Australian Government

Australian Fisheries Management Authority

TORRES STRAIT PZJA PROTECTED ZONE JOINT AUTHORITY

TORRES STRAIT PRAWN FISHERY

DATA SUMMARY 2024

Author: Clive Turnbull

Torres Strait Prawn Fishery Data Summary 2024

COPIES AVAILABLE FROM:

Australian Fisheries Management Authority

Box 7051, Canberra Business Centre,

Canberra, ACT 2601 Australia.

OR

Electronically on the Torres Strait Protected Zone Joint Authority website.

Preferred way to cite this publication:

Turnbull, Clive and Cocking, Lisa (2025), *Torres Strait Prawn Fishery Data Summary 2024*, Australian Fisheries Management Authority. Canberra, Australia.

Torres Strait Prawn Fishery Data Summary 2024

If you have any comments or questions relating to this document please contact

Lisa Cocking

Senior Management Officer

Torres Strait Prawn Fishery

AFMA Phone: (02) 6225 5451

Email: lisa.cocking@afma.gov.au

Also note that this Data Summary is available on the PZJA website.

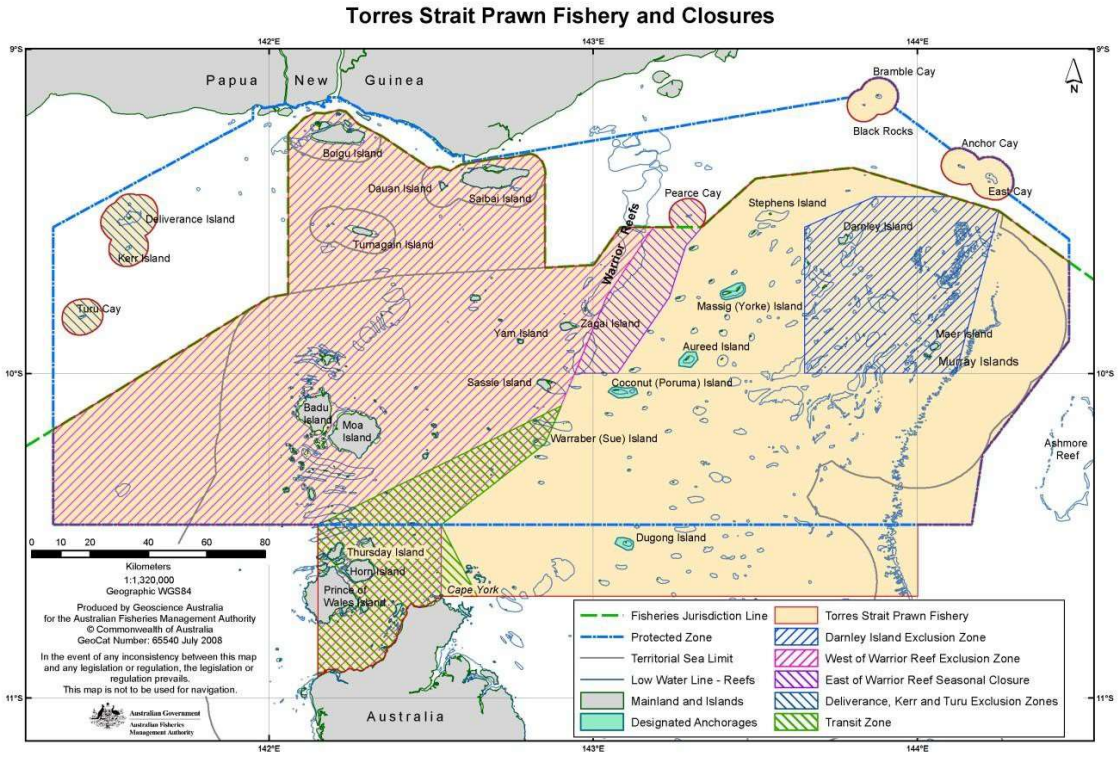
Contents

Introduction

This document summarises catch and effort information for the Torres Strait Prawn Fishery (TSPF) from the 2024 fishing season in comparison to previous years. The data summary is a valuable tool for providing feedback to stakeholders on logbook data received by AFMA. It is also used by the Torres Strait Prawn Management Advisory Committee in guiding management recommendations and discussions. The data summary is sent to license holders annually but is available to all stakeholders via the PZJA website (www.pzja.gov.au).

Thank you to the cooperative trawler skippers for submitting their logbook information, an essential record of catches and effort for the fishery has been built up over many years. This “time-series” of data spans 45 years (1978 to present) and is used to monitor trends in fishing effort, catches and catch rates by area (spatial trends), time (temporal trends) and species. A long time-series with wide variations in fishing effort and catches is needed for stock models. These models are used to estimate the level of fishing effort and catch that will ensure sustainability of the harvest while maximising the productivity of the fishery.

Description of the Torres Strait Prawn Fishery



The TSPF is a multi-species prawn fishery which operates in the eastern part of the Torres Strait. Brown tiger prawns (*Penaeus esculentus*) and blue endeavour prawns (*Metapenaeus endeavouri*) are the key target species. Red Spot king prawns (*Melicertus longistylus*), Moreton Bay bugs (*Thenus spp.*), scallops (*Amusium* spp.), slipper and shovel-nosed lobster (*Scyllaridae*) and squid (*Teuthooidea*) are taken as by-product.

Fishing is permitted in the TSPF from 1 February to 1 December each year and is limited by a Total Allowable Effort (TAE) in the form of fishing days. Individual fishers receive an annual use entitlement which is converted based on the TAE and the number of units of fishing capacity (UFC) they hold. Fishing for prawns in the TSPF occurs at night, primarily using the otter trawl method which involves towing two, three or four trawl nets behind a vessel. However, effort is referred to as fishing days due to definitions in the legislation. The TSPF has restrictions on the quantity of net (governed by head and footrope length) and length of vessel that can be used to operate in the fishery.

