



Oceana Sustainability Report 2022

Status and Management of

West Coast Rock Lobster, South Coast Rock Lobster & Squid



1 West Coast Rock Lobster: TAC determination

The global TAC is divided amongst different sectors each of which is further divided and allocated to the following super-areas:

- Areas 1 and 2 (Port Nolloth and Hondeklipbaai);
- Areas 3 and 4 (Lamberts Bay and Elandsbaai);
- Areas 5 and 6 (Saldanha Bay Area);
- Area 7 (Dassen Island); and
- Area 8+ (Cape Point, and east to Gansbaai).

In recent years the management of the resource has departed from the application of an Operational Management Procedure (OMP) and has used an ad hoc approach that has broadly been informed by a landmark legal case in which the judge affirmed the need for sustainable management of the fishery. DFFE's scientific working group has interpreted this ruling as a requirement that the fishery must be managed on the basis of an ability of the resource biomass to grow above a 2006 reference level.

Over the recent period management deliberations about the resource have become increasingly dominated by consideration of past and likely future levels of IUU fishing. The 2022 deliberations on the 2022/23 TAC have been no exception to this.

The levels of IUU fishing are considered to be composed of a component that is exported and another component which is sold on the local market. The estimates of the export component are based on export/import figures reported to COMTRADE and as analysed and summarized by TRAFFIC. Last year a new approach was developed to estimate the local sales component, and this same approach was re-applied in 2022. This approach involved the compliance data – these are data that are gathered about the levels of policing effort and the scale of confiscations of West Coast rock lobster.

The basic assumption is that the trend in the total amount of IUU in the fishery is given by the statistically determined measure of the 'confiscations/unit of policing effort'. The total IUU is assumed to be comprised of the sum of an export only and a local sales only component. It is assumed further that the export component of IUU is as given by the difference between recorded exports from South Africa and the imports from South Africa recorded by all importing countries. The local sales of IUU are then determined mathematically for each year by selecting values that, when added to the export figures, gives a trend that matches the confiscation/policing effort trend as closely as possible.

For the purpose of projecting into the future it is assumed that the level of IUU is the same as the last available value in the time series.

In 2021, a TAC of 700 MT was agreed for the 2021/22 fishing season. The numerical calculations that supported the 700 MT TAC for 2021/22 fishing season were predicated on the assumption of a TAC of 550 MT for 2022/23 and 400 MT for 2023/24. However it was acknowledged that these levels of 550 MT and 400 MT would be re-examined during 2022 and re-evaluated based on new information gathered since 2021. Nevertheless, the implicit assumption was that the so-called step down to 550 MT and then 400 MT would continue as long as the outcomes that emerge are not inconsistent with the projections carried out in 2021. This point is relevant to the decision to continue with the step down to 550 MT as originally planned.

1.1 Management considerations for 2022/2023

During 2022 new stock assessment calculations and forward projections of resource performance were run using updated results for the following input quantities:

1. Statistically standardized CPUE trends.
2. FIMS estimates of resource abundance.
3. Catch at length information from FIMS and from catches.
4. Growth rate calculations based on the OLSPS Marine moult probability model.
5. Traffic estimates of IUU fishing catches that are exported.
6. Trends in total IUU catches based on confiscations and policing effort data, collectively known as 'compliance data'.
7. Projections from the stock assessment model.

The last of these, the stock assessment based projections showed that under either 550 MT for the future, or a further step down to 400 MT, there was growth in resource biomass between 2021 and 2025, which provides a 550 MT for 2022/23 without breaching the requirements for a sustainable management approach.

As regards the individual indicators, some of these results showed positive outcomes compared to 2021, but some were more negative than expected. On the positive side, the growth rate showed some increase, and the estimated level of poaching was lower than the estimate produced in 2021. Certain areas and fishing methods showed an improvement in the catch rate, while others showed a decline. Similarly, in some case FIMS showed an improvement, elsewhere there was a decline.

