Australian Government
Australian Fisheries Management Authority

Seal Management Strategy 2027-2031

Minimising seal interactions with trawl fishing in the SESSF

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Contents

Version and date	Updates	Approver
Version 1 – 15 June 2026		Will Bowman
Version 2 – 22 June 2026	Industry Updates	Will Bowman
Version 3 – 20 July 2026	Executive Updates	Will Bowman
Version 4 – 13 August 2026	Commission Updates	Will Bowman

1 Introduction

The Australian Fisheries Management Authority's (AFMA) approach to managing bycatch is guided by legislative requirements and policy frameworks, including the *Fisheries Management Act 1991* (FMA), the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the Commonwealth Bycatch Policy, alongside AFMA's own Bycatch Principles. Within this framework AFMA aims to minimise fishing related impacts on bycatch species, including protected species, in a manner consistent with the principles of ecologically sustainable development.

Commercial fisheries should not be detrimental to the survival or conservation status of any taxon, and fishers are required to take all reasonable steps to ensure that protected species are not killed or injured.

Under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) all pinnipeds are protected species, and consistent with the EPBC Act and AFMA's statutory objectives interactions with protected species must be minimised wherever practicable. Although this Seal Management Strategy (the Strategy) is primarily directed at interactions involving fur seals, information on interactions with other protected pinnipeds, including Australian sea lions, will continue to be collected and monitored through existing reporting and verification arrangements.

This Strategy has been drafted to pursue the following five overarching principles documented in the AFMA Bycatch Strategy:

- Management responses are proportionate to the conservation status of bycatch species and Ecological Risk Assessment results
- Consistency with Government policy and legislative objectives (including to 'avoid' and 'minimise') and existing national protected species management strategies such as Threat Abatement Plans (TAP) and National Plans of Action.
- Incentives should encourage industry-led solutions to minimise bycatch of protected species, and where appropriate utilise an individual accountability approach.
- Accounting for cumulative impact of Commonwealth fisheries on protected species is accounted for when making management decisions on mitigation.
- Appropriate, and where possible, consistent monitoring and reporting arrangements across fisheries.

Seal interactions with trawl fisheries in the Southern and Eastern Scalefish and Shark Fishery (SESSF) have been recognised for several decades presenting risks to both fishers and seals, including physical injury, operational safety issues, and seal mortality. This Strategy has been developed in accordance with AFMA's bycatch management principles and is consistent with other protected species strategies within the SESSF. The Strategy outlines enhanced monitoring obligations and data collection requirements, based around the use of electronic monitoring (EM) to improve the accuracy of seal interaction data, confirm species identification, and better understand the drivers and circumstances of interactions. Parallel trials such as 'Project Python', and the future exploration of operational and gear-based mitigation options will also be used to inform future management responses.

This Strategy builds on existing management arrangements, utilising expanded EM coverage within the Commonwealth Trawl Sector (CTS) and Great Australian Bight (GAB) trawl sector, and relies on domestic and international research to provide a structured, transparent, and adaptive framework to reduce seal interactions while supporting continued access to the fishery.

2 Strategy objectives

Delivery of this Strategy will be across two stages with an initial focus on EM to improve the accuracy on reported number of seal interactions, assist in species identification and assist identify the drivers and circumstances that lead to seal interactions. The initial stage also includes exploring gear and operational mitigation options. The second stage of the Strategy will introduce a more structured management approach designed to minimise interactions between seals and trawl fishing operations. Based on the outcomes of stage one, state two may include formal adoption of gear mitigation, individual responsibility approaches including operational and behavioural changes of fishers.

Table 1 below contains the four over-arching objectives of the Strategy and the approaches that will be taken to achieve them:

Objectives	***Strategies to achieve the objectives***
• **Improve the accuracy, consistency and timeliness of reporting** • **Minimise the frequency and severity of seal interactions over time** • **Support crew safety** • **Support environmental stewardship and long-term social licence**	- *Develop a robust evidence base on the nature, causes and circumstances of seal interactions to inform future mitigation measures and management responses.* - *Provide education materials and guidance for industry on seal identification and handling procedures.* - *Provide incentives for operators to innovate, develop, and adopt best practice mitigation measures appropriate to their fishing methods and locations and risk.* - *Apply a clear, proportionate and escalating management response where mitigation measures are not being used effectively or interaction rates are not reducing.* - *Ensure mitigation measures do not compromise crew safety* - *Communicate outcomes and progress to demonstrate the industry's commitment to responsible and sustainable fishing practices.*

Table 1. Seal Management Strategy objectives

This approach is consistent with AFMA's statutory objectives to ensure that Commonwealth fisheries are managed sustainably while maximising net economic returns to the Australian community.

Consistent with the Commonwealth Fisheries Bycatch Policy and AFMA's Ecological Risk Management (ERM) framework guidance, initially this Strategy prioritises actions that improve information, strengthen monitoring and incentivise industry-led mitigation before introduction any of formal performance criteria or regulatory controls. This reflects the recognised role of innovation, stewardship and adaptive learning in reducing interactions with protected species in data-limited contexts. In doing so, the Strategy seeks to ensure that any identified mitigation measures are relevant, achievable and proportionate to the identified conservation risk, and do not impose unnecessary restrictions on lawful fishing activity.

3 Context

3.1 Historical context

Seals across the Southern Hemisphere were heavily exploited during the late eighteenth and early nineteenth centuries to supply pelts for the international clothing industry (McIntosh R et al. 2022), and oil production for lighting and heating. It is estimated that more than 1.5 million seals were harvested during this period, including animals killed but not recovered (Ling J. 1999). Despite this extensive exploitation, Australian seal populations demonstrated long-term resilience and began a gradual recovery once commercial sealing ceased.

For Australian fur seals, pup production remained relatively stable at approximately 10,000 pups annually from the 1940s until 1986 (McIntosh *et al.* 2022). Following that time, populations demonstrated sustained recovery and by 2007 pup production had increased to around 21,400 pups annually. As seal populations expanded and recolonised parts of their former distribution, interactions between seals and commercial fishing operations correspondingly increased.

3.2 National approach to seal mitigation

In response to continued interactions, a national approach to mitigating seal interactions with commercial fisheries emerged in the early 2000s. It was recognised that interactions – ranging from bycatch in fisheries to depredation at fish farms – were becoming economically significant, while also raising conservation concerns for protected species. In 2007 the *National Strategy to Address Interactions between Humans and Seals: Fisheries, Aquaculture and Tourism* was released, which set out a coordinated framework to minimise adverse impacts on both seals and marine industries while maintaining sustainable operations.

The national strategy articulated overarching objectives and principles, including to reduce harmful interactions, improve monitoring and reporting, and support research and adaptive management. It emphasised the legal protection of seals while promoting practical mitigation measures, but did not prescribe detailed implementation, leaving operational responsibility for each sector largely to jurisdictions.

The Commonwealth and states developed complementary but distinct management approaches aligned with sectoral risks. In commercial fisheries, mitigation has focused on system-wide measures such as gear modification (e.g. seal exclusion devices), operational changes, spatial or temporal controls, and mandatory reporting and monitoring of protected species interactions.

In contrast, aquaculture sectors often adopt permit-based management frameworks that allow more direct, site-specific intervention. Under Tasmania's Seal Management Framework 2018, operators must first implement exclusion infrastructure and meet minimum standards before accessing additional management actions. Where interactions persist there can be significant risks to worker safety, and additional authorised responses may include deterrent devices (e.g. acoustic crackers, explosive darts etc.) or animal removal (under permit).

A key distinction underlying these approaches is the scale and nature of interactions across sectors. Aquaculture operations, especially finfish farms, can experience frequent, localised interactions due to the persistent attraction of seals to concentrated food sources, sometimes involving repeated visits by individual animals. By contrast, fisheries interactions are typically episodic and occur during fishing operations, often as incidental bycatch or depredation events, and are therefore managed primarily through broad operational controls rather than direct intervention on individual animals.

3.3 Fisheries management context (SESSF)

The SESSF is managed under a statutory Management Plan that consolidates the CTS, GAB, East Coast Deepwater Trawl Fishery, and the Gillnet, Hook and Trap Sector into a single, integrated management framework. Since its establishment, AFMA has implemented a range of structural adjustment measures to align fishing capacity with resource sustainability objectives, most notably for the CTS. A buy-out between 2004 and 2006 reduced the number of trawl boat Statutory Fishing Rights (SFRs) from 118 to 59, and the second in 2023 reduced trawl SFRs from 57 to 36. There were also two voluntary licence surrenders between 2006 and 2023. The number of available trawl boat SFRs has reduced by 70% since 2004, and trawl hours has reduced 60%.