For detailed information on the management of the TSPF you can download the TSPF Handbook from the PZJA website (www.pzja.gov.au).

Data Collection Program

Logbooks

The PZJA collect data for the TSPF through both daily fishing logbooks and an automatic Vessel Monitoring System (VMS). The VMS is a satellite monitoring system which collects information on boat locations. A boat is recorded to be fishing if it moves more than 250m at any time between 1800 local time on that day and 0600 on the next day, isn't within a designated anchorage or if a boats VMS system is failing to poll.

VMS was introduced in 2005 and is mandatory on all boats in the TSPF. All TSPF operators are also required to complete a daily fishing logbook, which collects information on the boat, gear, area fishing and catch. The logbooks are available in electronic form, and are the simplest way to submit logbooks, avoiding the need to carry and order paper logbooks and manually submit logbooks which can sometimes be difficult to do at sea. Alternatively, operators can complete the 'Northern and Torres Strait Prawn Fisheries Daily Fishing Log' (NP16), a paper logbook on a daily basis. Both paper logbook and e–log data are included in this data summary.

In 1993, each license holder was allocated a quota of "days of fishing access" which reduced the allowable effort in the fishery greatly. The allocation was based on their prior history of fishing in the TSPF and a manual reporting system was introduced to track the number of days that each vessel was within the Torres Strait Zone and hence deemed as fishing (1993-2004). This system was replaced by a VMS based quota tracking system in 2005 because there was full VMS coverage of the TSPF fleet.

Methods Used for Preparing Data Summary

The data used to prepare this summary is comprised of logbook information (NP16 and e-log) and Vessel Monitoring System data (VMS) data. VMS data is collected using satellite transceivers which can record the area fished and fishing speed, allowing AFMA to deduct days fished and monitor closed areas. This data is stored by AFMA. The data is checked using species and fishing positions constraints to identify any records that have been incorrectly assigned to the TSPF. These records are filtered out and returned to the AFMA data section for checking and correction.

Plots of fishing effort post 1988 are based on the number of daily vessel logbook records (days fished) and the VMS. The "VMS" days fished are slightly higher than the logbook "days fished" because vessels are automatically flagged as fishing when steaming at trawl speed or if the VMS unit fails to poll. Fishers can claim back these fishing days if they verify that they were not fishing but often do not if it is near the end of the season and they still have unused days.

Prior to 1989 there was only partial logbook coverage of the fishery. All NPF endorsed vessels were required to records their catches whilst in the TSPF and a small percentage of the non-NPF operators voluntarily filled out NPF logbooks. The unload records that were collected for the fishery during 1978 to 1988 allowed an estimate of "logbook coverage" for the years of partial logbook coverage (1980-88). This was used to estimate of the total number of days fished and vessel numbers for 1980 to 1988.

Summary of the 2024 fishing season

1. The 2024 fishing effort (1295 logbook, 1310 VMS) was about 1/3rd higher than in 2023 which had the lowest fishing effort recorded since 1989 when logbooks became compulsory for the entire fleet.

2. The annual 2024 tiger prawn catch rate (catch per unit of effort or "CPUE") of 244 kg/d was the highest recorded since 1980 and well above the mean for the years 2009 to 2024 (185 kg/d). Most of the 2024 monthly CPUEs were well above the mean for the years since 2016.

3. The 2024 endeavour prawn CPUE of 71 kg/d was above the mean of 61 kg/d for 2009 to 2024 seasons. The monthly endeavour prawn CPUE was well above average for April but close to average for the rest of the 2024 season.

4. The total or combined prawn CPUE for the 2024 season (316 kg/d) was just below the highest recorded in 2019 of 320 kg/d and well above the 2009-2024 mean of 247 kg/d.

5. The catches of tiger (307 t), endeavour (88 t) and king (2 t) prawn during the 2024 season are below the means for the years 2009-2024 due to low fishing effort and vessel numbers. The CPUE indices suggest the tiger stock was above average in 2024.

6. Comments from industry members at the November 2024 TSPMAC meeting attribute the reduced fishing in recent years to; difficulty accessing mother ships until the arrival of the "Torres Express" mid 2024, and a small over supplied domestic market and a lack of international trading. Although prawn catches and quality were very good in 2024, prices were not.

Fishing Effort and Catch Data for the Torres Strait Prawn Fishery

Total fishing days in the area of the fishery

The total percentage of days used in 2024 (Figure 1) was 19% of the allowable Australian proportion of the effort (6,867 days). Post 2005 the percentage of days used by Australian vessels has ranged from 70% (2007) to 12% (2023). Note that 2006 was the first year where the TAE of 9,200 days applied.

