for a complete list of attendees.

DESCRIPTION OF THE SOUTH COAST ROCK LOBSTER FISHERY

The South Coast Rock Lobster (SCRL) fishery is a long line trap fishery that began in 1974 by both South African and foreign vessels. The target species is South Coast Rock Lobster (*Palinurus gilchristi*) which is found mainly offshore on the Agulhas Bank in an area roughly 200 kilometres from the coast, and closer inshore (two to 50 kilometres from the coast) between Mossel Bay and East London. *P. gilchristi* is a cold-water species that grows slowly and is long-lived. The inshore area between Danger Point and Cape Agulhas is an important settlement area for juveniles, which migrate to adult habitats on the Agulhas Bank and in the inshore area between Mossel Bay and Port Elizabeth. Octopus and slipper lobster are considered as by-catch in this fishery. This fishery is capital-intensive, best paying fishery and almost all SCRL catches are exported predominately to the USA.

A combination of the Total Allowable Catch (TAC) and Total Applied Effort (TAE) management strategy, limits number of sea days used to manage the fishery. The management strategy used in the SCRL matches the available fishing effort for a particular right holder with the portion of TAC allocated to that fishing right holder in a given fishing season.

METHODOLOGY

The method used is based on the Australian and New Zealand Standard Risk Analysis, which was adapted for use in a fisheries context (Fletcher *et al.* 2002, Fletcher 2005, Nel *et al.* 2007). It has since been further adapted, based on the outputs of the original ERAs carried out in South Africa and Namibia, through several iterations (i.e. applied in local workshops, tested and modified accordingly) to ensure regional applicability. It provides a structure to consider divergent issues in a transparent and accountable manner. Risk Analysis in the ERA method involves consideration of the sources of risk, reaching consensus on the consequence and likelihood that they may occur. Moreover, it allows for the prioritisation of issues or hazards with justification and the subsequent prioritization of management responses. It requires stakeholders to deliberate and develop a shared position. This process results in an agreed-upon roadmap for the way forward. In essence, it is a way of operationalising policy.

The methodology relies on a three step process:

1. IDENTIFICATION OF CONCERNS OR ISSUES

Generic component trees help participants tease out the main issues or concerns that the fishery faces. The process starts by breaking the fishery down into 10 generic objectives (Paterson and Petersen 2010):

1. The managing authority has a good understanding of the ecosystem impacts of fisheries including target, non-target and general ecosystem impacts
2. Ecosystem impacts of fisheries are included into management
3. The social wellbeing of dependent fishing communities is accounted for in management
4. The economic wellbeing of the fishing industry is maintained
5. The managing authority has transparent and participatory management structures that ensures good communication and information sharing locally and regionally
6. Management plans incorporate EAF considerations
7. Good compliance to regulations reduces ecosystem impacts of fisheries
8. Sufficient capacity, skills, equipment and funding exist to support the implementation of an EAF
9. Good data procedures exist to support EAF implementation
10. External impacts of fisheries are addressed (e.g. the effect of other sectors, other industries, climate change etc)

Each component is then further disaggregated. These hierarchical trees were developed based on the outputs of the original ERA conducted in South Africa and Namibia and reported in Nel *et al.* 2007. It is important to note that discussion should not be limited by the hierarchical trees. Rather the trees should serve to structure and facilitate discussion. Through the identification process all issues present in the fishery are recorded. Any issue identified by one or more participants is included in the list of issues, whether or not it is supported by others. The result is a comprehensive list of concerns as perceived by all participants in the workshop.

2. PRIORITISATION OF ISSUES

Each identified issue is then prioritised by scoring the likelihood of a given risk and the consequences if it does actually occur. The likelihood is scored on a scale of 1 to 6, and the consequence is scored on a scale of 0 to 5. A risk value rating is then calculated as the product of the 'consequence' and 'likelihood' scores; these "risk scores" then provides a means of prioritising the entire set of identified issues. At this step it is important to gain consensus, as far as possible, on the consequences and likelihoods. While this can be a contentious stage during the workshop, there was generally a high level of agreement was experienced during the workshops reported here and in Nel *et al.* (2007)

Each issue is then categorised as 'Negligible' (score of 0), 'Low' (score of 1-6), 'Moderate' (score of 7-12), 'High' (score of 13-17) and 'Extreme' (score of 18 or greater) priority, according to their overall risk score. Once ranked, it is assumed that issues scoring "low" or "negligible" should not require specific management actions whereas issues with "high" and "extreme" scores should all require urgent management actions. At the end of each ERA workshop, issues which scored "risk" values of 7 and higher were retained as High priority issues to be brought to the attention of the relevant Fisheries Management Agency for potential remedial management action.

3. IDENTIFICATION OF MANAGEMENT RESPONSES, TARGETS AND INDICATORS

Performance Reports were then developed using the EAF tracking tool framework (Paterson and Petersen 2010) for all issues of sufficient priority (i.e. greater than 'Moderate' risk) according to the template in Table 1. This framework allows for the formulation of an operational objective, activities to address a particular issue already underway or barriers to progress to be recorded and additional actions still required to be identified. This forms a baseline against which to monitor and measure progress against.

RESULTS OF THE WORKSHOP

GENERAL OVERVIEW OF THE ERA PROCESS

Identification of issues

A total of 50 issues affecting implementation of EAF in the SCRL fishery were identified by the workshop participants. These issues are listed and described in full in Annex 2. Most issues fell within objective 1.

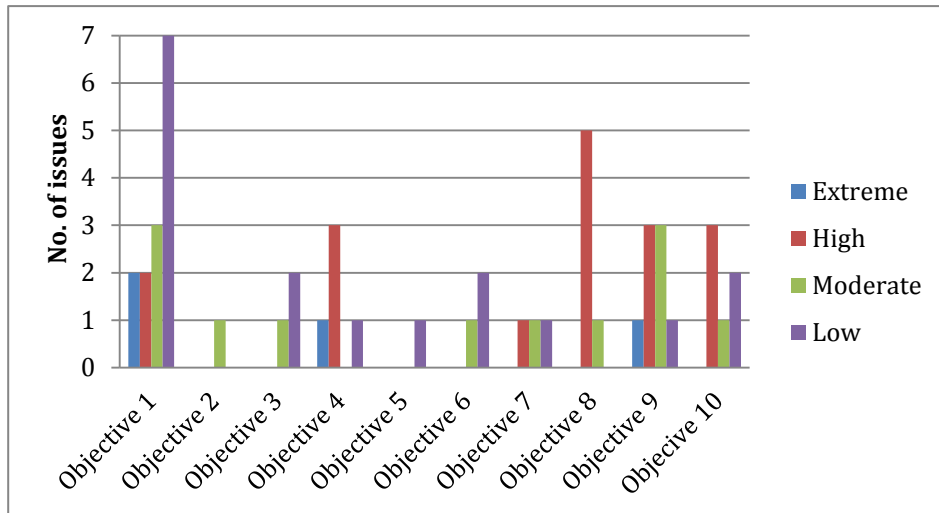


Figure 1. Percentages of issues that were identified by objective

Prioritization of issues

The prioritization process resulted in the majority of issues falling into the high (34%) and low (34%) categories (Figure 2). 'Extreme' and 'Moderate' rated issues accounted for 8% and 24% respectively.