As a result of these results a recommendation for a TAC of 550 MT for 2022/23 was made. Note that during these deliberations, the West Coast Rock Lobster Association (WCRLA) resubmitted its proposals that a secondary control measure based on seadays be put in place for the fishery. These proposals are meant to be an addition to the shortened fishing seasons which have been in place in recent years. The intent of the seaday proposals is to put in place enforceable regulations to ensure that fishing vessels do not spend more time at sea than would be required to easily land their quota. As part of its submissions the association proposed a work plan for the implementation of these additional controls that has not yet received support from all parties. These proposals from the WCRLA have the potential to substantially improve prospects for the resource.

The trend in the WCRL global TAC for the period 1991/1992 to 2020/2021 is shown in Figure 1.

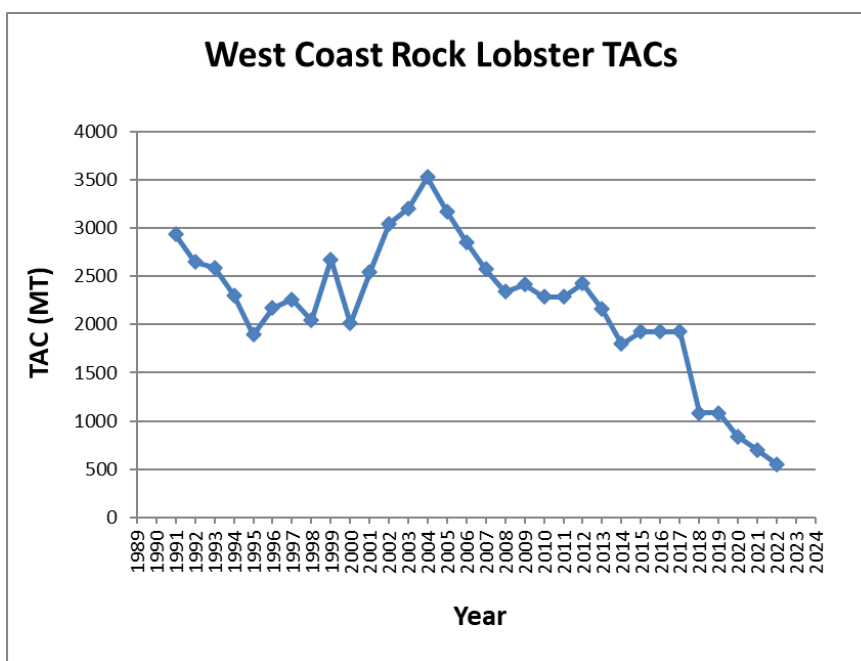


Figure 1. TACs for the West Coast rock lobster resource, 1991/1992 to 2021/2022 fishing seasons. In this plot 1991 refers to the 1991/92 fishing season.

2 South Coast rock lobster: TAC Prospects

Although, like the West Coast rock lobster fishery, also based on the exploitation of a spiny rock lobster species and stock, the South Coast rock lobster is a capital intensive and high-cost fishery, features more commonly associated with a trawl fishery. The SCRL fishery is conducted from 7 vessels which range in length from 30 to 40 metres and deploy between 3500 and 6000 plastic traps per vessel. These plastic traps are deployed along a main line roughly 2 km in length and spaced such that each line carries between 150 and 200 traps. A typical set involves the deployment of 20 such lines and the usual configuration is to deploy two sets of 20 lines which are hauled on alternative days with an average soak time of 48 hours. Fishing depth ranges from 100 to 250 metres. Traps are winched collectively by line. Catch rates in the order of 1 lobster per every three traps per set are typical in this fishery, yielding catch rates in the order of 0.1 kg / trap / pull on a tail weight basis. Crew complements per vessel vary between 25 and 40. The SCRL fishery is therefore a complex and high-cost operation where running a vessel above its breakeven point requires careful management of vessel schedules, the selection of fishing locations, and capital financing.