Research has also been undertaken to better understand and mitigate seal-fishery interactions. Early work included a Fisheries Research and Development Corporation (FRDC)-funded project (1999–2001) titled *Seal fishery interactions in the winter blue grenadier fishery: Assessment of fishing practices and Seal Exclusion Devices to mitigate seal bycatch by factory trawlers* investigating seal interactions in the winter blue grenadier fishery, including evaluation of Seal Exclusion Devices (SEDs). Outcomes from this work informed the requirement for affected vessels to install and operate exclusion grids, drawing on comparable mitigation technologies developed for New Zealand sub-Antarctic fisheries. These requirements continue to apply to factory trawl vessels, although interactions persist despite the use of such devices.

Further research has been undertaken to expand mitigation options across different vessel types. This includes the Knuckey, I.A., Eayrs, S. & Bosschieter, B. (2002) assessment of options for reducing incidental catch of seals on wet boats in the CTS, a Natural Heritage Trust-funded project in 2009 assessing SED performance on wet boats, and subsequent FRDC-funded studies.

The 2002 Knuckey *et al* report found that while SEDs showed potential for excluding seals from trawl catches, their use on small fresh fish vessels was constrained by significant operational problems, including clogging of the grid, loss of valuable commercial catch, and practical safety concerns associated with handling large rigid grids on smaller vessels. The report concluded that although grid based SEDs had promise, they were not yet a practical fleet wide solution for the smaller wet boats and that further development of alternative mitigation measures was required.

A 2011 assessment commissioned through FRDC identified significant discrepancies between operator-reported and independently observed seal interactions, highlighting the need for strengthened monitoring and reporting frameworks. This led to the development of a voluntary Industry Code of Practice to minimise interactions with seals, setting down that:

- Offal should be managed in line with rules to mitigate seabird interactions
- Gantry lights should be turned off at night (if it is safe to do so)
- Stickers should be removed from the net before re-deployment
- The duration that gear is in the top 150m of the water column should be minimised
- The vessels should not execute turns when gear is near the surface

Industry training initiatives, co-funded and supported by AFMA and the FRDC, were delivered in 2011 and 2012 aimed at improving operator awareness, safety, and handling techniques, further targeted research on mitigation measures was undertaken in 2012 examining the effectiveness of shortened codends to reduce seal interactions.

In addition to seal-specific measures, AFMA has implemented broader ecosystem-based management controls that contribute indirectly to reducing seal interactions. In 2019, offal retention rules were introduced in the CTS to mitigate seabird interactions. These require that all biological material must be retained when fishing gear is in the water (south of latitude 39 degrees South and west of longitude 147 degrees East, during daylight hours). In 2025, this rule was extended into the GAB fishery and apply to all waters of the GABTS including those north of latitude 38 degrees South. Although this rule is not in place to protect seals, it may help to reduce the attraction to boats by seals.

3.4 Biological and ecological context

3.4.1 Australian fur seal

Estimating true seal population sizes is challenging due to the nature of seals spending large amounts of time at sea. Live pup counts are commonly used as a proxy to estimate seal populations as pups remain ashore for several weeks, are easily distinguishable, and are born during a highly synchronous pupping period (McIntosh et al. 2018). With approximately 90% of births occurring within 3-4 weeks in early summer, colonies are treated as closed populations during surveys, providing the ability to accurately compare estimates between years (McIntosh et al. 2018 Geeson et al. 2022).

Following the protection of seals around the world, populations have been increasing at different rates. The Australian fur seal obtained full legislative protection in 1975 and the population doubled between 1986 and 2002, having a growth rate of 5% per year (McIntosh et al. 2018). Despite doubling in size, the Australian fur seal has had a relatively slow recovery compared to other species around the world, for example that of its conspecific (the Cape fur seal) which rebuilt very successfully and is estimated at 1.7 million individuals. The slow recovery of the Australian fur seal has been attributed to low marine primary productivity in the Bass Strait (Geeson et al. 2022).

Between 2002 and 2007 population growth slowed reaching an estimation of 120,000 individuals (McIntosh et al. 2018), however during this period the breeding range expanded, and it was suggested that the population may have approached carrying capacity in the Bass Strait.

A 2013 survey recorded the first declines in live pup counts since protection, with an annual decline of -4.2%, and an overall 20% reduction in pup abundance (McIntosh et al. 2018 and 2022). The decline was most evident in the larger colonies, however, was marginally offset as a few small colonies had increased live pup counts and three new breeding sites were discovered in the survey (McIntosh et al. 2018 and 2022).

Several theories were proposed as to why the Australian fur seal population declined, including that the population could have reached carrying capacity, and some animals were forced to move away from the larger breeding colonies. However, as the new sites did not balance the loss of pups at the established sites, that other factors may have influenced pup production and/or survival. There was an unusually poor period for food availability in the Bass Strait during 2013, affecting seabirds including the short-tailed shearwater, Australasian gannets and little penguins, all reported reduced breeding success in 2013. Reinforcing the theory that the population may have reached carrying capacity and seal distribution and numbers were responding to environmental factors.

By 2017 the estimated population had declined further to 89,500, representing a 25% reduction since 2007, despite an increase in known breeding sites from 19 to 26. Colony trends varied, with some sites increasing, others declining, and some remaining stable or fluctuating (McIntosh et al. 2022).

Australian fur seal populations are influenced by interacting environmental and anthropogenic pressures. Climate change is a major driver, with storm surges, rising sea levels, and heatwaves inundating low-lying breeding sites and reducing pup survival, while environmental variability can limit prey availability and constrain female foraging success. Human impacts also pose significant risks, including pollution from persistent organic pollutants, polyfluoroalkyl substances (PFAS), and antibiotic-resistant bacteria linked to human waste, all of which can impair health and reproduction. Marine debris, particularly juvenile entanglement, can reduce future recruitment, while fishing activities also contribute to mortality with hundreds of seals caught incidentally each year (McIntosh et al. 2022).

3.4.2 New Zealand fur seal

New Zealand fur seals occur across all southern states of Australia, however their primary aggregation and breeding areas are in South Australia, where they are the most abundant of the three resident seal species. A large proportion of the South Australian population is concentrated on Kangaroo Island and long-term studies of pupping at these sites have been conducted since 1989 by Shaughnessy and Goldsworthy.

Despite its relative abundance, the New Zealand fur seal remains understudied in Australia, with the most recent comprehensive surveys conducted in 2013–2014. These surveys recorded 29 breeding colonies producing 20,431 pups, representing a 3.6-fold increase compared to estimates from 1989–1990 (Shaughnessy et al. 2015). At that time, the total population in South Australia was estimated at approximately 97,200 individuals.

3.4.3 Foraging behaviour and travel distance

Fur seals remain relatively understudied, with only a limited number of studies available on seal foraging and movement behaviour. Most studies have been disproportionately centred on females, as they are the sole providers of parental care for pups, in particular prey selection, foraging techniques, and dive distance.

Female fur seal foraging patterns are seasonal, with shorter trips typically occurring in summer and longer trips in winter (Arnould and Hindell 2001). Additionally, foraging trip duration tends to increase as lactation progresses. Kirkwood and Arnould (2012) reported that female foraging trips averaged 6.1 ± 0.5 days, with more than 90% of individuals travelling up to 150 km from their colony (Kirkwood and Arnould 2012). Females from colonies located closer to productive shelf-edge waters undertook shorter trips, remaining closer to the colony, with less variability in their foraging strategies.

In contrast, male fur seals spend the majority of their time at sea following the mating season (October to December) and frequently visit multiple haul-out sites. Salton et al (2021) found that male Australian and New Zealand fur seals visited up to 26 haul-out sites. The study, which tracked both Australian and New Zealand fur seals from Montague Island in NSW, demonstrated overlap in haul-out site used between species. Notably, one site visited by both species accounted for 59.3% of all visits, suggesting strong site fidelity or particularly favourable environmental conditions (Salton et al. 2021).