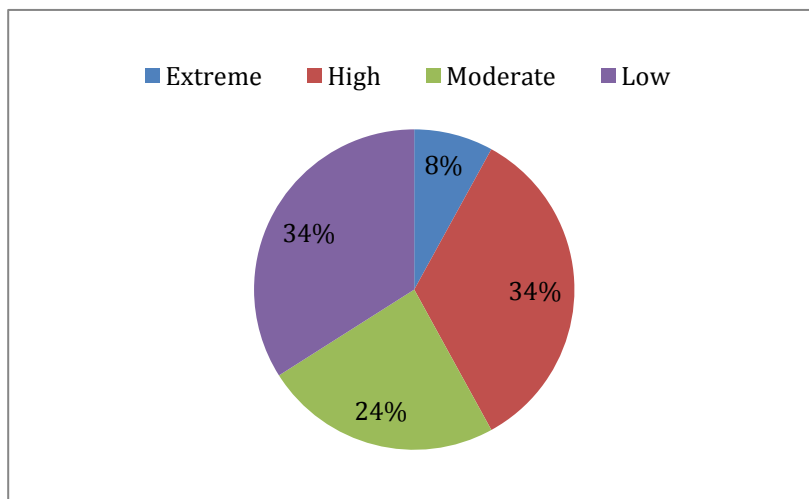


Figure 2: Percentage of issues per risk category

Performance reports

FISHERY STATUS AND NEXT STEPS

A complete list of issues is shown in Table 1 and the EAF tracking tool framework outputs are reported in Table 2. The following section will distil some of the issues and management responses to the issues.

Objective 1: The managing authority has a good understanding of the ecosystem impacts of fisheries including target, non-target and general ecosystem impacts

The Department has a limited understanding of the ecosystem impacts in the SCRL fishery. However, limited studies on genetics, spatial distribution, investigation of spawning biomass areas and benthic habitats have been conducted. Stock assessment is also conducted regularly and a new Operational Management Procedure (OMP) is being developed to account for uncertainties in the stock assessment. It was also mentioned that by-catch and discards are controlled through permit conditions, limited quantities of by-catch are caught in the SCRL fishery and by-catch is monitored.

Lack of dedicated scientist for the sector, absence of observer program, funding and lack of research vessels were identified as major setback for research in the fishery. Further challenges that were highlighted included gear loss and unclear understanding of trophic dynamics. It was also highlighted that imported bait can introduce diseases to wild caught lobsters and that ranching activities of crustaceans pose a threat to wild species.

The workshop recommended that the observer programme be initiated, dedicated scientist be appointed, more research be done to address existing gaps, gear loss impacts be investigated, potential effects of crustacean ranching be investigated and use of commercial fleet for data gathering be explored. It was recommended that right holders keep records of gear loss. It was further recommended that benthic habitat mapping be initiated, traceability of exported products to identify poached products be improved and adequate funding for research and research vessels be made available. The workshop also recommended the following: multi-sectoral discussion regarding rollovers/tolerance, review of the available effort in the fishery, review of monitoring systems at landing sites, investigation of spatial distribution and migration patterns, review of the design of observer and tagging programmes. The workshop further recommended that the Chief Directorate: Fisheries Research and Development engage Aquaculture and Economic Development Chief Directorate and determine potential impacts of crustacean ranching on wild crustacean species.

Objective 2: Ecosystem impacts of fisheries are included into management advice

Ecosystem impacts are incorporated into management advice of the SCRL fishery but to a limited extent. The new OMP incorporates life history parameters and may also incorporate illegal harvesting of SCRL. It was also indicated that the use of spatial distribution information in management was being reviewed as part of the OMP. The limited understanding of micro satellite information and the interaction of the stock between inshore and pelagic trophic levels were however raised as concerns.

The three key next steps recommended were 1) continual stock assessment, 2) more research needed such as micro satellite information for stock units, and 3) cross checking of catch data on logbooks,

landings and export records. The participants felt that the continual review of stock assessment needs to consider and incorporate the international peer review into OMP.

Objective 3: The social wellbeing of dependent fishing communities is accounted for in management advice

The participants indicated that DAFF has a good understanding the role of the fishing sector in addressing poverty. The Fishing Rights Allocation Policy is in place but does not address socio-economic issues in depth. The lack of a management plan to deal with issues of poverty and the lack of co-ordination between the three government spheres (research, compliance and management) were raised as major concerns. However, a workshop is planned with all spheres of government to deliberate on poverty related issues. Insufficient capacity was also raised as a concern, however, Fishery Development Workers (FDWs) have been appointed.

The next key steps to be undertaken under this objective are as follows:

- 1) address capacity issues,
- 2) develop management plans to deal with socio-economic issues and
- 3) review Right Allocation Policies.

Objective 4: The economic wellbeing of the fishing industry is incorporated into management advice.

The group reported that short term economic implications were incorporated into the OMP and that the Department is in the process of developing an SMME strategy. It was also indicated that the fishery would have its own ecolabelling in the year 2013 and that industry do enroll for skills development courses relating to safety at sea. The participants also indicated that a long-term market security strategy for the Industry was in place. Despite the highlighted areas of progress, the group felt that fuel prices remained a challenge in Industry's operations. The participants were not certain if the non-traceable SCRL products reported were legally or illegally caught, however, the Industry reported that their main markets in United States of America would require traceability in future. The participants were also not certain about the level of business and marketing skills of right holders. It was however pointed out that there were 3 marketing arms for the SCRL fishery and that TAC adjustments aimed at minimising the short term volatility and job losses.

The workshop recommended that

- 1) the level of business and marketing skills for right holders are determined,
- 2) traceability of SCRL products be improved,
- 3) Consider and evaluate whether having an independent third party certificate was a requirement.

Objective 5: The managing authority has transparent and participatory management structures that ensures good communication and information sharing locally and regionally

The workshop participants felt that communication with other government agencies needed improvement. Interdepartmental forums exist and they deal with issues related to trade and international related but intergovernmental communication and information exchange is required.