The South Coast rock lobster (SCRL) fishery is managed by a combination of input and output controls. The output control is a TAC with associated IQs (Individual Quotas), and the input control is a Total Allowable Effort (TAE) which is a limitation on the number of fishing days. The TAC is the primary control measure. The TAE, based on a fishing day allocation, is a secondary measure. Up until the 2015/2016 fishing season, the TAE was designed to be an active constraint on the fishery roughly 1 in 20 years. An important development during 2015 was a revision of the effort controls (TAE) used in the management of the fishery. Up to 2014 the TAE was set on the basis of a 1:40, pool out basis. This means that the effort control, expressed as fishing days, was at a level of “tightness” that only in one year out of 40 would the industry have difficulty landing their TAC, because effort levels were too low. The pool out aspect means that a 10% buffer of fishing days would be held in reserve to assist worthy applicants with additional extra-ordinary effort. This pool amount is added on to the basic 1:40 years calculated number of fishing days. During 2015 as a result of an initiative by DAFF and an agreement between DAFF and the South Coast Rock Lobster Industry Association, the basis for

the TAE was tightened to a level of 1:20 “Pool-In”, where the pool of 10% is subtracted from the basic number of fishing days calculated.

The TAC for the fishery is being managed by means of an OMP in which the TAC is capped at 450 MT, and with an objective to rebuild the spawning biomass by 30% over the period 2006/07 to 2025/26, an increase in the rebuilding amount of 20% used in the previous OMP.

The following data are used in the management of the resource:

- 1) Catch-per-unit-effort – measured as kg tails per trap set
- 2) Catch-at-length data
- 3) Tagging data

The initial plan was that the SCRL OMP would be revised during 2022 and that a new formula would be developed in time to be used to set the 2022/23 TAC. Resource constraints on DFFE and its consultants have however limited the time available to revise the SCRL OMP. As a result industry agreed to implement the prevailing formula for a further year on the understanding that the OMP would definitely be revised during 2023.

2.1 Recent past TAC decisions, and the TAC outcome for 2022/23.

TAC 2019/2020: During 2020 the OMP for the SCRL resource, revised in 2019, was applied. The 2019/2020 TAC advice was for a TAC of 321 MT, and the Minister followed these recommendations and set a TAC of 321 MT tail weight.

TAC 2020/2021: For the 2020/2021 TAC positive trends in CPUE in 2 out of 3 areas, viz. at Area 1E and Area 2+3 (see statistical areas used in the management of the resource in **Figure 3**) resulted in an increase in the TAC to 337 MT.

TAC 2021/2022: Further increases in the CPUE have been experience in the fishery and these are likely to result in a TAC for the 2021/22 season of 354 MT, based on an independent application of the known OMP formula to the known CPUE trends.

TAC 2022/2023: During 2022 the CPUE, catch at size and stock assessment models for the resource were updated. The CPUE data were updated to include the information for the 2020/21 fishing season and this shows a continuation of the very positive trends in CPUE in the fishery. As regards the results from the stock assessments these also continues to show the resource at very healthy levels, with depletions in the order of 41%. As a result of these very good indicators for the resource, the TAC for 2022/23 calculated from the OMP formula was a 5% increase to 372 MT.

Figure 2 shows the TACs since the 1989/1990 fishing season, including the figure of 372 MT for the 2022/23 fishing season.