Male seals also exhibit high mobility, visiting sites at varying distances from their deployment locations and across multiple jurisdictions, including Victoria, Tasmania, South Australia and New Zealand. Both Australian and New Zealand fur seals are capable of extensive travel; for example, one tracked individual crossed the Tasman Sea from Montague Island to the Nee Islets in New Zealand before later hauling out at Cape Hauy, Tasmania.

Overall, females tend to travel shorter distances and spend less time at sea compared to males, largely due to the constraints imposed by their parental care responsibilities.

4 Seal interaction analysis

Seal interactions occur in the CTS and GAB trawl sectors, however the CTS has significantly higher fishing participation and effort and this is reflected in the number of reported interactions. The mandatory reporting regime offers multiple options for species level reporting of seal interactions, the most commonly used are: Australian fur seal, NZ fur seal, and a generic ‘Seal’ option for when operators are unable to determine which species.

Across both sectors, reported interactions are dominated by Australian fur seals, particularly in the CTS, while New Zealand fur seals are less common. EM has now been implemented across both the CTS and GAB sectors and is expected to improve the accuracy, completeness and consistency of interaction reporting. It is anticipated EM will provide greater confidence in assessing whether current records accurately reflect seal interaction rates across both fisheries.

4.1 Interaction rates and trends

Reported interaction rates differ markedly between the CTS and GAB sectors, with the CTS accounting for the vast majority of recorded seal interactions reflecting the significantly higher level of activity in the CTS.

Total reported seal interactions in the CTS and GAB over the last decade have been variable, ranging from 97 to 224 per year (Figure 1). Australian fur seals were the most commonly reported species, followed by the generic 'Seals', and relatively few New Zealand fur seals. Misidentification also occurs, as shown by six records listing the Antarctic fur seal, which are not typically found around mainland Australia.

A key limitation in interpreting species-specific contributions is the high proportion of unidentified records. Interactions recorded simply as "seals" accounted for approximately 37% (642 interactions) out of all seal interactions. These records are likely attributable to either Australian or New Zealand fur seals, but their lack of species resolution introduces uncertainty and may obscure true species-level trends. In addition, there is limited information available on whether under-reporting is occurring, and if so to what extent. These factors limit confidence in both the absolute number of interactions and the relative contribution of different seal species.

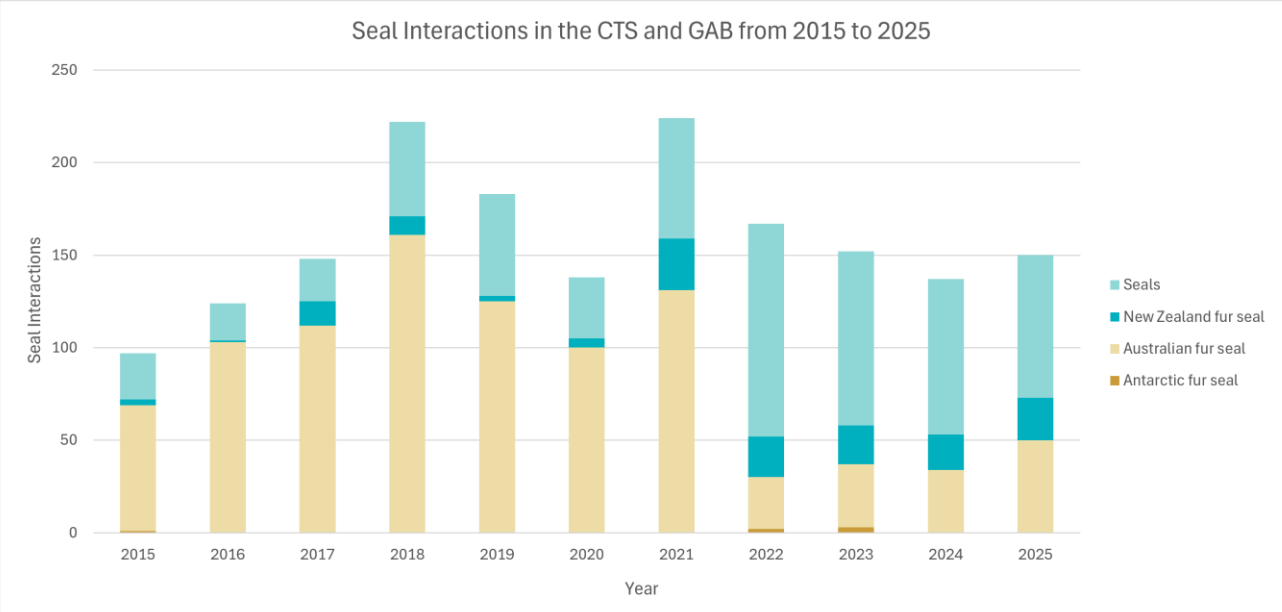

Figure 1. Annual trends in reported seal interactions from 2015 to 2025 across the CTS and GAB regions. Interactions are grouped by species, with the legend differentiating between total seal sightings and species-specific records, including Seals, Australian fur seals, New Zealand fur seals, and Antarctic fur seals.

Reported life status data is recorded for all seal interactions in the CTS and GAB sectors. Between 2015 and 2025 a total of 1,742 interactions were recorded, of which approximately 1,317 (76%) were reported as dead, 423 (24%) were reported alive, one reported as injured and one classified as unknown (Figure 2).

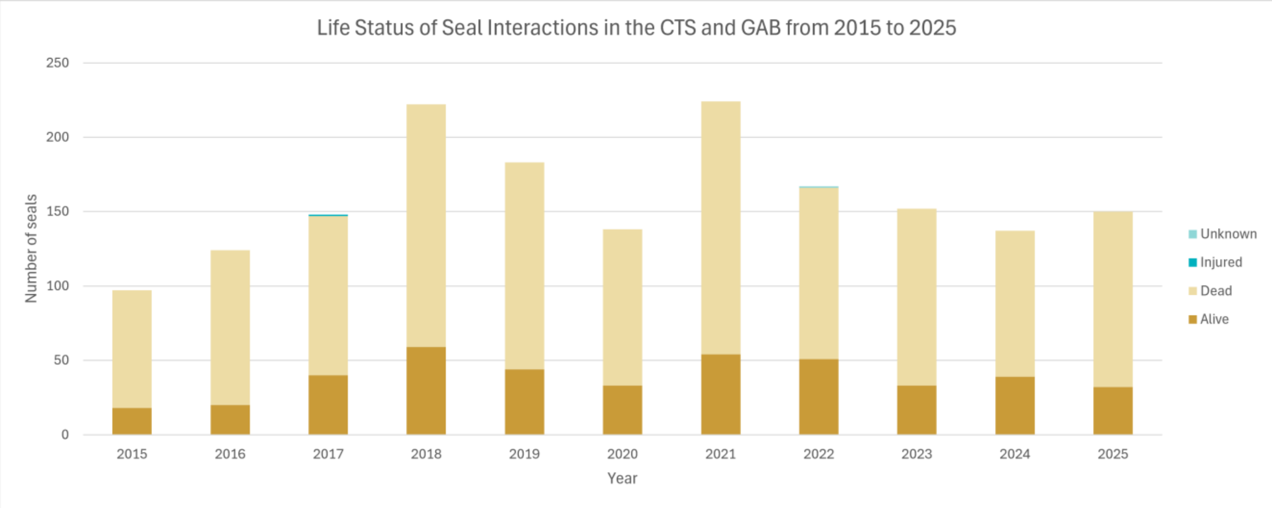

Figure 2. Life status of recorded interactions from 2015 to 2025 in the CTS and GAB. Data are grouped into *dead* (dead, dead and damaged, dead and flexible, dead and in rigour) and *alive* (alive, alive and sluggish, alive and vigorous, alive just) categories.

Overall, this data suggests that seal interactions in trawl operations often result in mortality. However, confidence in both interaction frequency and reported outcomes is constrained by known limitations in logbook data quality.

4.2 Spatial distribution of interactions

Australian and New Zealand fur seal populations are found throughout the extent of the SESSF, distributed across southern Australia with colonies and haul-out sites located along the coasts of Victoria, Tasmania, South Australia, Western Australia and parts of southern New South Wales. Australian fur seal colonies are concentrated around Victoria, the Bass Strait and Tasmania, with a few in South Australia and one in New South Wales (Figure 3). New Zealand fur seals colonies are generally found extending further west into South Australia and Western Australia (Figure 4), however, they can be found using haul-out sites in Victoria and NSW. The precise location and extent of colonies and haul-out sites vary across studies and management sources, making true location of colonies uncertain (these maps are based on the best available information at the time and may not fully represent either Australian fur seal or New Zealand fur seal sites), both seals are likely to overlap with each other in distribution.

