

South Coast rock lobster



Stock status	Unknown	Abundant	Optimal	Depleted	Heavily depleted
Fishing pressure	Unknown	Light	Optimal	Heavy	

Introduction

South Coast rock lobsters *Palinurus gilchristi* are endemic to the southern coast of South Africa, where they occur on rocky substrata at depths of 50–200 m. The fishery operates between East London and Cape Point and up to 250 km offshore along the outer edge of the Agulhas Bank, and fishing gear is restricted to longlines with traps. It is the second-largest rock lobster fishery in South Africa and is capital-intensive, requiring specialised equipment and large, ocean-going vessels.

Products (frozen tails, whole or live lobster) are exported to the USA, Europe and the Far East. Sales are affected by seasonal overseas market trends and competition from other lobster-producing countries. High prices on international markets and the increase of the Rand to Dollar exchange rate make the sector lucrative. Prices for commodities fluctuate and the sales prices in the USA are currently the equivalent of R440–R600 per kg tail mass.

Longline trap-fishing is labour intensive and as such each boat requires approximately 30 officers and crew. The total sea-going complement of the fleet is about 300 individuals, nearly all previously disadvantaged. In addition to sea-going personnel, the sector employs approximately 100 land-based factory (processing) and administrative personnel, also mostly previously disadvantaged people. The total export value in 2012 was approximately R320 million.

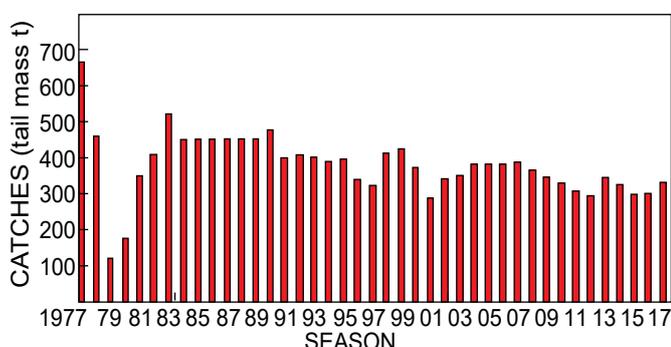


Figure 61: Annual catches of South Coast rock lobster from 1977 to 2018. Note that 1977 refers to the 1977/78 season, etc

History and management

The South Coast rock lobster was first described in 1900 and was recorded occasionally in trawler catches for sole at a depth of about 70 m. The commercial fishery commenced in 1974, after the discovery of concentrations of rock lobsters on rocky ground at a depth of around 110 m off Port Elizabeth. Numerous local and foreign fishing vessels converged on the fishing grounds, giving rise to the expansion of the fishery. However, foreign fishing vessels were withdrawn from the fishery in 1976, when South Coast rock lobster was recognised as a species occurring wholly within South African waters. From 1977 onwards, the sector operated solely as a local commercial fishery.

The fishery has a management history stretching back to 1974. The fishery was regulated initially by limiting the number of traps permitted per vessel. Catches and catch rates declined significantly between 1977 and 1979 (Figures 61 and 62). The introduction of management measures such as reduction of effort and catches during the early 1980s resulted in some resource recovery (Figures 61 and 62). An annual total allowable

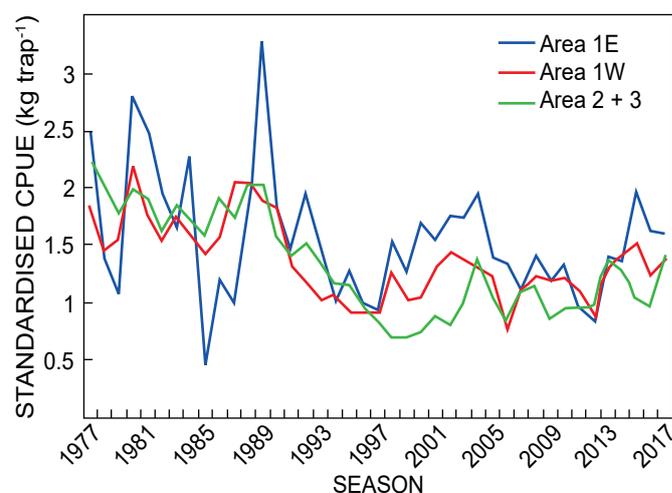


Figure 62: South Coast rock lobster catch per unit effort (CPUE) by area from 1977 to 2018. Note that 1977 refers to the 1977/78 season, etc