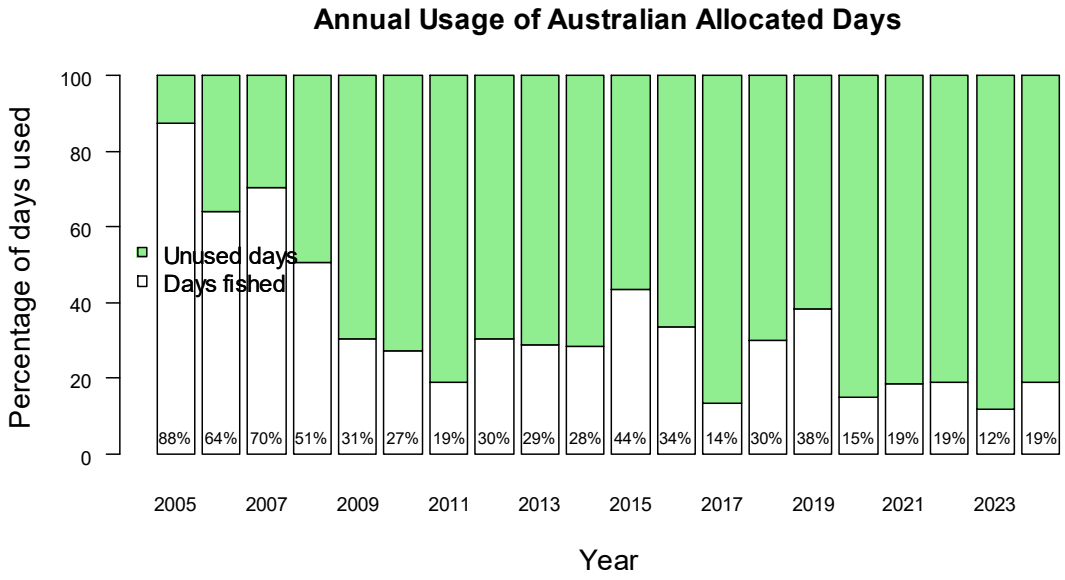


Figure 1 Proportion of the total TSPF Australian allocation (total of 6,867) of fishing days fished in each season since 2005.

Fishing Effort and Catch by year

The historical fishing effort in the TSPF is plotted in Figure 2 as days fished and number of active vessels. Fishing effort increased from an estimated 3000 days in the early 1980's to around 10,000 days during 1991-2003, then decreased to around 2,000 days by 2008. Post 2008 fishing effort has oscillated around 2,000 days with the lowest effort levels occurring in recent years.

Although the number of available licences sits at 60, the number of vessels actively fishing in the TSPF has decreased from 115 vessels in 1989 to around 20 vessels each year over the last decade. The estimated number of vessels active in the fishery prior to 1989 was about 100 vessels (Figure 2), noting that the estimates of total active vessels between 1980 and 1988 are unrealistically high. This is probably a result of the low logbook coverage for those years (<14%) and NPF endorsed vessels fishing Torres Strait for a few days on their way to or from the Northern Prawn Fishery.

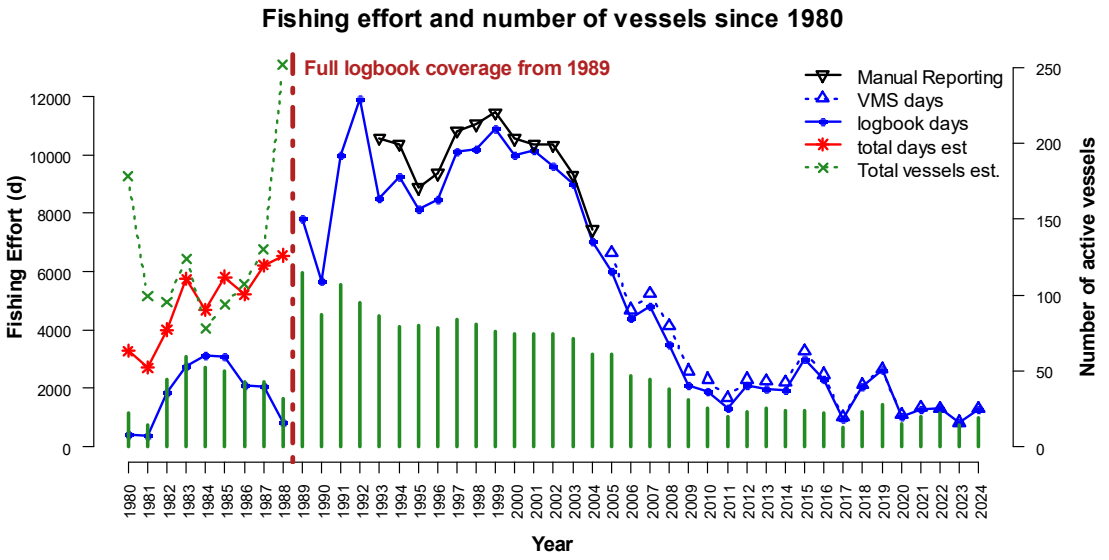


Figure 2 The total days fished in the Torres Strait Prawn Fishery since 1980; displayed as manually reported fishing days (1993-2004), quota usage from the Vessel Monitoring System (2005-2024), logbook days (1980-2024). The "Total Days est." (1980-1988) is from logbook days adjusted by the logbook coverage of the total catch. The green vertical lines show the number of active vessels each year based on the logbook data. The yearly estimates of all active vessels during 1980-88 are plotted as "Total vessels est". Note there was only partial coverage of the fishery by logbooks prior to 1989.