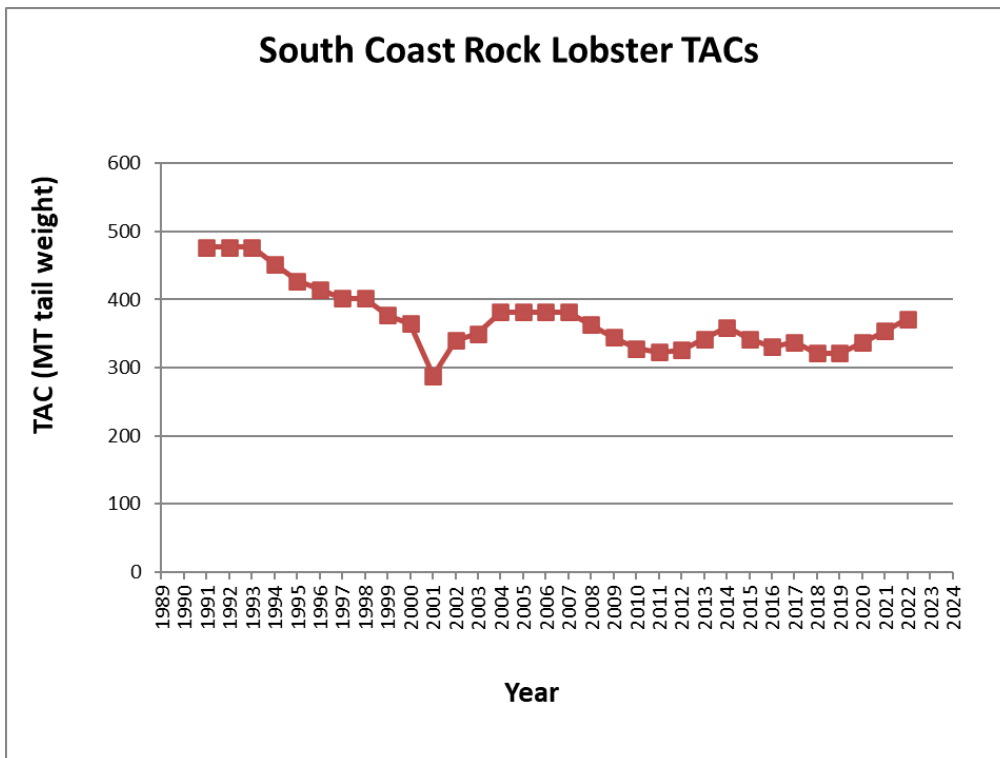


Figure 2. TACs in the South Coast rock lobster fishery 1989/90 – 2022/23.

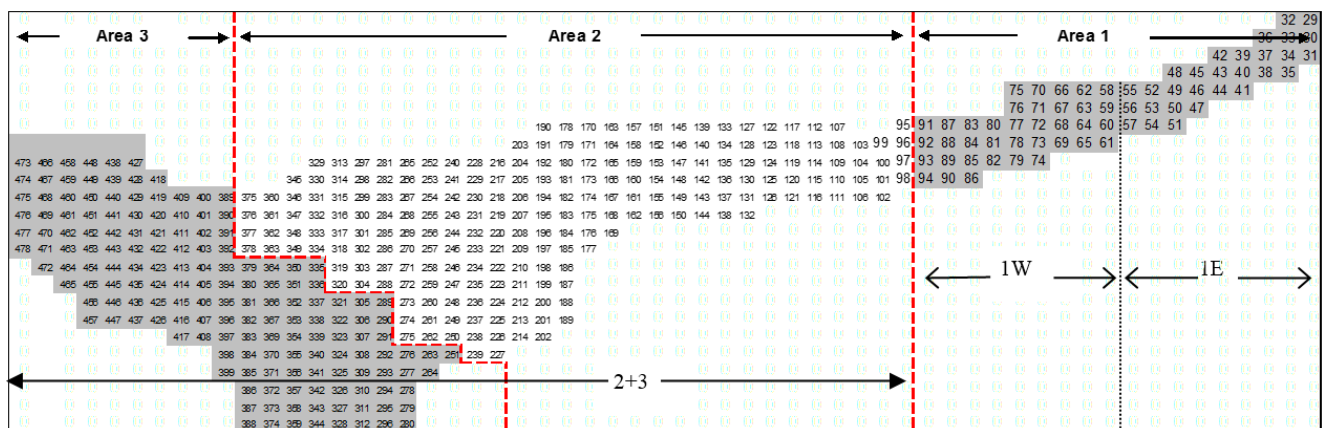


Figure 3. The fishing grounds showing the statistical areas that are used in the formulation of scientific advice for resource management for the South Coast rock lobster resource.

3 Squid jigging industry

The fishery is an effort-controlled fishery, where effort is managed by a combination of vessel and crew allocation permits and closed seasons. A safe effort level is estimated by mathematical models which use the following input data:

- Jig catch data
- Trawl catch data
- Jig CPUE data
- Trawl CPUE data
- Spring survey biomass index from demersal trawl surveys

- Autumn survey biomass index from demersal trawl surveys

The management of the resource was reviewed at an international workshop held at the University of Cape Town in 2012, and the science underlying the management of the resource will be reviewed again in November/December 2022 at an international workshop at the University of Cape Town.