Table 16: South Coast rock lobster historical records of TAC, TAE, catch and standardised CPUE by area

Season	TAC (tonnes tail mass)	TAE (allocated seadays)	Standardised CPUE (kg trap ⁻¹)		
			Area 1E	Area 1W	Area 2 & 3
1977/1978			2.53	1.85	2.23
1978/1979			1.42	1.46	2.00
1979/1980			1.07	1.57	1.77
1980/1981			2.80	2.20	2.01
1981/1982			2.49	1.76	1.90
1982/1983			1.96	1.56	1.60
1983/1984			1.65	1.75	1.85
1984/1985	450		2.30	1.61	1.71
1985/1986	450		0.45	1.42	1.60
1986/1987	450		1.22	1.58	1.93
1987/1988	452		0.99	2.05	1.74
1988/1989	452		1.78	2.06	2.04
1989/1990	452		3.29	1.88	2.04
1990/1991	477		1.87	1.83	1.59
1991/1992	477		1.45	1.35	1.42
1992/1993	477		1.98	1.15	1.53
1993/1994	477		1.45	1.03	1.37
1994/1995	452		1.01	1.08	1.17
1995/1996	427		1.28	0.91	1.15
1996/1997	415		1.00	0.91	0.95
1997/1998	402		0.92	0.91	0.85
1998/1999	402		1.54	1.27	0.69
1999/2000	377		1.26	1.03	0.68
2000/2001	365	2 339	1.71	1.05	0.74
2001/2002	340	1 922	1.54	1.32	0.89
2002/2003	340	2 146	1.77	1.46	0.80
2003/2004	350	2 038	1.74	1.38	1.00
2004/2005	382	2 089	1.97	1.30	1.38
2005/2006	382	2 089	1.39	1.22	1.05
2006/2007	382	2 089	1.34	0.78	0.83
2007/2008	382	2 089	1.09	1.09	1.11
2008/2009	363	2 675	1.42	1.24	1.15
2009/2010	345	2 882	1.17	1.18	0.85
2010/2011	328	2 550	1.37	1.22	0.94
2011/2012	323	2 443	0.96	1.09	0.95
2012/2013	326	2 250	0.86	0.90	0.97
2013/2014	342	2 536	1.41	1.30	1.41
2014/2015	359	2 805	1.36	1.43	1.28
2015/2016	341	2 858	1.97	1.50	1.04
2016/2017	332	2 029	1.63	1.24	0.96
2017/2018	321	2 148	1.61	1.38	1.41

catch (TAC) was introduced in 1984, based on the performance of the fishery in the previous years. The TAC and limited entry stabilised the sector until the 1993/94 season (Figure 61), and a more rigorous procedure for stock assessment was developed in 1994.

The fishing season for South Coast rock lobster is year-round, extending from 1 October to 30 September of the following year. The management strategy is a combination of TAC and total allowable effort (TAE). The TAC limits the total catch and is based on an annual resource assessment, whereas the TAE is measured in fishing days allocated to each vessel. A vessel may fish until its fishing days expire or its quota is filled, whichever occurs first. The number of days spent at sea by each vessel is monitored. Catches may be offloaded only in the presence of Fishery Control Officers, and are weighed at designated offloading points. Skippers must, at the conclusion of each trip, provide the Department with accurate daily catch statistics.