Objective 6: Management plans incorporate EAF considerations

The group felt that management plans which incorporate EAF considerations need to be developed and there is a lack of capacity to undertake this task. The National Plan of Action (NPOA-capacity) is amongst

the priorities of the Department for the current financial year. The Illegal Unreported and Unregulated (NPOA-IUU) is included in the current strategic plan.

Objective 7: Good compliance to regulations reduces ecosystem impacts of fisheries

The participants felt that currently there were no barriers to compliance in the SCRL fishery as gaps were reviewed and identified in previous permit conditions, were dealt with in 2012/13 permit conditions. In addition, the current legislation provides heavy penalties for non compliance and permit conditions encourage voluntary compliance. It was reported that the performance review of right holders was conducted in 2009 by the Department and the findings were being addressed. Landings are fully monitored in the SCRL fishery and all vessels are equipped with Vessel Monitoring Systems (VMSs). Major issues raised were the time delay in submitting landing data, the absence of a 24 reporting system vessels through VMSs as the VMS operational room only function between 8am – 4pm, a lack of a dedicated focus on marine related offences, the inability to address over-caught right holders as reconciliation of landings and allocations were not done timeously and therefore over-catches are not adequately addressed. The participants also indicated that Section 28 proceedings were not always implemented when necessary and those that were would not be finalized timeously.

The workshop participants suggested that the aforementioned challenges be addressed so as to further improve monitoring, control and surveillance of the fishery.

Objective 8: Sufficient capacity, skills, equipment and funding exist to support the implementation of an EAF

SCRL is a single species fishery, with minimal by-catch hence the current single species management framework satisfies the major biological requirements of the EAF. With regard to EAF training, DAFF staff has attended some Benguela Current Commission (BCC) courses in Namibia and EAF training in Grahamstown. EAF training is also done through the ERA itself. Fisheries management advice is seasonal and is provided by the Scientific Working Group which consists of dedicated fisheries researchers, industry representatives and NGOs. However, some of the EAF elements are not considered in the advice as most of the simulations are based on the ecology of the fishery. The human dimension of EAF is hardly ever looked at. Limited funding, inadequate research and compliance capacity were raised as challenges facing the fishery. Furthermore, limited capacity to ensure adoption and implementation of EAF in the Department was raised as of major concern.

Addressing funding and capacity needs were proposed as way forward to support implementation of EAF.

Objective 9: Good data procedures exist to support EAF implementation

The areas of progress reported under this objective were that the logbook system was working well, the Department intended to revive the observer program by the end of March 2013 and electronic data systems such as Marine Administrative System (MAST) is functioning well, though there was a room for improvement. Socio-economic data was submitted to the Department during the rights allocation process and right holder's performance review process but it has never been updated annually.

The participants felt that an ongoing data collection programme for socio-economic data needed to be designed, funded and implemented and that more timeously centralization of logbook sheets would be of benefit to the fishery.

Objective 10: External impacts of fisheries are addressed (e.g. the effect of other sectors, other industries, climate change etc)

There is limited interaction of the SCRL fishery with other commercial fisheries. A good understanding of economic drivers was indicated as an area of progress. Phosphate mining exploration was raised as a concern and it was indicated that climate change is a priority for all fisheries as it affects them all.

The workshop proposed that the phosphate mining exploration be a management and research priority as it was carried out in rich fishing grounds for the fishery. Another next step proposed was that management needed to become fully aware of the economic drivers and consider them during policy formulation.

Conclusion and Way Forward

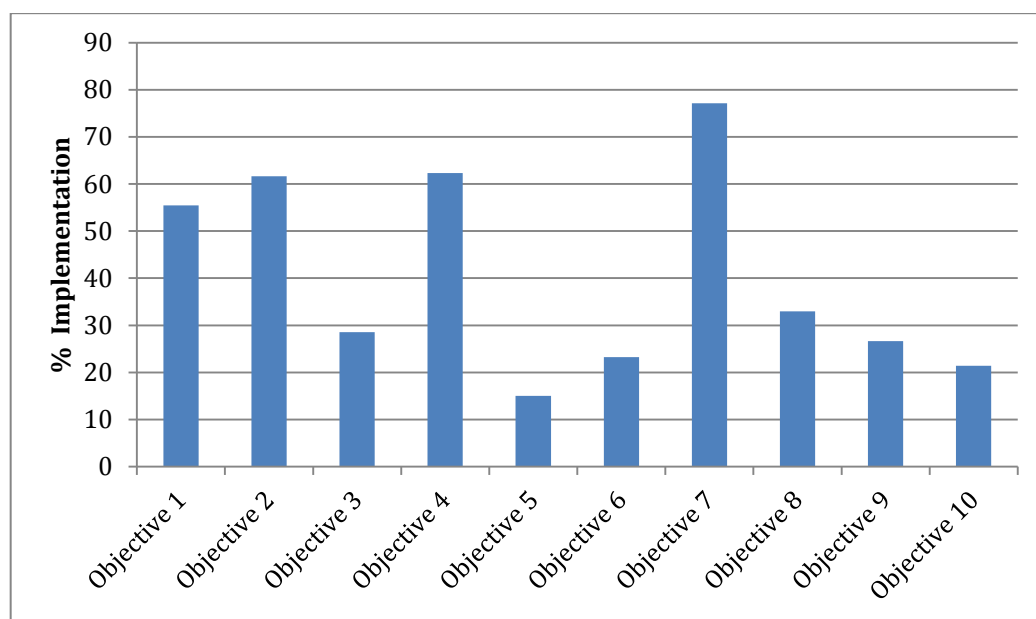


Figure 3: Outputs of EAF tracking tool

Overall, based on the tracking tool outputs, an EAF is 40% implemented in this fishery. Implementation was the most advanced for objective 7. However, progress is most urgently needed to address objectives 3, 5, 6 9 and 10 (Figure 3). The results of this workshop will be used as a starting point for the development of work plans for the next two-year management cycle. The outputs will be tabled at relevant working groups to aid the actions and responsibilities to individual work plans and to aid in making management decisions.

ERA workshops provide an excellent way of monitoring and stimulating EAF implementation in a transparent and participatory manner through consultation and discussion amongst diverse stakeholders. The advantage of this generic approach is that it allows for comparison, interrogation and reporting at any level. For instance, operational managers can track progress of management actions in a participatory and transparent manner to develop a work plan to address issues. A middle manager can use the tool to compare progress at a sector or per fishery level or even compare progress between fisheries. A senior manager can use the tool to track EAF implementation between fisheries, compare implementation of various objectives (e.g. how is their organisation fairing in addressing human wellbeing issues or risks compared ecological issues or risks) or investigate progress in over-arching issues (e.g. the development a network of representative marine protected areas) that could not be

tackled by a single sector. In this way, he or she could inform the wise use of limited resource, identify gaps in progress and reward or praise progress. At a policy level, including reporting on *inter alia* WSSD commitments, EAF implementation progress can be tracked and reported on by means of a simple effective diagram (Figure 3), without placing additional burden on managers.