Some of the scenarios submitted to this meeting suggested that the scope for effort increases in the fishery was limited.

The following is a summary of important milestones in the fishery:

- Total effort in the fishery rose between the period 1995 to 2010, while the number of crew permits in the fishery remained unchanged and the number of vessels was reduced. The catch rates peaked in the period 2008 and 2009 as did effort levels despite the existence of an additional closed season of 6 weeks duration in 2008, 2009 and 2010.
- From 2010 to 2013, catch rates declined to a low point. Although it may be that the effort level reached a point at which it impaired the recruitment reproductive capacity of the resource, similar declines in the availability and/or productivity of other resources (notably sole and horse mackerel) at about the same time suggests that the experience in 2013 was more likely an environmentally driven event.

The mathematical models of the resource suggest that the effort level in 2010 was 15%-20% higher than would produce a 5% chance that the 2022 resource biomass would fall less than 20% of the pristine resource biomass. Any appraisal of this result needs to recognise the semi-arbitrary nature of this risk measure. Nevertheless, this was a motivation for proposals for effort reductions in the fishery.

Two approaches to reduce effort were considered:

- **Reduce crew permits only:** One was to eliminate vessels which had previously under-utilised their opportunities (i.e. days at sea) in the fishery. Under this approach the required 15 - 20% reduction in effort (to 250 000 person days) is achieved when the total number of crew permits are reduced by 57%. This calculation assumes that the vessels which remain in the fishery utilise an average number of fishing days as typical for each vessel in recent years.
- **Introduce an additional 4 month closed season, reduce crew permits slightly:** Another approach considered to achieve a target effort level of 250 000 person days was to declare an additional 4 month long closed season, coupled with eliminating vessels which previously underutilised the time available for fishing. Under this approach the number of crew permits are reduced by about 7.6% from 2422 to 2238 crew permits by eliminating vessels that have underutilised seadays in the past. This calculation assumes that the remaining vessel do not increase their seaday usage per month beyond what was typical in recent years for the remaining open period of fishing.

Managers are concerned about latent effort in the fishery which could increase effort levels. The reality of latent effort is however strongly contested by industry representatives, they suggest that the data are either incorrect and/or that the majority of vessels are already turning trips around at close to the maximum level.

It is the view of most scientists that there is over-capacity in the squid sector. In the past this has been the motivation for the implementation of additional closed seasons. More recently DFFE have signalled that they want to put in place a control measure based on the number of person days per rights holder. This will limit effort in the sector in terms of the “number of sea days” per right holder as well as reducing the number of crew in the squid sector in the future.

A document submitted to an international workshop (MARAM/IWS/2022/SQUID/P1, see https://webcms.uct.ac.za/sites/default/files/image_tool/images/302/workshop/IWS2022/MARAM_IWS_2022_SQUID_P1.pdf) notes the following:

“At the present time the fishery is managed under a fixed effort harvesting strategy, with the associated TAE (expressed as person-days and currently set at 295 000 persondays) adjusted every few years in line with assessment updates. However, this effort is not directly allocated amongst right holders. Each commercial vessel has a crew complement, the total of which amounts to 2443 crew for the entire fleet. The reporting of detailed records of the effort expended is often delayed so that a coarse early warning system has been developed; this serves as a basis to curtail fishing as the end of the fishing season approaches it appears that the TAE is likely to be exceeded.”

The rights in this fishery have been under review and this process has culminated in a decision by DFFE. Originally, as part of this review, DFFE had proposed that the effort be apportioned, 75% of the TAE (221250 person days) to the commercial sector, and 25% (73750 person days) to small-scale fishing. Adjustments have however been made and more recently, according to an announcement by the Department of Forestry, Fisheries and the Environment (DFFE), the decision is to give small-scale fishers 15% of the Total Allowable Effort and 85% to the commercial sector. DFFE however wish to review this apportionment annually with a view to moving towards their original proposal for a 25%:75% split.