The scientific recommendations for catch limits are based on an operational management procedure (OMP) which was introduced in 2008 and modified (“re-tuned”) in 2010. A full review of the OMP was completed in 2014 (designated OMP-2014) and was used to provide the scientific recommendations for the 2015/16 to 2018/19 seasons.

A full OMP review was completed in 2019 (OMP-2019). This was used to determine the TAC and TAE for the 2019/20 season and will be used in the subsequent three fishing seasons. The objective of this OMP is to increase the spawning biomass of the resource by 30% over the 20-year period from 2006 until 2025, while restricting inter-annual TAC fluctuations to a maximum of 5%.

Research and monitoring

The stock assessment model used for South Coast rock lobster (an age-structured production model [ASPM]) is based, *inter*



alia, on size and age composition of the catch, somatic growth rates, and population size estimates. A tagging programme supplies the critical growth and population size estimates, as well as estimates of migration.

Scientific observers are deployed aboard commercial South Coast rock lobster fishing vessels. These observers primarily collect data relating to catch composition, take biological measurements (length, sex and reproductive state), estimate catch and effort, report on gear used, observe fishing practices such as discarding, dumping and bycatch, and also record the areas where fishing takes place. The data are utilised in the annual stock assessment used to determine the TAC. Observers also tag lobsters during commercial fishing operations, and information from recaptured tagged lobsters is returned by commercial fishers, with details of the date and location of recapture. Tagging covers as wide an area and range of size classes as possible.

Commercial CPUE data are captured from landing slips. These provide input data (CPUE and landings) for TAC and TAE management.

New research planned for this resource aims to use baited "video fishing" techniques to offer a standardised, non-extractive methodology for estimating relative abundance and observing the behaviour of South Coast rock lobster. Precise and accurate length and biomass estimates will also be recorded by paired stereo-cameras. The baited underwater video camera traps will be used to monitor the effect that bycatch species have on catch rates, the fate of bait and other bycatch and discards, and to help measure metabolic rates, swimming speed and foraging behaviour of South Coast rock lobsters.

The feasibility of introducing a fisheries independent survey to track status indicators for this resource is being investigated.

The effect of benthic environmental factors on daily catches of South Coast rock lobster have not been investigated to date. However, new research is directed at elucidating these relationships.

Current status

In 1977–1979/80, fishing effort and catches increased above sustainable levels (Figures 61 and 62), and thereafter the

catches declined rapidly to 122 tonnes tail mass (Figure 61). The decline in catches was partly as a result of the withdrawal of the foreign vessels from South African waters in 1976, and also overfishing. By the end of the 1970s, several of the remaining local fishing vessels were forced out of the fishery by low catch rates. Gradual recoveries of catches between 1980 and 1984 and stable catch rates during that time were accompanied by a resurgence of interest in the fishery by fishers who had previously withdrawn. In response to the possibility of overfishing, a TAC was introduced into the fishery in 1984, and quotas were allocated to companies that were active in the fishery. This measure effectively limited the number of participants in the fishery.

The TAC restricted total catches to 450 t tail mass (970 tonnes whole mass) per year (Table 16); fluctuations in the TAC up to 1994 included the addition of 2 t (tail mass) for research purposes in the 1988/89 fishing season, and the addition of 25 t in 1990/91. The latter increase was justified by the inclusion of a previously unfished area off the Eastern Cape coast after 1990. The TAC remained stable at 477 t up to the 1993/94 fishing season.

Resource assessments introduced in 1993–1994 indicated that an annual catch of 477 t could not be sustained. Consequently, a programme of annual TAC reductions was initiated in 1994–1995, reducing the TAC in steps of 25 t per year. The 2001 assessment of the resource indicated that the reductions had, however, failed to impact significantly on the trend of declining abundance.

The exploitable biomass is currently around 30% – and spawner biomass is around 29% – of pre-fished levels.

Ecosystem interactions

There are no major ecosystem issues that require urgent attention in this fishery at present. However, the spatial and temporal distribution of berried females should be investigated to allay concerns regarding the vulnerability of these females under current fishing practices.

Further reading

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