Some aspects of the ERA are not sector specific. There are objectives which address all sectors equally, e.g. objectives referring to institutional capacity. Similarly, there are individual actions which will create progress towards more than one objective, e.g. putting in place mechanisms for increasing the knowledge base regarding the socio-economic context of fisheries. Once several ERA's or ERA reviews have been conducted it will be possible to extract these generic objectives and actions which will address more than one sector.

References

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Annex 1: List of participants

Name	Institute/Affiliation
Richard Ball	South Coast Rock Lobster Association
Brian Flanagan	South Coast Rock Lobster Association
Mike Bergh	OLRAC
Andrew Cockcroft	DAFF-FR&D
Neil van den Heever	DAFF-FR&D
Michelle Pretorius	DAFF-AED
Kishan Sanker	DAFF-AED
Dennis Fredericks	DAFF-MRM
Luyanda Tuko	DAFF-MRM
Sithembiso Sojola	DAFF-MRM
Msimelelo Mdledle	DAFF-MRM
Toni Stuurman	DAFF-MRM
Tandiwe Siyema	DAFF-MRM
Anel Nortier	DAFF- MCS
Amanda De Wet	DAFF-MCS
Andile Moshani	DAFF-MCS
Ezekiel Moshani	DAFF-MCS
Zukiswa Nkhereanye	DAFF-MCS
Thelisa Mqoboka	DAFF-SE

Annex 2: List of issues.

*Note: Risk score is product of the consequence score (CONS) and the likelihood score (LIKE)

** Categories: E=Extreme, H=High, M=Moderate, L=Low, N=Negligible

Obj 1:	The managing authority has a good understanding of the ecosystem impacts of fisheries including target, non-target and general ecosystem impacts					
<i>Target species or valuable retained by-catch (Objective: Research and management should aim to ensure sustainable utilisation = Type A species)</i>		Cons	Like	Risk	Category	Comments
1	Inadequate capacity (equipment and funding) to determine growth rate, sex ratio and size composition in various areas of the resource	4	4	16	High	Important for stock assessments. Some of the information is provided by the Industry
2	Delays in reconciliations of catches with quota allocations	4	4	16	High	
3	Some right holders have insufficient fishing effort (in terms of vessels)	3	3	6	Low	
4	Illegal harvesting of SCRL	4	5	20	Extreme	There is no traceability of illegal harvested SCRL in the markets.
5	Rollovers vs tolerance	4	5	20	Extreme	No consistent policy applied for rollovers across fishery sectors
6	Migration patterns are not investigated more thoroughly	2	4	8	Moderate	
7	Spatial distribution in various areas of the resource not well understood	4	2	8	Moderate	
8	Limited genetic information on stock	2	1	2	Low	
<i>By-catch species that are threatened e.g. seabirds, vulnerable to over exploitation or the target of another fishery (Objective: to minimize by-catch =</i>		Cons	Like	Risk	Category	Comments

Type B species)						
	N/A					No threatened by-catch
Other bycatch species that, based on existing understanding, are unlikely to be vulnerable to the current level of exploitation (Objective: keep a watching brief = Type C species)		Cons	Like	Risk	Category	Comments
9	Slipper lobster, Octopus, Panga, Hagfish and Kinglip are considered as by-catch	2	1	2	Low	Little amount taken, no major issues. Has a minimum value compared to lobster. Octopus once exceeded the target species but that is not common.
General Ecosystem considerations (Impacts will vary depending on gear utilised)		Cons	Like	Risk	Category	Comments
10	Difficulties to quantify damage caused by traps fisheries longline on the habitat	2	1	2	Low	
11	Impacts of gear loss on the environment	2	1	2	Low	Gear loss is not quantified, traps are lost during fishing operations. No information on the effect of lost traps , thus the impact is unknown.
12	Ghost fishing	3	5	15	High	Ghost fishing does not come into consideration since there would be nothing on the lost trap to attract lobster.
13	Benthic habitat not well understood	4	4	16	High	No mapping of benthic habitats done
14	Shell diseases in lobster	4	1	4	Low	Increasing aquaculture activity is a risk with shell disease.
Obj 2:	Ecosystem impacts of fisheries are included into management advice					

Target species or valuable retained by-catch (Objective: Research and management should aim to ensure sustainable utilisation = Type A species)		Cons	Like	Risk	Category	Comments
	N/A					
By catch species that are threatened e.g. seabirds, vulnerable to over exploitation or the target of another fishery (Objective: to minimize by-catch = Type B species)		Cons	Like	Risk	Category	Comments
	N/A					
Other by-catch species that, based on existing understanding, are unlikely to be vulnerable to the current level of exploitation (Objective: keep a watching brief = Type C species)		Cons	Like	Risk	Category	Comments
15	Lack of observer programme	4	2	8	Moderate	It is specified in SCRL permit conditions that by-catch should be recorded. DAFF is in the process of re-establishing the observer programme.
General Ecosystem considerations (Impacts will vary depending on gear utilised)		Cons	Like	Risk	Category	Comments
	N/A					General ecosystem issues mentioned above are not incorporated into as DAFF Research does not have control over them.
Obj 3:	The social wellbeing of dependent fishing communities is accounted for in management advice	Cons	Like	Risk	Category	Comments
16	Inadequate capacity in particular economists and social scientists	4	4	8	Moderate	
17	No trans-disciplinary collaborations to deal with socio-economic wellbeing	2	2	4	Low	

18	No focused contribution to poverty alleviation of fishing communities	3	3	6	Low	SCRL is a capital intensive fishery, not a community based fishery hence no focus on rural fishing communities. Shore based infrastructures in place where fishing communities benefit. Lobster heads sold to local communities.
Obj 4:	The wellbeing of the fishing industry is incorporated into management advice.	Cons	Like	Risk	Category	Comments
19	Fishing operating under low profitability	4	5	20	High	Increasing fuel costs, small margins would have impact on job creation. Stable jobs, good wages for crew but low staff turnover.
20	Vulnerability to changes in market prices	4	4	16	High	
21	The fishery is not eco-labeled	3	2	6	Low	The SCRL has a SAFE initiative which will certify the fishery.
22	SCRL products are not traceable in international market	4	5	20	Extreme	Compliance matter. Illegally caught products have detailed barcodes on their boxes. Main markets in UK and China will require traceability in future. Not sure whether non-traceable products are illegally or legally caught.
23	Economic issues not known and not incorporated in management	3	5	15	High	No proper information submitted to the Department on the economic situation of the industry
Obj 5:	The managing authority has transparent and participatory management structures that ensures good communication and information sharing locally and regionally	Cons	Like	Risk	Category	Comments