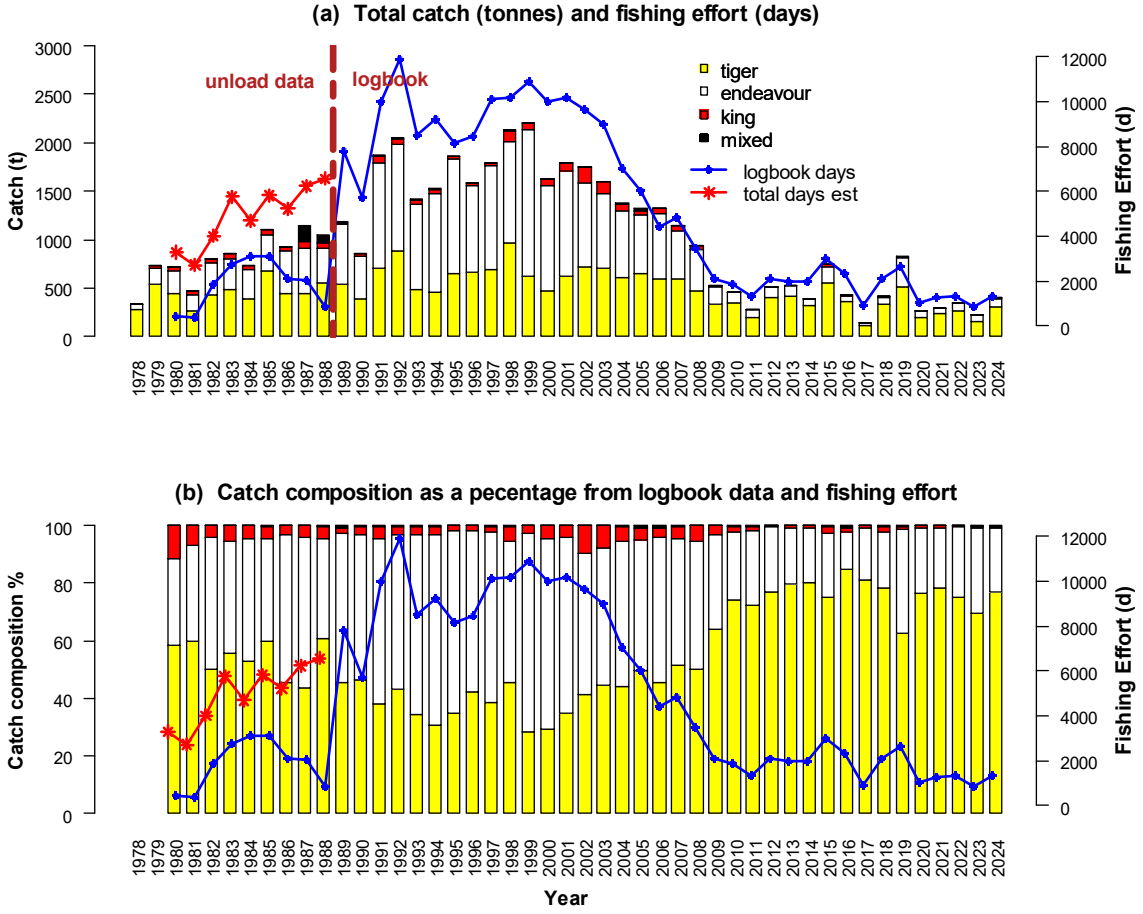


Figure 3(a) Total catch in tonnes from unload data (1978-1988) and logbook day (1989-2024). Fishing effort (days) is from logbook data (1989-2024) and the "total days estimate" for 1980-88 is from logbook

data adjusted by the logbook coverage. (b) Catch composition as a percentage from logbook data. Note that the 1980-1988 logbook data is from a subset of the fleet.

Table 1 Summary of catches and fishing effort over 4 time periods between 1978 and 2023.

Fishing period	Years	Annual fishing effort	Number of vessels	Annual tiger prawn catches (t)	Annual endeavour prawn catches (t)
Developmental period	1978 to 1991	Increased from 3000 to 9978 days	NA	Increased from 340 to 1871 (combined tiger and endeavour)	
Period of highest fishing effort	1991 to 2003	9699 mean (8155:11903)	81 mean (71:107)	668 mean (465:965)	1044 mean (758:1511)
Decreasing fishing effort	2003 to 2008	Decreased from 8996 to 3477 days	NA	Decreased from 712 to 441 tonnes	Decreased from 758 to 420 tonnes
Post 2008	2009 to 2024	1750 mean (824:2998)	22 mean (13:31)	316 mean (111:558)	102 mean (25:298)

Based on the history of fishing effort and catches (Figures 2, 3 and Table 1) there are four distinct time-periods for the TSPF.

1. "Developmental period" 1978–1991; annual fishing effort increased from an estimated 3000 days in the early 1980's to 9,978 days in 1991 when there were 107 active vessels. The prawn catch increased from 340 tonnes of mainly tiger prawn (83%) in 1978 to 1,871 tonnes that was 58% endeavour prawn in 1991.

2. "Period of highest fishing effort" 1991-2003; the mean annual fishing effort was 9699 (8155:11903)[1] days by 81 (71:107) vessels. The mean annual catches were 668 (465:965) tonnes of tiger prawn and 1044 (758:1511) tonnes of endeavour prawn. The annual catches are similar to the Maximum Sustainable Yield (MSY) estimates from stock assessments; 676 (95%CI[2] 523:899) tonnes for tiger prawn (O'Neill and Turnbull 2006) and 1105 (95%CI 1060:1184) tonnes for endeavour prawn (Turnbull et.al 2009). The 2004 tiger prawn stock assessment estimated the fishing effort that should produce a tiger prawn catch of MSY (E_{mys}) as being 9197 (95% CI 7116:11907) days.

3. "Decreasing fishing effort" 2003–2008; fishing effort decreased from 8996 days in 2003 to 3477 days in 2008. At the same time endeavour catch dropped significantly (45%) from 758 to 420 tonnes in 2008. There was a smaller decrease (38%) in tiger prawn catch from 712 to 441 tonnes.

[1] The numbers in brackets are the range; minimum: maximum.
[2] 676 is the mean estimate of MSY and 95% of the model estimates lie between 523 and 899 tonnes i.e. the 95% Confidence Interval

4. “Post 2008” (2009–2024); annual fishing effort averaged 1750 (824:2998) days by 22 (13:31) vessels. The mean annual tiger and endeavour prawn catches were 316 (111:558) and 102 (25:298) tonnes. The 2016 season had the highest percentage of tiger prawn (85%) since 1978 (Figure 3b).

During discussions with TSPF fishers, it was hypothesised that the decline in fishing effort after 2003 was mainly driven by increasing fuel prices and decreasing produce value making it less profitable to fish. The endeavour prawn catch declined first because it is the lower value product and it was more profitable for fishers to target areas of higher tiger prawn CPUE. Although tiger and endeavour prawns are almost always caught together, fishers can target a specific species to a certain degree, as the distribution of prawn stocks on the seabed is “patchy”. There are areas of higher tiger prawn CPUE often only a few miles away from areas of lower tiger prawn CPUE but higher endeavour prawn CPUE. Some TSPF fishers have stated that they “target dollars rather than a particular species”; i.e. the species mix that provides the highest return.