In addition to the TAE management of the resource, MARAM/IWS/2022/SQUID/P1 notes that

“There are two closed seasons:

- i) A “permanent” closed season of five weeks centred on November, which corresponds to the peak spawning period, the objective of which is to limit the disturbance of fishing on spawning aggregations.*
- ii) An “additional” closed season, typically of three months duration and usually over the April-June period. This became necessary because, given the number of rights allocated in the fishery, the TAE will be exceeded if all rights holders operate at approaching their full capabilities (some vessels operate for up to 220 days per annum). The start of this additional season may be advanced or delayed early in the calendar year if it appears that the TAE is likely to be reached before this date, or alternatively, may not be reached by then.*
- iii) This situation is currently in flux, as 15% of the squid rights (i.e., the number of fishers) have recently been transferred to small-scale fishers. MARAM/IWS/2022/SQUID/P1 2 Assessment Document [SQU”*

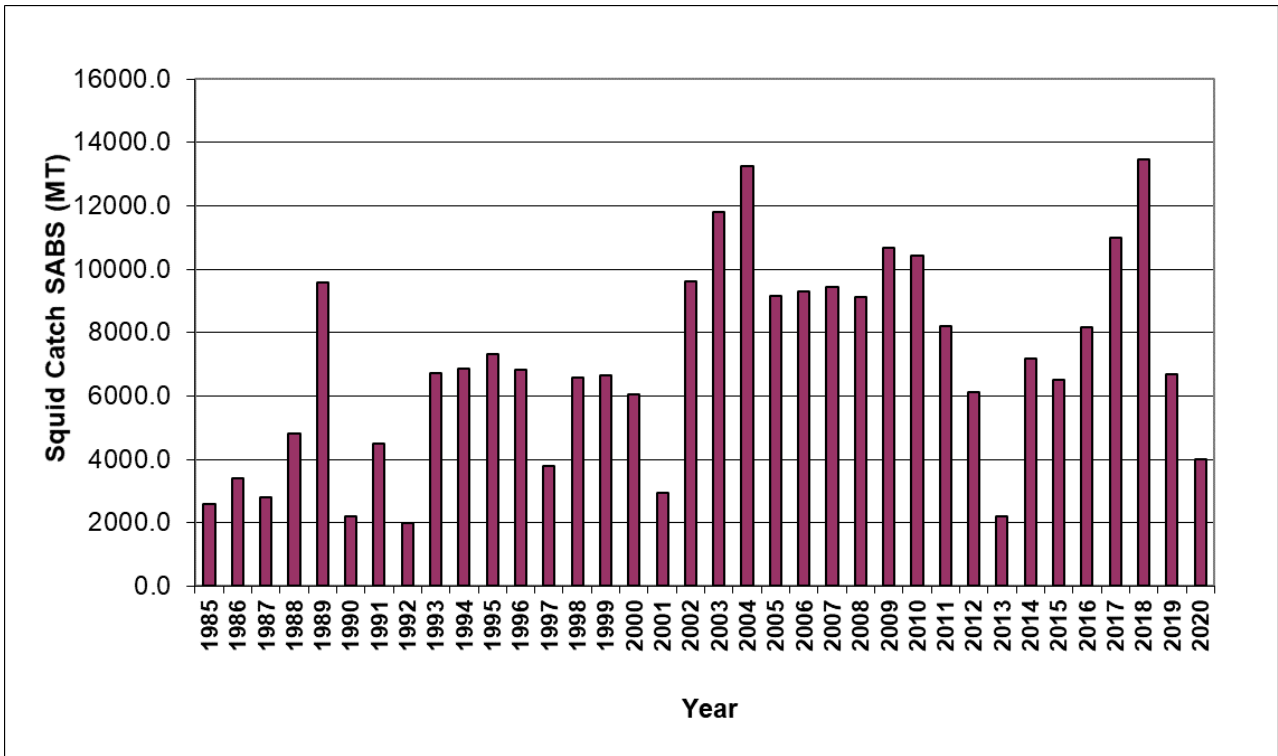


Figure 4. Catches in the squid jigging fishery 1985 to 2020.