24	Socio economic scientists are not part of the SCRL Working Group meetings	2	2	4		If people want representation there are many channels to go. Poor attendance of compliance officials in SCRL Scientific WGs.
Obj 6:	Management plans incorporate EAF considerations	Cons	Like	Risk	Category	Comments
25	Lack of SCRL management plan	3	4	12	Moderate	
26	Lack of National Plan of action for IUU	3	2	6	Low	
27	Lack of NPOA Fishing capacity	2	2	4	Low	
Obj 7:	Good compliance to regulations reduces ecosystem impacts of fisheries	Cons	Like	Risk	Category	Comments
28	Identification of exported species	2	4	8	Low	
29	Re-active approach to over-catches	4	4	16	High	The department cannot deal with over-catches. Catch monitoring should be pro-active rather than re-active
30	Delays in finalising section 28 cases	3	4	12	Moderate	
Obj 8:	Sufficient capacity, skills, equipment and funding exist to support the implementation of an EAF	Cons	Like	Risk	Category	Comments
31	Inadequate Research capacity (skills) to deal with the, biological, economical and social aspects.	4	4	16	High	

32	Insufficient funding for research related projects.	4	4	16	High	
33	Employment equity and skills development in the SCRL sector amongst blacks	3	4	12	Moderate	
34	Inadequate management capacity to implement EAF	4	4	16	High	
35	Inadequate capacity in compliance to address compliance issues	4	4	16	High	
36	Ineffective allocation of funding	4	4	16	High	
Obj 9:	Good data procedures exist to support EAF implementation	Cons	Like	Risk	Category	Comments
37	Lack of observer programme	4	4	16	High	
38	Late submissions of log books	3	3	9	Moderate	
39	Lack of correlation of information across different spheres of government	3	4	12	Moderate	
40	limited IT capacity for generating reports and data extracts	4	5	20	Extreme	

41	Inability of existing data systems to talk to each other	3	5	15	High	
42	limited availability of socio economic data	4	4	16	High	
43	Research vessel tied-up	3	4	12	Moderate	
44	Delays in catch data submissions from various compliance offices	3	3	6	Low	
Obj 10:	External impacts on the fisheries are addressed (e.g. the effect of other sectors, other industries, climate change etc.)	Cons	Like	Risk	Category	Comments
45	No known impacts the SCRL fishery has on other fisheries visa versa	2	2	4	Low	
46	Climate change/ oceanic acidification	5	3	15	High	
47	Phosphate mining	3	3	9	Moderate	
48	Environmental impacts on catch rates	4	4	16	High	
49	Fuel prices and exchange rates	5	3	15	High	
50	Potential impact of aquaculture activities	3	2	6	Low	Ranching activities might have material impact on crustaceans in future

Annex 3: Workshop output – EAF tracking tool

Objective 1:	The managing authority has a good understanding of the ecosystem impacts of fisheries including target, non-target and general ecosystem impacts	Issues	Priority	Step	Comments (incl details of progress, barriers etc.)	Next action (details of research or management required to fulfil obj)	Responsibility
1.1	<i>South Coast Rock Lobster</i>	1,10, 32, 37, 43	High	5	Age length key is not relevant for crustaceans. Industry provides ships for DAFF: Research to collect data. Barriers are: availability of research vessels, funding, and lack of observer program. It's highly desirable to have independent data collected by DAFF.	Adequate funding for research and research vessels should be made available for use. Observer program must be initiated and continued. Dedicated Scientists must be appointed for the sector. Use of Commercial fleet for data gathering should be explored.	CD: FRD, CD: MRM and DDG: FM
1.2	<i>South Coast Rock Lobster</i>	2, 3, 4, 5,	Extreme	5	Stock assessment is conducted regularly. New OMP is being developed which accounts for uncertainty.	Multi-sectoral discussion to reach some commonality with regards to rollovers /tolerance recommended. Industry and DAFF need to review electronic real time catch, effort and other data collection. Review the available fishing effort in SCRL Fishery.	CD: FRD, CD: MRM and CD: MCS
1.3	<i>South Coast Rock Lobster</i>	3, 4,9	Extreme	4	By-catch and discards is controlled through permit conditions.	Review and analyse by-catch data regularly. Improve traceability of exported products in order to easily identify poached products. Need to incorporate information that comes out of investigations of poaching into OMP. Review monitoring system at landing sites.	CD:MCS, CD: FRD

1.4	<i>South Coast Rock Lobster</i>	6,7, 13	High	4	Limited research has been conducted. Availability of funding and research vessel.	Spatial distribution of SCRL and migration patterns needs to be investigated throughout the distribution range of the species. The design of the observer and tagging programs need to be reviewed to address issue 6 and 7.	Industry and CD: FRD
1.5	<i>South Coast Rock Lobster</i>	8	Low	4	Limited research has been done due to limited funding and use of research vessels.	More detailed research is required.	CD: FRD
1.6	N/A						
1.7	<i>Slipper lobster, Octopus, Panga, Hagfish and Kingklip</i>	9,37	High	4	The by-catch is monitored. Limited quantities of by-catch are caught in the SCRL fishery.	Adequate funding for research and research vessels should be made available for use. Observer program must be initiated and continued. Dedicated Scientists must be appointed for the sector.	CD: FRD
1.8	Fishing impacts on marine habitats and ecologically important areas e.g. spawning areas, nursery areas, predator foraging areas, have been assessed and quantified.	10, 11, 13	High	3	Preliminary investigations of spawning areas and benthic habitats but need significant inputs before a full understanding is obtained. Constraints are funding and research vessels.	Benthic habitat mapping recommended. Explore use of Commercial fleet.	Industry and CD: FRD
1.9	There is good understanding of the trophic role, diets and foraging behaviour of predators that are dependent on the species under assessment.				Trophic dynamics of a deep-water ecosystems are poorly and no known ecological risks. The species is not a major food source.		
1.10	There is good understanding of the diet and role of the species under assessment as secondary consumers in the trophic web.						