Although the 2016-2024 fishing seasons were a month longer than previous years (1 February season opening instead of 1 March) catches can be directly compared with the earlier years because catch is dependent on catch rates (CPUE) and the total number of fishing days that are utilised by the fleet, and is limited by the same total allowable effort limit, regardless of the season in which it can be caught. Making the season longer does not change the days of fishing access allocated to each vessel, it just extends the time period in which they can catch it.

During November 2005, allowable fishing effort was reduced to implement the Total Allowable Effort (TAE) cap of 9,200 days. The two average rows at the bottom of Table 2 compare catch and effort for the post 2008 years (2009-2024) with the period of highest effort (1991-2003).

In Torres Strait, the prawn harvest is comprised of three main species; the brown tiger prawn (*Penaeus esculentus*), the blue endeavour prawn (*Metapenaeus endeavouri*) and the Red Spot king prawn (Melicertus longistylus). The other tiger, endeavour and king prawn species that are found in the Torres Strait are only a few percent of the catch (Turnbull et. al 2009). King prawn (98% Red Spot king and 2% western king) has always been a small component of the catch and is regarded as a by-product of fishing for tiger and endeavour prawns.

Table 2 Annual catch and effort data for the years 2005-2024. Data includes total catch (tonnes) and catch rates (CPUE as average kilograms per day per boat) both annually as well as the average for the post 2008 years (2009-2024) and the period of highest fishing effort (1991-2003). The numbers in brackets in the average rows are the range; (min: max).

Year	Days fished (logbook)	VMS days fished	Number of Vessels	Catch (tonnes)					Catch rates CPUE (kg/day/ boat)		
				All prawn	Tiger	Endeavour	King	Mixed	All prawn	Tiger	Endeavour
2005	6024	6633	61	1318	655	598	51	14	225	112	103
2006	4410	4685	47	1331	602	672	45	12	308	139	156
2007	4833	5253	44	1152	594	503	49	5	244	126	107
2008	3479	4127	38	942	472	420	48	2	277	139	124
2009	2107	2599	31	528	338	173	16	1	258	166	84
2010	1886	2309	25	465	344	110	9	2	253	187	61
2011	1306	1663	20	282	203	73	4	1	221	160	58
2012	2082	2310	23	517	398	115	3	0	253	195	58
2013	1992	2240	25	526	419	103	4	0	270	215	57
2014	1956	2203	24	393	315	76	3	0	205	164	40
2015	2998	3263	24	743	558	166	17	2	252	190	57
2016	2324	2472	22	432	366	56	5	5	191	162	30
2017	935	1004	13	137	111	25	1	0	152	123	31
2018	2078	2135	23	420	329	81	6	3	206	162	41
2019	2629	2652	28	825	514	298	11	2	320	200	117
2020	1037	1087	15	265	202	60	2	0	261	200	59
2021	1285	1336	20	297	233	62	3	0	236	185	49
2022	1303	1314	22	353	264	86	2	0	277	207	70
2023	824	828	14	228	158	68	1	1	282	196	86
2024	1295	1310	19	398	307	88	2	1	316	244	71
Average 2009-2024	1750 (824-2998)	1920 (828-3263)	22 (13-31)	425 (137-825)	316 (111-558)	102 (25-298)	5.6 (1-16.8)	1.2 (0-4.5)	247 (152-320)	185 (123-224)	61 (30-117)
Average 1991-2003	9707 (8158-11906)	NA	81 (71-107)	1785 (1416-2202)	668 (465-965)	1044 (758-1511)	70 (25-165)	4.1 (0.02-11.7)	190 (167-234)	71 (49-98)	111 (87-149)

CPUE, Catch and Stock Biomass

Catch Per Unit of Effort (CPUE or Catch Rate) is an indication of the numbers of prawns on the seabed. CPUE is measured as the average “kilograms of catch per boat day of fishing” (kg/d). Note that for this report the small percentage (3-10%) of daily vessel records that are flagged as representing a partial day of fishing (hours trawled < 9) are excluded. In addition, for the individual species CPUE’s records with zero catch of that species are also excluded. Therefore, the CPUE’s presented in the figures and tables are slightly different to just dividing the total species catch by the total days fished. This was done to ensure the CPUE more accurately reflects the stock size or biomass of prawns on the seabed.

Although generally a high CPUE indicates a large prawn biomass and conversely, low CPUE a small prawn biomass; there are other factors that can impact on the CPUE of an individual vessel in addition to prawn abundance. The main factors are; vessel size, engine power, type of nets, time of the year, moon phase, area within the fishery, fisher experience. The standardised CPUE used in the stock assessment models are slightly different to those presented in this data summary because they are adjusted for the factors that can affect individual vessel catch rates.