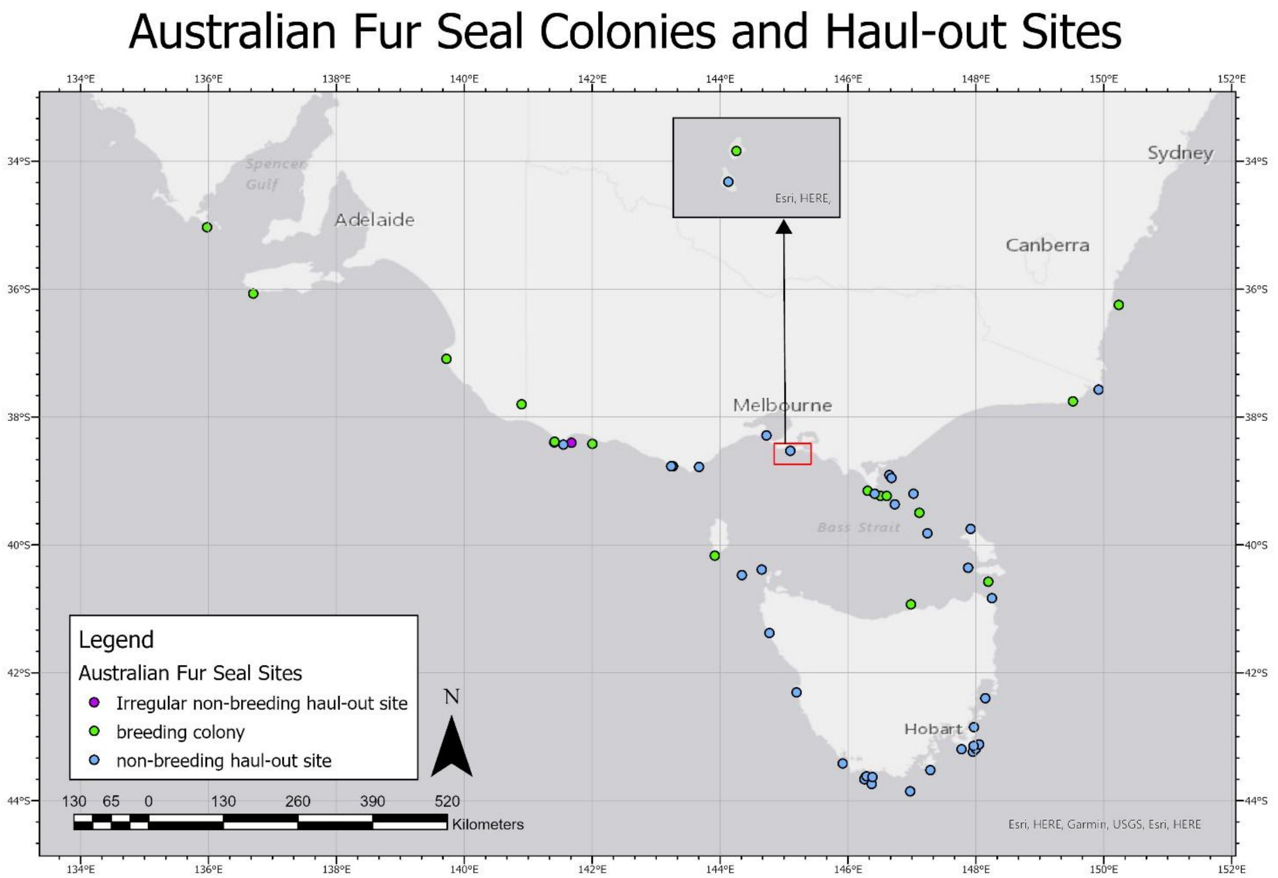

Figure 3. Geographic distribution of Australian fur seal sites across southern Australia. Points indicate known breeding and haul-out locations, providing spatial context for species distribution and habitat use.

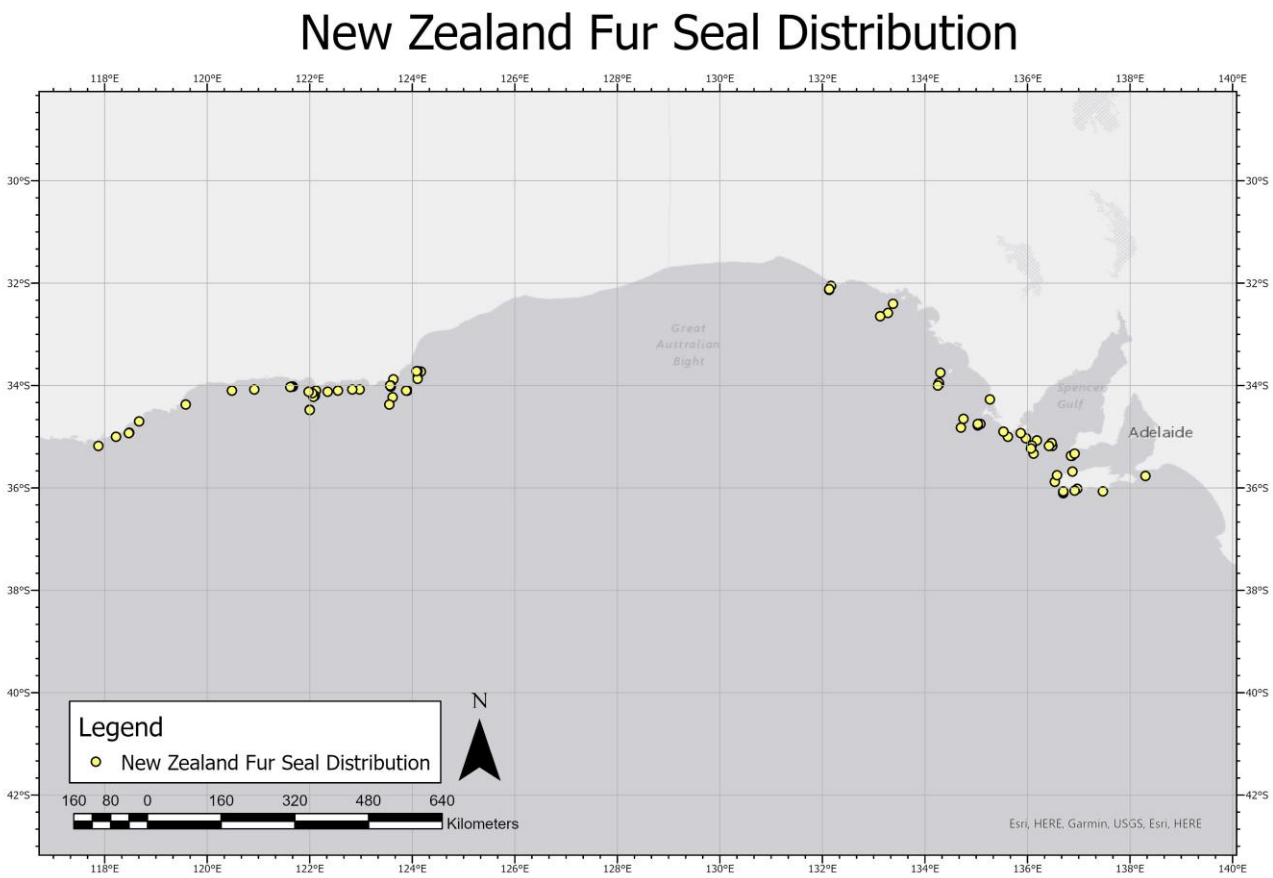

Figure 4. Distribution of New Zealand fur seal occurrences based on CSIRO spatial data. While these data do not distinguish confirmed breeding colonies or haul-out sites, they provide an indication of areas where such sites are likely to occur.

The spatial distribution of recorded seal interactions in the CTS and GAB does not show a clear or consistent relationship with the location or density of colonies and haul-out sites. While there is not a clear relationship between colonies/haul-out sites and interactions, the highest interaction rates occur between sites. This pattern is likely explained by fur seals' capacity to travel over large distances between sites for foraging, leading to interactions occurring while they are in transit or searching for food.