1.11	There is good understanding of the ecosystem impacts of supplementary feeding (by making offal and/or catches available to predators).						
1.12	There is good understanding of ecosystem impacts of de-predation by top predators including its impact on the economic viability of the fishery.						
1.13	There is a good understanding of gear loss and/or ghost fishing including entanglement	11, 12	High	3	Gear loss is not quantified; traps are lost during fishing operations. No information on the effect of lost traps, thus the impact is unknown.	More research is needed to quantify gear loss and determine the effect of gear loss. Right holders to keep record of gear lost (type, number and locations) and submit to the Department.	Industry, CD: FRD
1.14	Disease related risks (e.g. from imported fish products like bait) are well understood.	14	Low	2	Any crustacean ranching activity need to consider the disease threat to wild fisheries. Imported bait can also introduce diseases to wild caught lobsters.	CD: AED need to liaise with CD: FRD and Industry and determine potential effects of crustacean ranching.	CD: AEC, CD: FRD and Industry

Objective 2:	Ecosystem impacts of fisheries are included into management advice	Issues	Priority	Step	Comments (incl details of progress, barriers etc.)	Next action (details of research or management required to fulfill obj)	Responsibility
2.1	<i>South Coast Rock Lobster</i>	1, 31, 43	High	5	Life history parameters are incorporated into the management advice through OMP. OMP is being revised.	Continual review of stock assessment needs to be undertaken.	CD:FR&D
2.2	<i>South Coast Rock Lobster</i>	3, 4, 5	Extreme	5	Fisheries data are incorporated into management advice.	Continual review of stock assessment needs to be undertaken including peer review	CD:FR&D
2.3	<i>South Coast Rock Lobster</i>	3, 4,9,39	Extreme	5	The illegal harvesting of SCRL may be incorporated to management advice. There is some uncertainty of IUU fishing	Cross checking of diverse data sets on catches (logbook records, landings, export records)	CD:FR&D, CD:MCS,CD:MRM,CD:I&IR
2.4	<i>South Coast Rock Lobster</i>	6,7	Moderate	5	The use of spatial distribution information in management is being reviewed, as part of OMP.	Consider and incorporate where appropriate the international peer review into OMP.	CD:FR&D,CD:MRM
2.5	<i>South Coast Rock Lobster</i>	8	Low	4	Adequate funding of Micro satellite information needs to be made available	Micro satellite information would be useful to look at stock units. Adequate funding needs to be made available.	CD:FR&D
2.6	N/A						
2.7	N/A						
2.8	Monitoring in place and relevant indicators/thresholds are developed for adaptive management						
	<i>Slipper lobster, Octopus, Panga, Hagfish and Kinglip</i>	9,37,43	High	4	Only small quantities of by-catch are harvested by the fishery, and permit conditions deal with the by-catch species. There is currently no observer programme.	Continuous monitoring and capturing of by-catch species. Re establishment of observer programme.	CD:FR&D,DDG:FM

2.9	Appropriate management actions, e.g. gear restrictions, closed areas/seasons etc., have been identified and tested and are supported by stakeholders to address fishing impacts on marine habitats and ecologically important areas.	11	Low	5	Gear loss is not quantified; traps are lost during fishing operations. No information on the effect of lost traps, thus the impact is unknown.	More research is needed to quantify gear loss and determine the effect of gear loss. Right holders to keep record of gear lost (type, number and locations) and submit to the Department.	Industry, CD: FRD
2.10	The necessary biomass to sustain healthy populations of these predators (by volume and spatially) has been quantified and these needs are formally included into management procedures.				This is a deepwater species and inshore and pelagic trophic interactions are limited.		
2.11	The biomass needed to ensure stability in the ecosystem has been quantified and the ecosystem impacts of fishing on secondary consumers has been formally included in management procedures.						
2.12	Fisheries operations have been amended to mitigate the impacts of diet supplementation on top predators.						
2.13	Fisheries operations have been amended to mitigate the impacts of depredation.						
2.14	The impact of gear loss and/or ghost fishing including entanglement are included in management procedures	11, 12	High	2	Gear loss is not quantified; traps are lost during fishing operations. No information on the effect of lost traps, thus the impact is unknown.	More research is needed to quantify gear loss and determine the effect of gear loss. Right holders to keep record of gear lost (type, number and locations) and submit to the Department.	Industry, CD: FRD
2.15	Disease related risks (e.g. from imported fish products like bait) are addressed by management.	14	Low	2	Any crustacean ranching activity needs to consider the disease aspect to wild fisheries. Imported bait can also introduce diseases to wild caught lobsters.	CD: AED need to liaise with CD: FRD and Industry and determine potential effects of crustacean ranching.	CD: AED, CD: FRD and Industry

2.16	Discarding of pollutants (e.g. plastics) is included in management procedures	37	High	5	Permit conditions are in place to address the discarding of pollutants; however there is no observer programme in place.	Observer programme to be put in place.	CD:FR&D, CD: MCS,CD:MRM
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Objective 3:	The social wellbeing of dependent fishing communities is accounted for in management advice	Issues	Priority	Step	Comments (incl details of progress, barriers etc.)	Next action (details of research or management required to fulfil obj)	Responsibility
3.1	The government, as custodian of a common resource (that policy requires to be utilized for the benefit of all citizens), has a good understanding of the role of the fishing sector in addressing poverty alleviation (e.g. food security, employment, health, education).	16,18	Moderate	2	Government has a good understanding to the role of the fishing sector in addressing poverty. There is a Rights allocation policy in place but it does not address in depth socio-economic issues. Rights holders Performance Reviews were conducted.	General and sector specific Rights allocation policies to be reviewed. Appoint economists and social scientists.	CD:MRM
3.2	Issues of poverty alleviation (e.g. food security, primary health care and basic education) are included in management plans and policies and appropriate management actions are taken.	16,18,25	Moderate	2	There is no management plan to deal with issues of poverty alleviation in this fishery.	Management plan to be developed.	CD:MRM
3.3	Social implications related to the fishery are included in Integrated/Local Development Plans.	16,17,18	Moderate	1	There is lack of interaction and coordination between the three spheres of government.	Ensure that social issues within this fishery are integrated into IDP's.	CD:MRM
3.4	The government agency has sufficient capacity to address gazetted social priorities (e.g. poverty alleviation, job creation, food security and primary education, health care).	16,18	Moderate	2	There is insufficient capacity, however the agency has moved towards the appointment of the Fisheries Development Workers.	Appoint economists, and social scientists.	CD:MRM
3.5	Transdisciplinary collaborations on issues of poverty alleviation, basic education and primary health care between the fisheries department/ministry and other line ministries (e.g. Ministry of Education, Health etc.) & NGOs are established.	16,17,18	Moderate	3	A workshop will be conducted with all spheres of government to deal with collaboration.	Ensure that the workshop is conducted.	CD:MRM,CD:I&IR