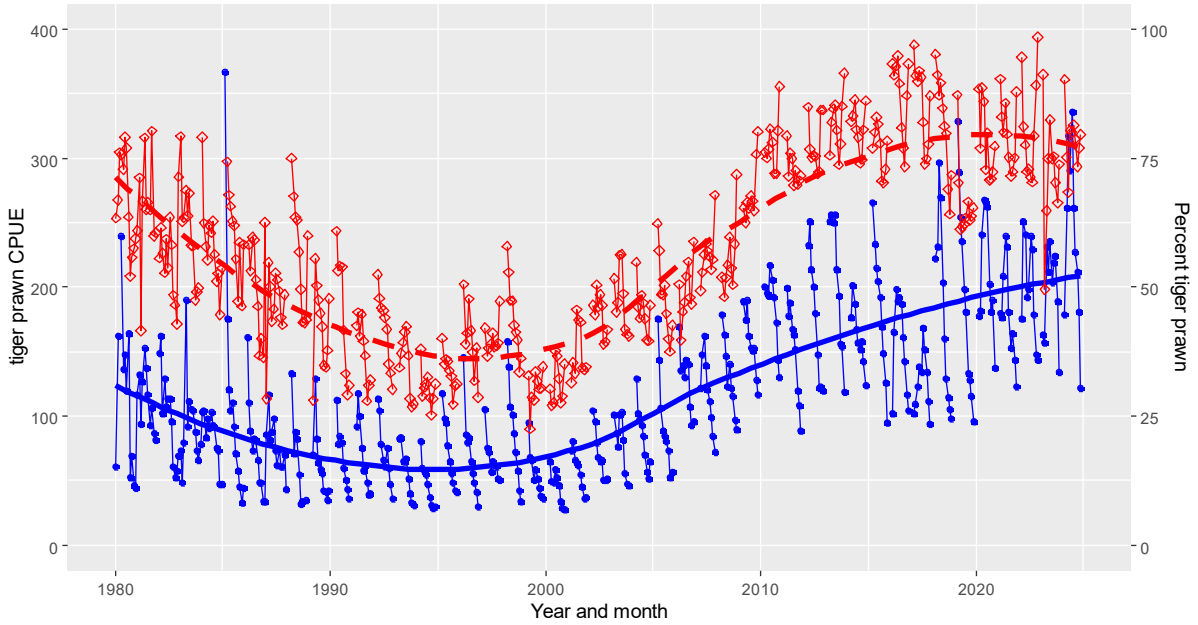


Figure 4 Tiger prawn CPUE 1980 to present and the percentage of tiger prawn in the catch. The blue dots and lines are the mean year and month tiger prawn CPUE and the thick blue line is the trend in the data. The red circles and lines are the year and month mean percentage of tiger prawn in the catch and the thick dashed red line is the trend.

Figures 4 and 5 show the year and month time-series of CPUE data for tiger and endeavour prawns from 1980 to the most recent fishing season. This is the data used in the stock assessments after adjusting for changes in the fishing power of the fleet. The years 1980-88 are based on partial logbook coverage and from 1989 onwards, full logbook coverage of the fleet.

The blue dots and lines in Figures 4 and 5 show the year and month mean CPUE values for tiger and endeavour prawns respectively. In general, CPUE is highest at or near the start of each season and lowest at or near the end of the season. The gaps between the line segments are the seasonal closures. The trend line for tiger prawns (Figure 4 thick blue line) shows the decline in CPUE as fishing effort increased to a high level during the 1990's then the increase in CPUE as effort decreased. In Figure 4 the red circles and lines show the percentage of tiger prawn in the catch for each year and month. The red dashed line is the trend line through the year/month tiger prawn percentage. The percentage of tiger prawn in the catch was lowest when the tiger prawn CPUE was lowest and vice versa.

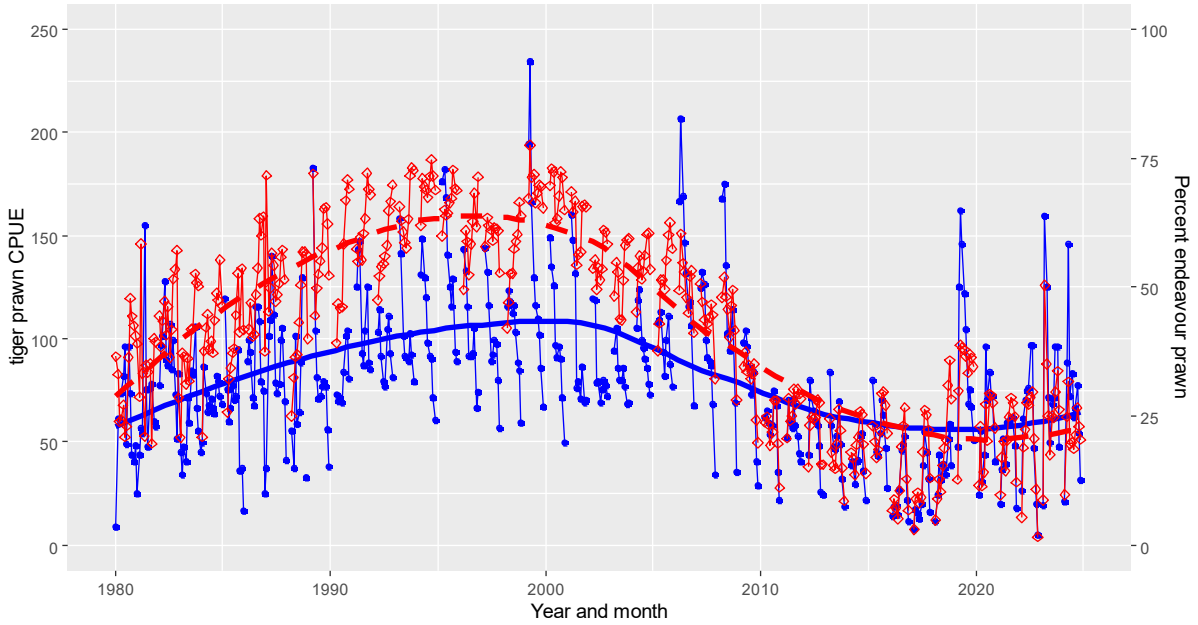


Figure 5 Endeavour prawn CPUE 1980 to present and the percentage of endeavour prawn in the catch. The blue dot and lines are the mean year and month endeavour prawn CPUE and the thick blue line is the trend in the data. The red circles and lines are the year and month mean percentage of endeavour prawn in the catch and the thick dashed red line is the trend.