For example, areas where multiple colonies or haul-out sites are located relatively close together do not necessarily correspond to higher numbers of interactions. Conversely, some areas with comparatively fewer nearby colonies report relatively high levels of interaction. Notably, the east coast of Victoria records high levels of seal interactions, despite colonies in this region being more spatially separated than in other parts of the species' range (Figure 5).

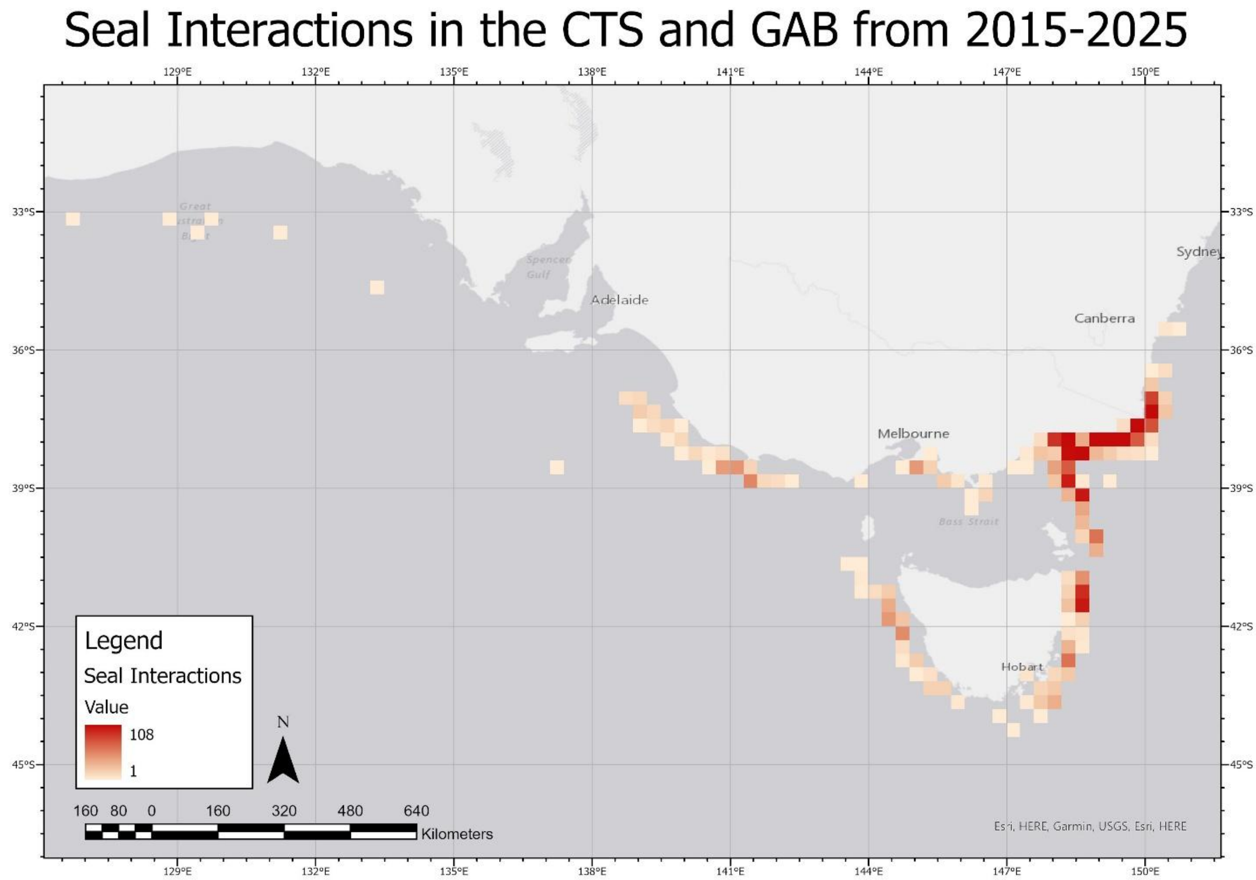

Figure 5. Spatial distribution of seal interactions in the CTS and GAB from 2015 to 2025. Red squares indicate areas with higher numbers of interactions.

Overall, the spatial distribution of seal–fishery interactions across southern Australia does not align in a straightforward way with the location or density of Australian and New Zealand fur seal colonies or haul-out sites. While these sites represent key points of population concentration, the evidence suggests they are only one component of a much broader spatial dynamic. Interaction patterns appear to be influenced more strongly by a combination of ecological and operational factors, including the wide-ranging foraging behaviour of seals, their capacity to travel considerable distances, and a strong relationship with the spatial distribution of fishing effort (section 4.4).

Improved data (via EM) providing more accurate and fine-scale reporting of fishing effort and seal interactions, will help build a clearer picture of the number of interactions and where interactions are occurring.

4.3 Temporal patterns of interactions

No discernible temporal pattern for seal interactions was evident in the GAB, however with the higher level of fishing activity in the CTS, seasonality did appear to influence the timing of interactions.

Interaction rates tend to be higher during winter months (June, July and August) and lower during Summer, Spring and Autumn (Figure 6), despite (on average) winter having the lowest amount of fishing activity (Figures 7 and 8). These patterns may reflect seasonal changes in seal behaviour, including shifts in foraging activity, breeding cycles (when seals can spend large amounts of time on land), or prey availability, influencing the degree of overlap with fishing operations. Temporal trends may also be influenced by changes in fishing activity, including shifts in effort distribution throughout the year, target species availability, and operational decisions.

Peak in interactions occurring during winter suggests that fishing intensity alone does not drive these patterns. Instead, a combination of ecological factors and operational practices appears more likely to influence the occurrence of interactions.

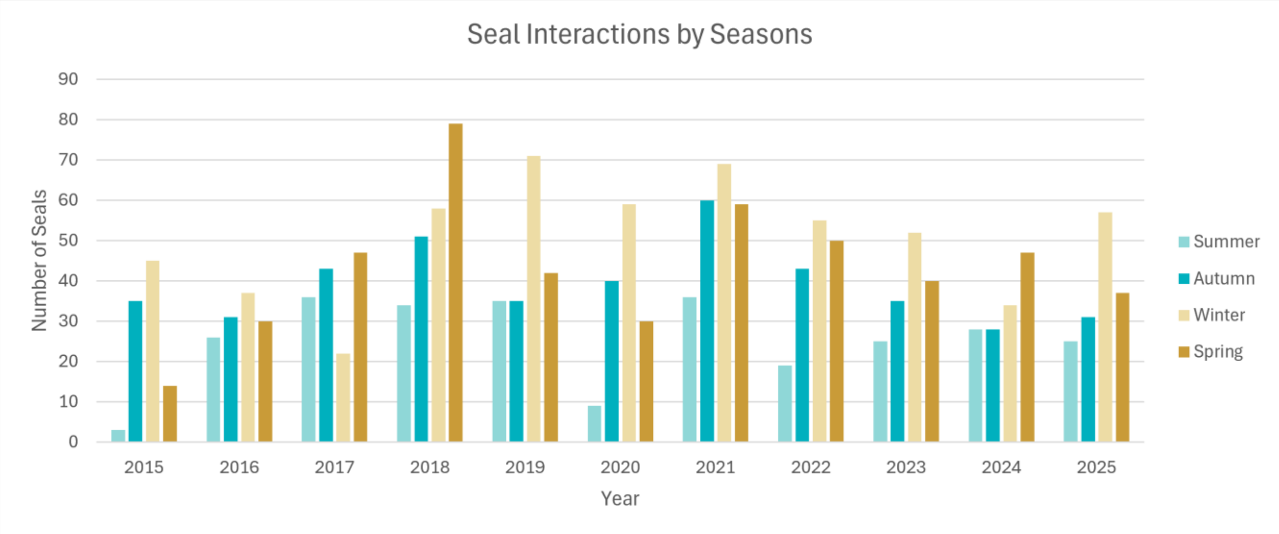

Figure 6. Seasonal distribution of seal interactions across the CTS and GAB between 2015 and 2025. Data are categorised by season to illustrate temporal variation in interaction frequency.