Objective 4:	The wellbeing of the fishing industry is incorporated into management advice.	Issues	Priority	Step	Comments (incl details of progress, barriers etc.)	Next action (details of research or management required to fulfil obj)	Responsibility
4.1	Individual rights are economically viable.				N A		
4.2	An appropriate and fair rights allocation process is in place.			6	Rights allocation process in place	Review General allocation policy	CD:MRM
4.3	Management of the fishery is aimed at long-term financial stability and job security.	19,23	High	4	TAC adjustments are aimed at minimising short term volatility and job losses.	Industry should strive to retaining jobs at sea.	CD:MRM and Industry
4.4	All rights holders have adequate business skills and marketing skills	33	Moderate	1	In this industry there are only 3 marketing arms. The level of business and marketing skills of Right holders are unknown.	Determine the level and need of business and marketing skills in the industry.	CD:MRM
4.5	All stakeholders possess adequate skills to participate in co-management.	33	Moderate	6	They all participate and have the adequate skills.		
4.6	Effective training mechanisms are in place to provide EAF skills development to relevant members of the industry (e.g. responsible fisheries training courses, safety at sea).	33	Moderate	7	The industry does attend skills development courses such as STCW (fire fighting, Surviving courses, Personal safety, etc)		
4.7	The fishery is eco-labeled.	21	Low	3	The fishery will have its own eco-labeling in place in 2013.	Consider and evaluate whether it is a requirement to have independent third party certification.	Industry
4.8	Processes are in place to ensure the traceability of products as desired by the export market (e.g. EU requirements).	22	Extreme	6	Legally caught products have detailed barcodes on their boxes. Main markets in USA and elsewhere will require traceability in future. Not sure whether non-traceable products are illegally or legally caught	Improve traceability of products to deal with IUU in the SCRL sector.	Industry

4.9	The industry has a strategy to ensure long-term market security (e.g. diversity of markets/products, product branding).	19,20	High	7	Strategies implemented to ensure long-term market security.	Continue to supply the highest quality of product which meets the requirements of the market, Ensure low quality IUU products don't enter the market.	Industry and CD:MRM
4.10	There is a clear understanding of the economic context of the fishery.	23	High	2	Not known and not incorporated into management. The main drivers that affect the industry are fuel prices etc	Gather economic information from industry.	CD:MRM
4.11	Economic implications of management decisions are clearly integrated into fisheries management advice and procedures.	23	High	2	Short term economic implications are incorporated into OMP and in Recovery strategies .The Department is in the process of developing an SMME strategy.	Develop and finalise SMME strategy.	CD:MRM

Objective 5:	The managing authority has transparent and participatory management structures that ensures good communication and information sharing locally and regionally	Issues	Priority	Step	Comments (incl details of progress, barriers etc.)	Next action (details of research or management required to fulfil obj)	Responsibility
5.1	Effective and cohesive industry associations are in place and functioning.			7			
5.2	Effective participatory management fora (e.g. Working Groups) are functioning.			7			
5.3	Working groups have good stakeholder participation (e.g. fishing industry, NGO etc.).			7			
5.4	Channels or forums are in place for communication with other government agencies (e.g. oil and minerals, transport, safety at sea, health standards, and customs).	39	Moderate	3	There is an inter-departmental forum for all government departments. Issues discussed at these forums are related to trade and international related issues e.g All multi lateral and Bi lateral engagements.	Improved intergovernment communication and information exchange is required.	CD:I&IR, CD:MRM, CD:FR&D,CD:Stakeholder engagement
5.5	Channels or forums are in place to facilitate communication among senior managers of the different fisheries departments (i.e. compliance, research and resource management).			7			
5.6	Channels or forums are in place to facilitate communication among operational managers of the different fisheries departments (i.e. compliance, research and resource management).			7			
5.7	Regional co-operation is operational and has been institutionalized (e.g. BCC)				NA		

Objective 6:	Management plans incorporate EAF considerations	Issues	Priority	Step	Comments (incl details of progress, barriers etc.)	Next action (details of research or management required to fulfil obj)	Responsibility
6.1	Sector management plans which incorporate EAF considerations for all three dimensions of EAF are in place and peer reviewed	25	Moderate	1	Lack of capacity	Management plan to be developed.	CD:MRM, CD: FRD, CD: MCS
A	<i>Seabirds NPOA</i>				N/A		
B	<i>Shark NPOA</i>				N/A	Investigate the status of the NPOA and look for intersection with SCRL fishery. Develop a strategy to accommodate the NPOA if there is an intersection with this fishery.	CD: MRM
C	<i>IUU NPOA</i>	26	Low	2			
D	<i>Capacity NPOA</i>	27	Low	2	Included in the strategic plan for the current.	Investigate the status of the NPOA and look for intersection with SCRL fishery. Develop a strategy to accommodate the NPOA if there is an intersection with this fishery.	CD: MRM

Objective 7:	Good compliance to regulations reduces ecosystem impacts of fisheries	Issues	Priority	Step	Comments (incl details of progress, barriers etc.)	Next action (details of research or management required to fulfil obj)	Responsibility
7.1	Appropriate regulatory mechanisms exist and adequate follow-through provide effective disincentive for non-compliance			6	Existing legislation provides for heavy penalties. Currently there no barriers to compliance in this fishery. Permit conditions were reviewed and gaps identified and included into permit conditions.	Consider introduction of 24 hour monitoring.	CD: MCS
7.2	Adequate mechanisms are in place to support voluntary compliance (e.g. performance review procedures, eco-labeling, etc.).	21	Low	4	These initiatives are fully supported by SCRLIA and all Rights Holders. Permit conditions do encourage voluntary compliance. The fishery will have its own eco-labeling in 2013. Right Holders performance review was conducted for all fishing sectors including SCRL. Findings of such are currently being attended to.	The SCRL has a SAFE South Africa Fishing Ethically (Responsible fisheries management programme) initiative which has already been launched. This initiative is supported by DAFF.	SCRLIA

7.3	All aspects of MCS are functioning well and are leading to good compliance:	28, 29	High	6	MCS functions effectively. Time delay in submission of landing data. Reconciliation of landings and allocations not done timeously and therefore over-catches not adequately addressed.	DAFF to investigate unaccounted fish in US market further and thereafter to take appropriate action. Landing data to be submitted timeously as to ensure that reconciliations are done and over-catches are addressed as outlined in the permit conditions. Consider electronic scale at the landings that will immediately feed the information to the MAST system. Create of Data Warehouse is necessary. Investigate the practicality of the integrated government funded electronic scale monitoring/logbook system.	CD:MRM, CD: FRD, CD: MCS
7.4	<i>Regular at sea patrols are undertaken</i>			4			
B	<i>Adequate shore based controls are in place (e.g. in harbours, at landing sites etc.)</i>			7	All landings are fully monitored.		
C	<i>The special investigation unit (SIU) functions well</i>			7	SIU is functional. Matters referred to SIU are investigated but currently there are no SCRL related matters that have been referred to SIU.		