In contrast to tiger prawn, the trend in the year/month endeavour prawn CPUE was highest during the 1990's and the current endeavour prawn CPUE is similar to the early years of the fishery (Figure 5). The percentage of endeavour prawn in the catch was also highest when the fishing effort and endeavour prawn CPUE were highest. These trends in the tiger and endeavour CPUE and the percentages of tiger and endeavour prawn are partly due to changes in the way that fishers have targeted these two species as fuel and species beach prices changed over time.

Figures 6 and 7 show the annual tiger and endeavour prawn CPUE's for the years of full logbook coverage (1989 to present) compared with the annual fishing effort and catch. The box and whisker plots show the distribution of the individual daily vessel catch within each year and the width of the rectangles indicates the number of records for each season. The rectangles for the years 1991-2003 are wider due to the higher level of fishing effort.

The “red” trend line fitted to the 2009-2024 tiger prawn CPUE’s (Figure 6a) is roughly double the CPUE for 1991-2003 (green line). During the period of highest fishing effort (1991-2003), tiger prawn CPUE (Figure 6(a)) was variable but there is no overall upward or downward trend in the CPUE data as indicated by the green trend line for the year’s 1991-2003 in Figure 6.

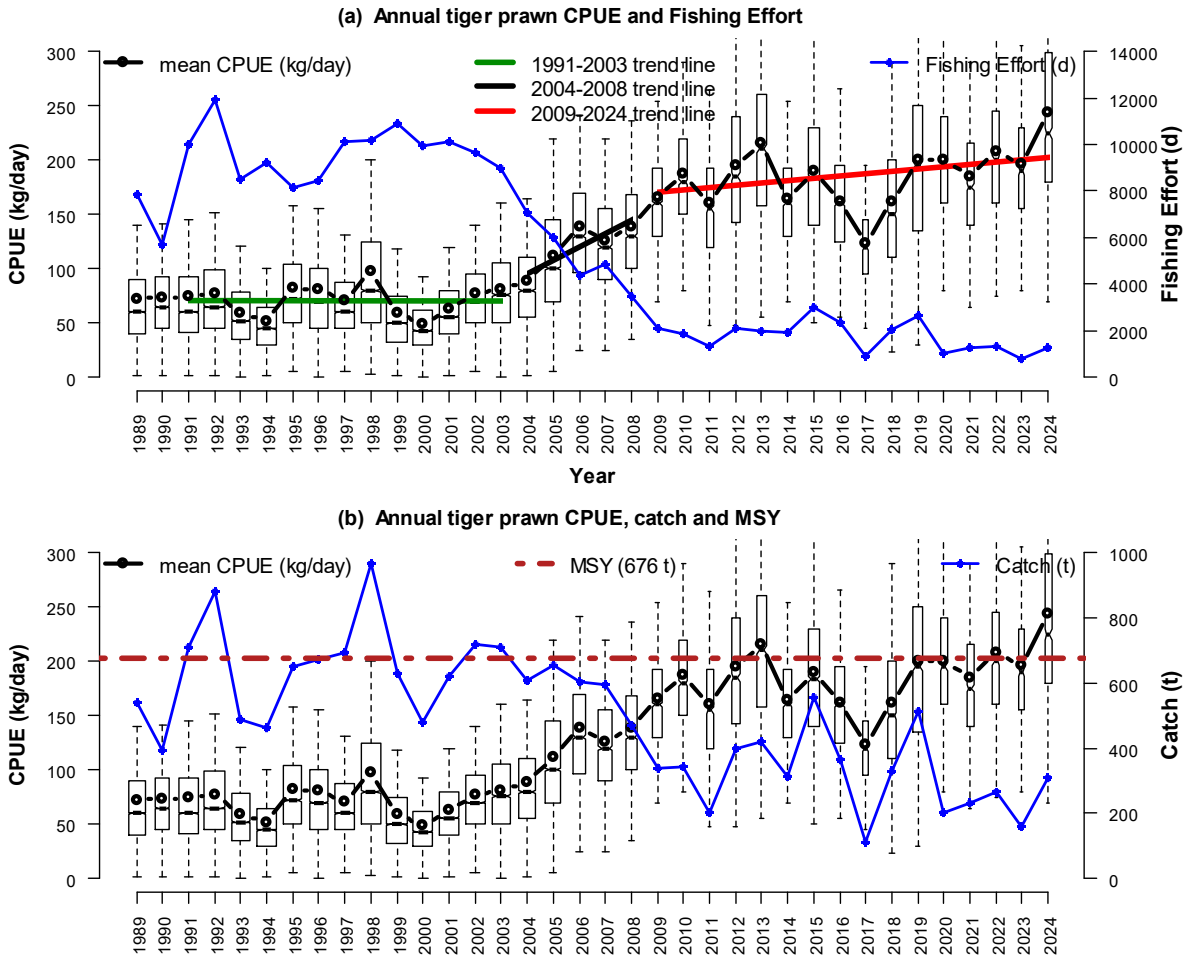


Figure 6 Tiger prawn catch rates (CPUE) as kilograms per vessel per day fished (kg/d) compared with (a) fishing effort in days and (b) catch in tonnes. The boxplots show the range of daily vessel CPUE’s for each year. The median CPUE is indicated by notch and line near the middle of the boxes and black line with circles is plot of the mean (average) CPUE for each year. Fifty percent of the records are within the rectangles. The “whiskers or dotted lines” extending from the rectangles show the overall range. The width of the rectangles indicates the number of records for each season. As a result, the rectangles for the years 1991-2003 are wider due to the higher level of fishing effort.

During the years of decreasing fishing effort (2004-2008) the trend in CPUE was upward. This is most likely due to the combined effect of fishers targeting tiger prawn in preference to endeavour prawn and the higher abundance of tiger prawn due to the decrease in fishing effort. This is supported by stock assessment results which indicate that the tiger prawn biomass was increasing during 2001-2006, was at a higher level than during the 1990s and was above Bmsy (The biomass that supports Maximum Sustainable Yield (MSY)).