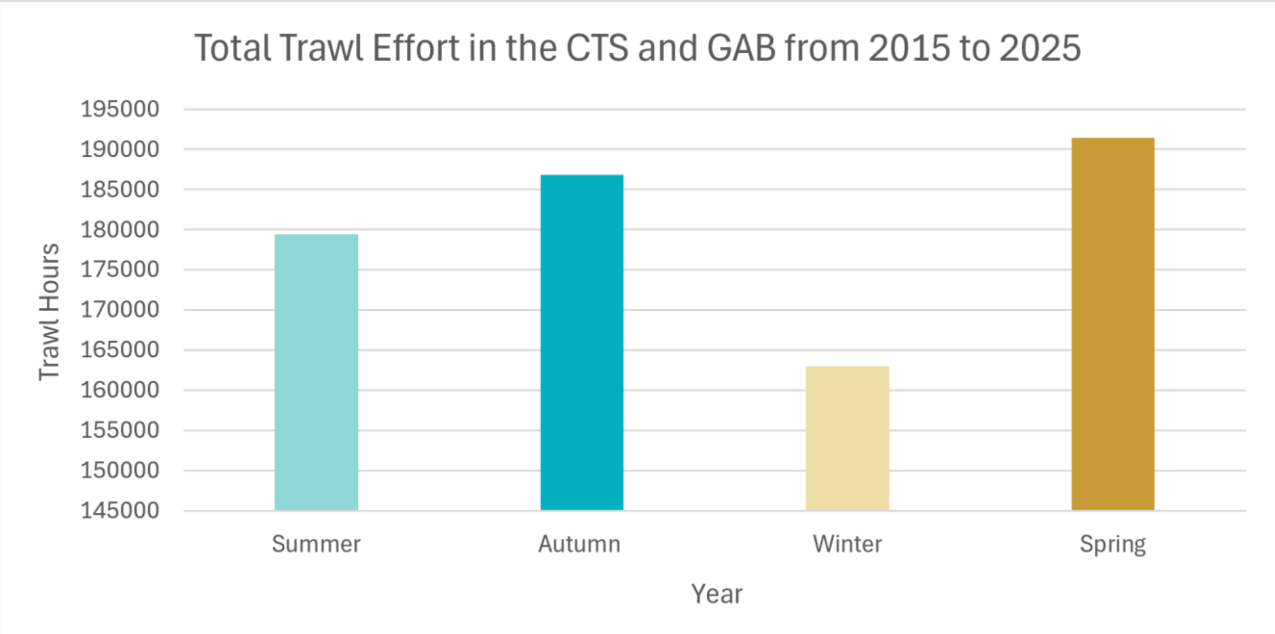

Figure 7. Seasonal total trawl effort recorded in the CTS and GAB sectors from 2015 to 2025.

Figure 8. Seasonal year by year total trawl effort recorded in the CTS and GAB sectors from 2015 to 2025.

4.4 Relationship to fishing effort

Spatial patterns of seal interactions in the CTS and GAB trawl sectors are strongly influenced by the regulatory and operational constraints that shape where fishing can occur. A large proportion of both the CTS and sections of the GAB fisheries are closed to trawling, due to measures in place to protect fish stocks, threatened species, and sensitive marine ecosystems and culturally significant values. Other activities, such as offshore wind, oil and gas, can also further restrict available fishing area, and a result further limit fishing access to portions of the total fishery area, creating a situation commonly referred to as “spatial squeeze” (Figures 9 and 10).

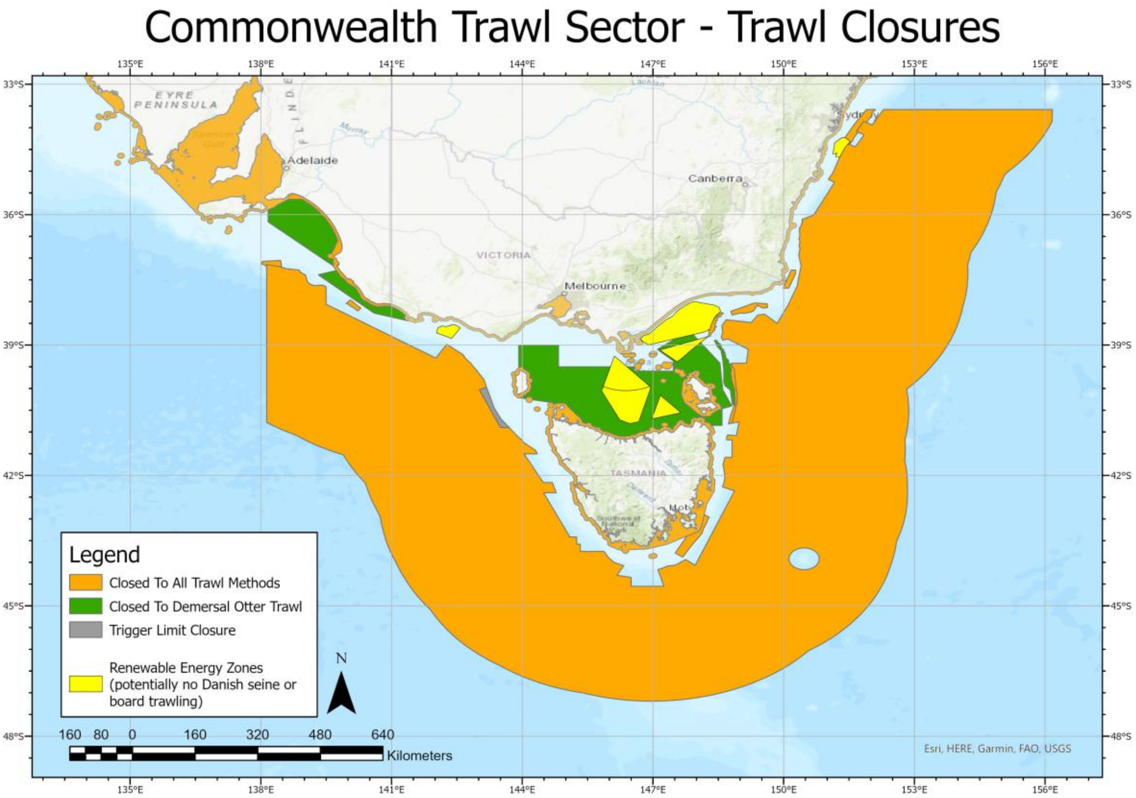

Figure 9. Current spatial distribution of CTS closures. Not all closures were present over the time period of the data used (2015-2025)

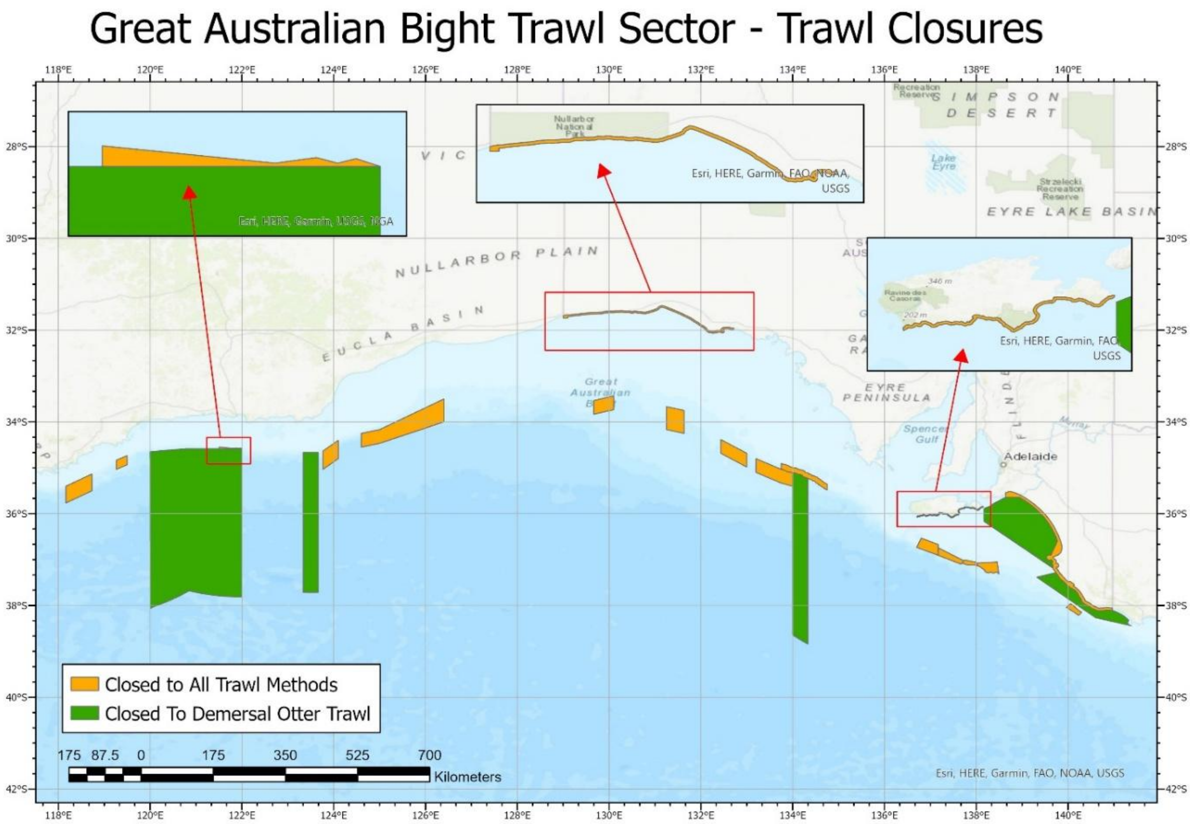

Figure 10. Current spatial distribution of GAB closures. Not all closures were present over the time period of the data used (2015-2025)