d	<i>Functional VMS system implemented</i>			7	All vessels carry VMS units and are compliant. 24 hour hot line has not been implemented. The ops room is only functional between 8am and 4pm, however, provision has been made in terms of permit conditions to check whether the VMS unit is functional or not even after hours.	Improve monitoring of VMS and consider shift work to cover 24 hour period.	CD: MCS
E	<i>Legal/Court system adequately apprehends offenders</i>			1	There is no dedicated focus on marine related offences and at times marine related cases get thrown out of Court due to lack of evidence.	Possibly have dedicated prosecutors within MCS. Possibly train up FCOs to be investigators/ prosecutors. Consider whether MCS should have a case management officer.	CD: MCS
F	<i>Regular aerial patrols are undertaken</i>				n/a		
G	<i>Section 28 - only applicable in South Africa</i>	30	Moderate	7	Section 28 Committee is functional, however, section 28 proceedings are very lengthy and at times section 28 are not finalised timeously.	No section 28s in the South Coast rock lobster industry known by industry	

Objective 8:	Sufficient capacity, skills, equipment and funding exist to support the implementation of an EAF	Issues	Priority	Step	Comments (incl details of progress, barriers etc.)	Next action (details of research or management required to fulfil obj)	Responsibility
8.1	Good research capacity is available to adequately understand EAF in this sector.	31	High	2	Research capacity is inadequate with respect to social research. Economics of this fishery is well understood by the industry. As regards the biological aspects, this is a genuine single species fishery with minimal by-catch, hence the current single species management framework satisfies the major biological requirements of EAF.	Appoint dedicated Research capacity (SOCIAL).	CD:MRM, CD: FRD, CD: MCS
8.2	The skills development mechanisms (e.g. training courses etc.) are adequate to allow EAF related research.	31	High	2	DAFF staff has attended some BCC courses in Namibia and EAF training in Grahamstown. EAF training is also done through ERA itself.	Appoint Socio-economists that will be able to deal with the three dimensions of EAF.	CD: MRM
8.3	The funding to facilitate adequate capacity, equipment and skills for research are understood and met.	32	High	2		Make adequate funding available or reinstitute research quota.	CD:MRM, CD: FRD, CD: MCS
8.4	The fisheries agency has adequate capacity to advise fisheries management decisions	31,34	High	2	Fisheries management advice is seasonal provided by the Scientific Working Group which consists of dedicated fisheries researchers, industry representatives and NGOs. However, some of the EAF elements are not considered, most of the simulations are done based on the ecology of the fishery. The human dimension is hardly looked at.	Appoint suitable EAF capacitated managers	CD:MRM, CD: FRD, CD: MCS

8.5	The fisheries agency has the necessary skills to implement EAF management i.e. adopting research advice into regulations (e.g. closed area/season, quota, gear restriction)	31,34	High	2	Limited capacity is available to ensure adoption and implementation of EAF approaches.	Upskill and focus existing resources	CD:MRM, CD: FRD, CD: MCS
8.6	The fisheries agency has funding to facilitate adequate capacity, equipment and skills for implementing management decisions	36	High	2	Only limited funding is available, and research vessel's activities apparently not focused on South Coast rock lobster	Make adequate funding available or reinstitute research quota, and deploy research vessel properly.	CD:MRM, CD: FRD, CD: MCS
8.7	There is adequate capacity to address compliance issues	35	High	2	DAFF has numerous MCS positions vacant. VMS ops room not operating for 24 hours.	Fill the vacant posts. Establish 24-hour operations for VMS ops room.	CD: MCS
8.8	The compliance section has the necessary skills to implement an EAF (including a good understanding of the regulations, the appropriate penalties and evidence collection)	35	High	2	MCS officials have required skills but improvement is required.		
8.9	There is adequate funding to facilitate capacity, equipment and skills for compliance	36	High	2	Limited funding exists.		
8.10	Employment equity within the fisheries agency according to transformation goals has been achieved	33	Moderate	6	It appears that the goals have been achieved	No action to our knowledge required - this is a government policy issue and function	

Objective 9:	Good data procedures exist to support EAF implementation	Issues	Priority	Step	Comments (incl details of progress, barriers etc.)	Next action (details of research or management required to fulfil obj)	Responsibility
9.1	Both land-based and at sea observer programmes are operational and provide accurate information to inform the management of the sector.	37	High	0	Funding is thus being rectified. The Department is intending to revive the observer programme.	Ensure observer programme is reinitiated	CD:MRM, CD: FRD, CD: MCS
9.2	Accurate logbook information informs research and management of the sector.	38	Moderate	2	This aspect is working well	No action required at this stage	N/A
9.3	Accurate Landing declaration information informs the management of the sector.	44	Moderate	5	More timeously centralisation of log book sheets would be beneficial	Review systems and streamline	CD:MRM, CD: FRD, CD: MCS
9.4	Appropriate electronic data management systems are in place (research and catch data).	39,40,41,44	High	2	Improvement of central databases and extraction there from required	Improvement of central databases and extraction there from required	CD:MRM, CD: FRD, CD: MCS
9.5	Data management systems for socio-economic data are in place and are being used.	42	High	1	Relevant data were submitted as part of the rights allocation process and the review but has not been updated on an annual basis. Limited independent analysis and data collection by government.	Entire data collection programme needs to be designed, funded and implemented	CD:MRM, CD: FRD, CD: MCS
9.6	Electronic data management systems (operational data) are in place	39,40,41,44	High	2	MAST is functioning well but improvements are necessary	Improve MAST system	CD: MRM & D: ICT

Objective 10:	External impacts of fisheries are addressed (e.g. the effect of other sectors, other industries, climate change etc.)	Issues	Priority	Step	Comments (incl details of progress, barriers etc.)	Next action (details of research or management required to fulfil obj)	Responsibility
10.1	There is good understanding of the effect of other fisheries on this fishery and vice versa	45	Low	3	There is limited interaction with other fisheries.	No action Required	N/A
10.2	There is a good understanding of the effect of external ecological changes and climate change on this fishery	46,48	High	1	This issue affects all fisheries and needs a greater priority.	Research proposals need to be formulated which will become part of the daily reporting requirement if appropriate.	Government and industry
10.3	There is a good understanding of the effect of other industries (e.g. mining) on this fishery	47, 50	Moderate	2	There is concern about phosphate mining exploration.	For this fishery the proposed phosphate mining needs to become a top management and research priority since the location is in the middle of rich fishing grounds for South Coast rock lobster.	Mainly Government and industry
10.4	There is a good understanding of economic drivers (e.g. oil price, exchange rates etc.) on this fishery	49	High	1	Industry has a good understanding of these economic drivers and management must become fully aware of these with respect to policy formulation.		SCRLIA
10.5	There is a good understanding of the effect of social factors (e.g. HIV/Aids) on this fishery.			1	No points from day 1		