When considering raw number of reported seal interactions, the highest numbers generally occur in areas where fishing effort is greatest. However, this relationship becomes more complex when standardising interactions by effort, such as average seal interactions per 1,000 hours of trawl effort.

Interaction rates in the CTS and GAB are highly variable, ranging from approximately 0.06 – 221.92 interactions per 1,000 trawl hours, (total average of 2.4 seals per 1,000 hours) with some areas recording notably higher rates (Figure 11). In certain cases, these elevated rates are driven by very low fishing effort, where even a single seal interaction can result in a disproportionately high rate. For example, Long Bay in South Australia recorded 1 interaction over 4.5 hours, equating to 221.92 interactions per 1,000 hours. Alternatively, high interaction rates in some areas may indicate genuinely elevated interaction risk, potentially reflecting local ecological conditions such as high prey availability.

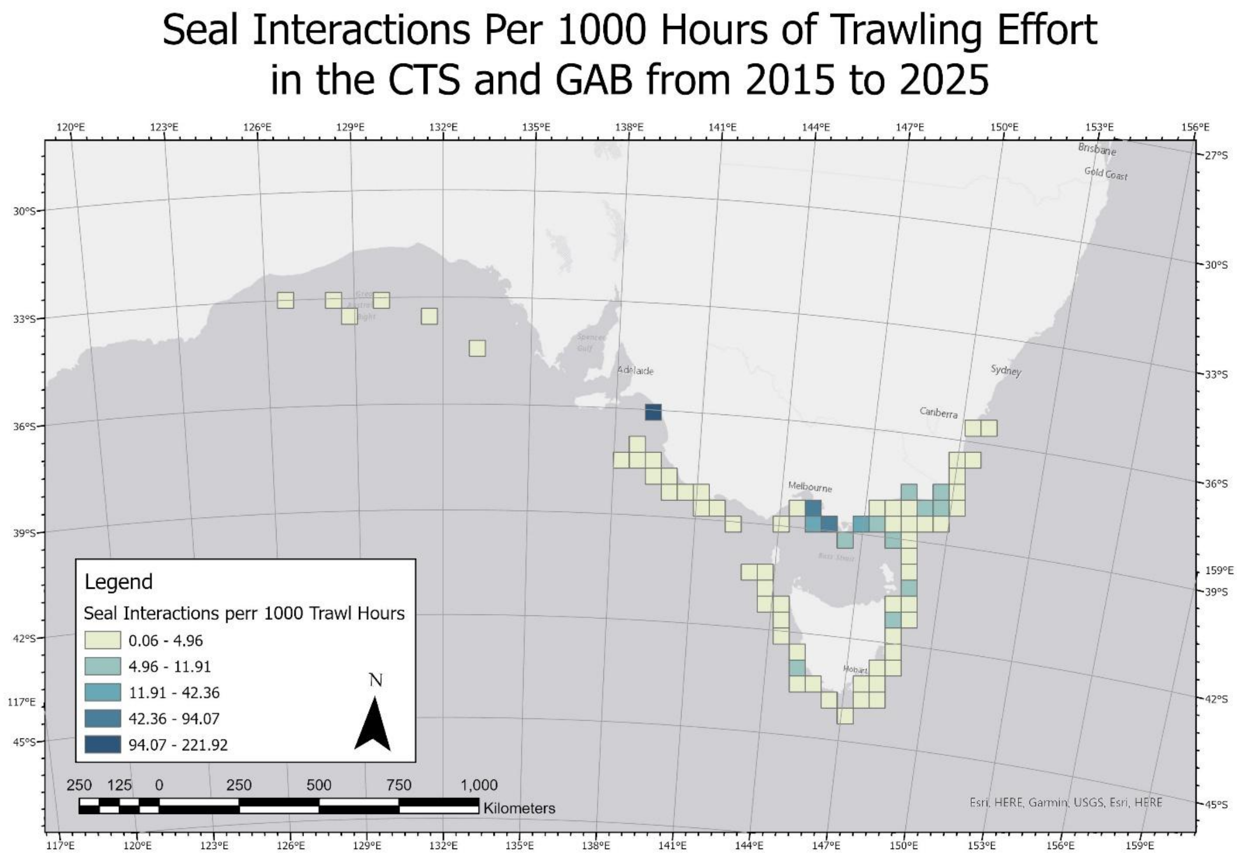

Figure 11. Spatial distribution of seal interactions standardised by trawl effort (interactions per 1,000 hours) in the CTS and GAB from 2015 to 2025.

Interaction rates appear highest in areas between colonies, suggesting that seals are more likely to interact while travelling between breeding sites, haul-out areas, and foraging grounds (Figure 12). For example, elevated interactions were observed near and between major pup production colonies, likely reflecting increased activity as females repeatedly return to provision pups and the juveniles begin to disperse.

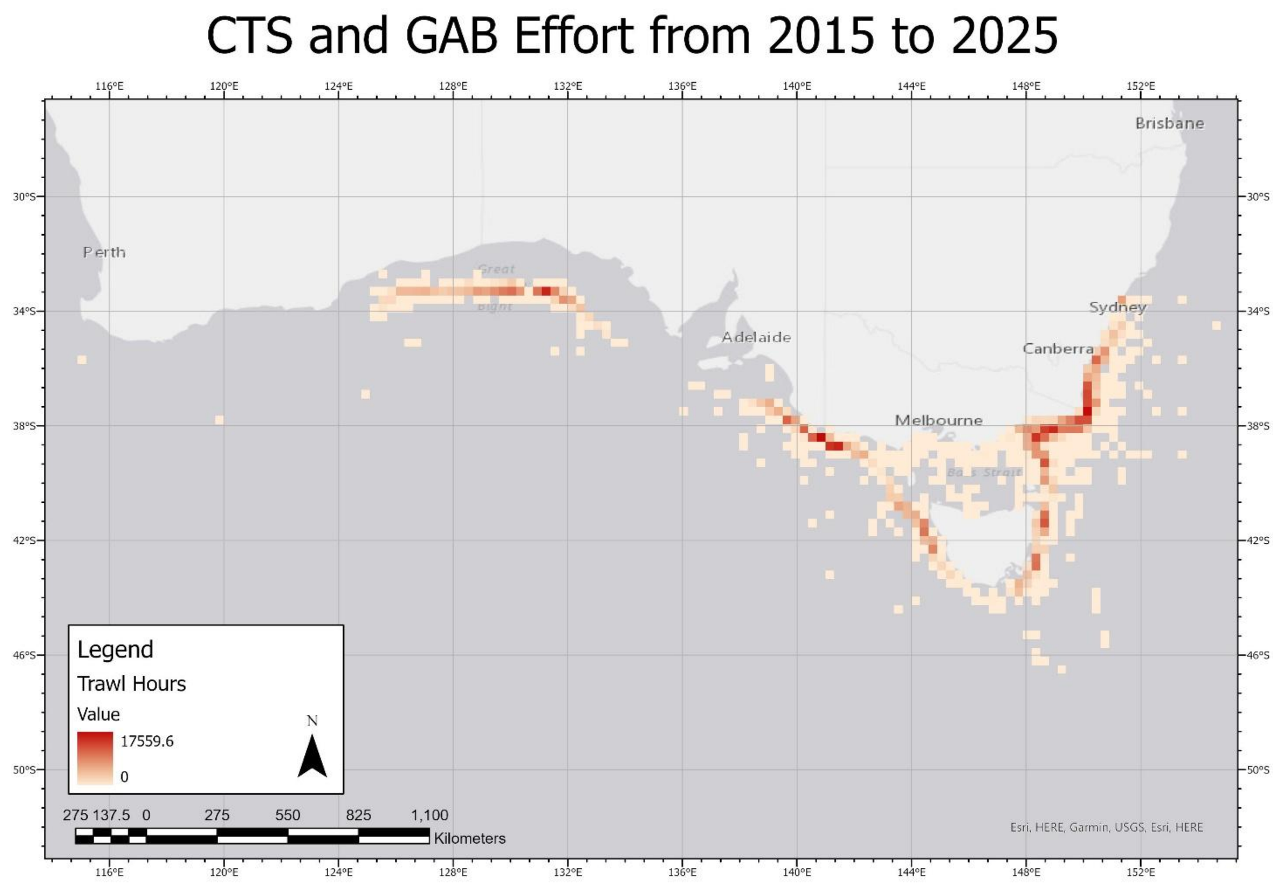

Figure 12. Spatial distribution of trawl effort in the CTS and GAB from 2015 to 2025. Red squares indicate areas of higher fishing effort.

In summary, seal interactions within the CTS and GAB trawl sectors reflect a complex interplay between constrained fishing effort and ecological drivers. While areas of high fishing intensity naturally record more interactions in absolute terms, effort-standardised rates reveal a more nuanced pattern, where elevated interaction levels may arise from either low fishing effort or genuinely higher interaction risk. Importantly, the spatial distribution of interactions appears more closely linked to the Australian fur seal movement and foraging behaviour than proximity to seal colonies and haul-out sites. These findings highlight the need to interpret interaction metrics within both operational and ecological contexts.

5 Management rules and strategy implementation

5.1 Monitoring and verification

Electronic Monitoring was announced in 2021, aiming to reduce red tape, regulatory burden and operating costs, support market access, and minimise environmental impacts. The GAB and CTS trawl fisheries will both have full EM coverage from 1 July 2026.

The SESSF's Gillnet, Hook and Trap Fishery (GHAT) has had EM monitoring since 2015, and this has seen the accuracy of at-sea e-logbook reporting in this fishery increase significantly, particularly for the reporting accuracy of protected species. Improved trawl logbook data (which is expected as EM is implemented) will provide improved confidence in interaction rates at a fine-scale. In turn, this will provide greater clarity on the feasibility of different mitigation options.

Trawl fishing operations overlap parts of the distribution of the Australian seal lion, and while interactions with Australian and New Zealand fur seals remain the primary focus of this Strategy, EM and protected species reporting arrangements will also be used to identify, verify and monitor any interactions with Australian sea lions and other pinniped species should they occur and inform the appropriate management arrangements.

5.2 Protected species reporting

All interactions with seals must be reported in accordance with concession conditions, the *Fisheries Management Act 1991* and the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Operators must complete a Listed Marine and Threatened Species (LMTS) record in the daily fishing logbook for all seal interactions, regardless of the life status of the animal.

To assist fishers to identify the seal species interaction with, the species identification guide can be found on the Protected Species Management AFMA webpage.

5.3 Failure to report

Failure to report seal interactions may result in compliance action under relevant legislation. Where concerns arise regarding non-reporting or under-reporting, AFMA may require increased monitoring, including increased EM review rates or the carriage of an AFMA observer on a fee-for-service basis.

5.4 Strategy delivery framework

This Strategy will be delivered across to stages and is reliant on EM, which has been mandatory in all trawl sectors since 1 July 2026. The timeframe for delivery of Stage 1 is 2027-29, focussing on data collection and trials of a new mitigation device (Project Python). Stage 2 will be undertaken during 2029-31, focussing on formal adoption of effective mitigation measures identified during Stage 1.

Stage 1 - Data collection

The primary purpose of stage one is to improve the quality, consistency and coverage of data on seal interactions in the CTS and GAB, and to encourage industry-led innovation and continuous improvement in mitigation practices, with AFMA's emphasis on:

- improving understanding of the nature, frequency and circumstances of seal interactions through enhanced reporting and electronic monitoring

- identifying operational, spatial and gear-related risk factors that contribute to interactions
- supporting operators to trial, refine and share effective mitigation measures suited to their fishing practices (including funding Project Python, see below).
- building an evidence base to inform future management decisions

Stage 2 – Structured management

In stage 2, information collected during stage 1, i.e. via logbooks, EM and other sources, will be used to base more structured management arrangements to manage seal interactions that may include increased monitoring or verification requirements, spatial or operational measures, gear mitigation/modification requirements, interaction benchmarks for management responses, or individual Seal Management Plans should they be required.

Stage 2 will also outline what actions are to be taken by fishers to minimise seal interactions for example:

- fishing practices (e.g. shooting and hauling procedures, responses to seal presence)
- gear configuration and modifications (e.g. SEDs, codend design, net configuration)
- operational procedures (e.g. offal management, catch handling and discharge)

The future consideration of performance criteria or management responses will be undertaken in consultation with industry, informed by the best available data, and reviewed through the relevant advisory forums to ensure consistency with AFMA's bycatch policy principles of proportionality, cost-effectiveness and ecological risk.

AFMA will review EM footage of any seal interactions to ensure that operators are operating in accordance with requirements, and may require increased monitoring (observer or EM) to confirm appropriate mitigation strategies are being used by the operator.

6 Innovation and adaptive management

AFMA supports and encourages industry-led initiatives to develop, trial and refine practical measures to reduce seal interactions in the CTS and GAB for the duration of this Strategy. These initiatives play a critical role in improving mitigation outcomes, building operational knowledge and informing future management approaches.

Industry-led mitigation projects may include, but are not limited to:

- development and testing of gear-based solutions (e.g. Project Python)
- refinement of fishing practices and operational procedures
- trials of spatial or behavioural avoidance measures
- improvements to offal management or vessel-specific work practices

Projects will be designed to generate credible evidence on the effectiveness, practicality and broader implications of mitigation measures under commercial fishing conditions. Criteria for assessing innovation projects are provided in Appendix 1., however it should be noted that no single criterion is determinative and that outcomes will be evaluated on a weight-of-evidence basis.

6.1 Project python

Project Python will be undertaken during the life of this strategy and is intended to trial an alternative mitigation method to reduce seal bycatch by smaller vessels where it is operationally challenging to use a large rigid SED. Australian fur seals are known to dive to around 200m deep. Most trawling in the SESSF takes place between 200m-700m. The project and gear design is based on the assumption that seals are significantly more vulnerable when the net is being hauled. By constricting the net throat prior to the haul-back period, seals will be unable to enter the cod-end when it is within their depth range.

Project Python has gone through a model design and construction stage, fabricating a 1/20th scale model trawl net and construct an aft trawl net section with towing hoop ½ scale to conduct sea trials. At the time of implementation of this strategy project python is preparing to undertake sea trials on the half scale aft trawl net.

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Appendix 1.

Assessment criteria for industry-led mitigation projects

Reduction in interaction risk	Demonstrated reduction in the likelihood and/or severity of seal interactions under comparable fishing conditions.
Effectiveness under operational conditions	Evidence that mitigation measures are practical and effective when applied during routine commercial fishing operations.
Industry uptake and scalability	Adoption of successful mitigation approaches by other operators or incorporation into Seal Management Plans.
Operational feasibility and safety	Measures can be implemented safely and without introducing unacceptable operational constraints or crew safety risks.
Proportionality and economic viability	Measures do not impose disproportionate costs or operational impacts relative to their conservation benefit.
Contribution to knowledge and understanding	Improved understanding of interaction drivers, including when, where and how seal interactions occur
Repeatability and transferability	Measures can be applied across multiple vessels or operating contexts without substantial modification
Monitoring and verifiability	Outcomes can be reliably assessed using available monitoring tools such as electronic monitoring, logbook data or observer coverage
Consistency with ecosystem objectives	Measures do not result in increased risk to other species or ecosystem components
Contribution to adaptive management	Project outcomes inform future mitigation strategies, management decisions or updates to best practice guidance

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