During 1989-2008 tiger prawn catch varied around the 2004 (675t) and 2019 (617t) estimates of MSY with the higher catches generally occurring in years of higher CPUE and the lower catches in years of lower CPUE (Figures 6b). After 2008 the tiger prawn catch was below MSY and varied around a mean of 317 tonnes which is about 1/2 of MSY.

In contrast to tiger prawns, the CPUE for endeavour prawn in most seasons' post 2008 has been lower than during the years 1989 to 2008. Endeavour prawn catch (Figure 7b) oscillated around the estimate of MSY (1105t) during the years of high fishing effort, and then decreased as effort decreased. The decrease in endeavour prawn catch is a result of the decrease in fishing effort to 1/5th of what it was during the high effort years (Figure 7a) and the decrease in endeavour prawn CPUE post 2008.

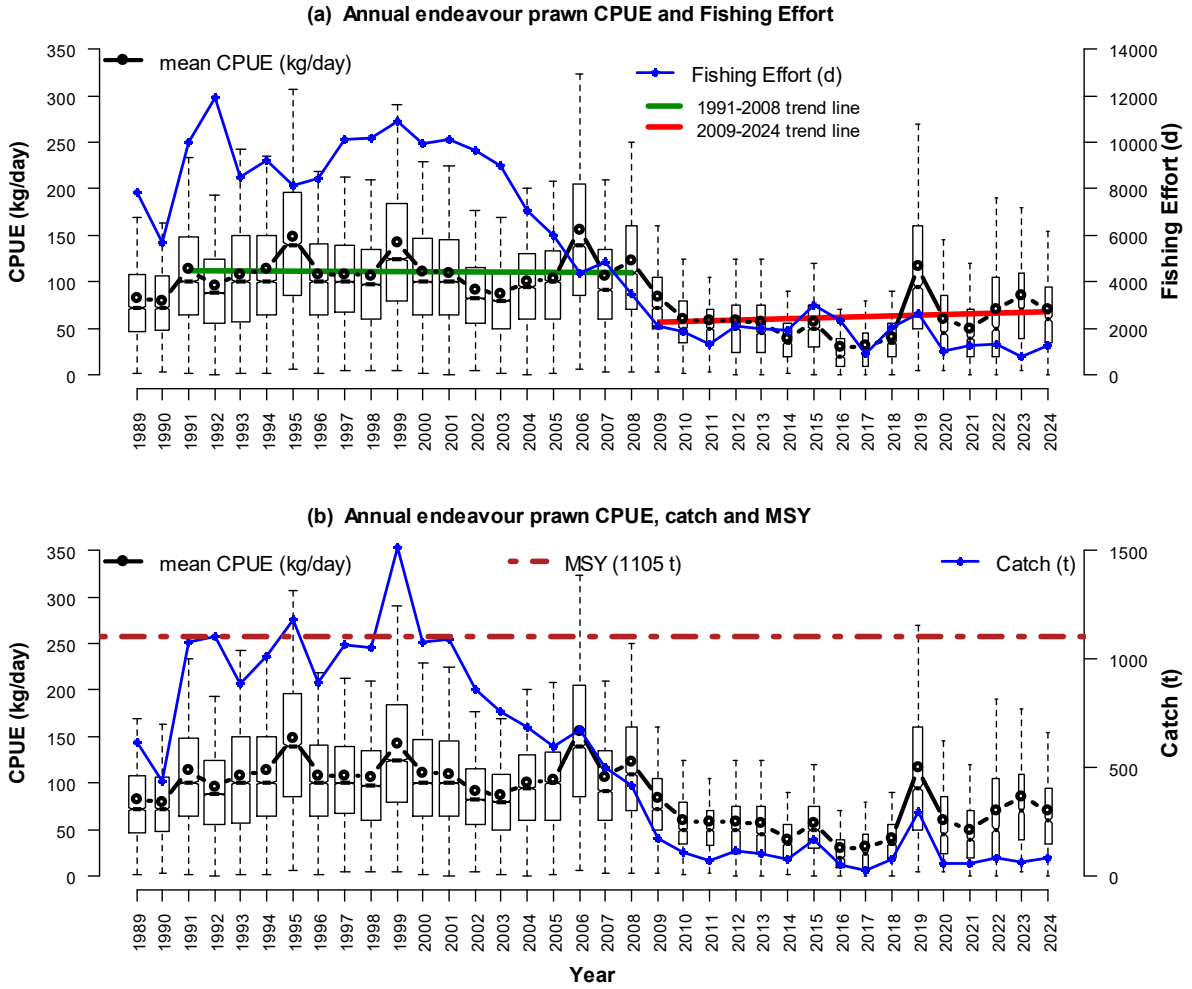


Figure 7 Endeavour prawn catch rates (CPUE) as kilograms per vessel per day fished (kg/d) compared with (a) fishing effort in days and (b) catch in tonnes. The boxplots show the range of daily vessel CPUE's for each year. The median CPUE is indicated by notch and line near the middle of the boxes and black line with circles is plot of the mean (average) CPUE for each year. Fifty percent of the records are within the rectangles. The "whiskers or dotted lines" extending from the rectangles show the overall range. The width of the rectangles indicates the number of records for each season. As a result the rectangles for the years 1991-2003 are wider due to the higher level of fishing effort.

Spatial Distribution of Fishing Effort and Catch

Figures 8 to 11 compare the spatial distribution of fishing effort and prawn catches for 2005 with the most recent season. The contours are based on data aggregated to 6 minute grids; therefore, the days and tonnes of catch are per year per 6 nautical mile squared.

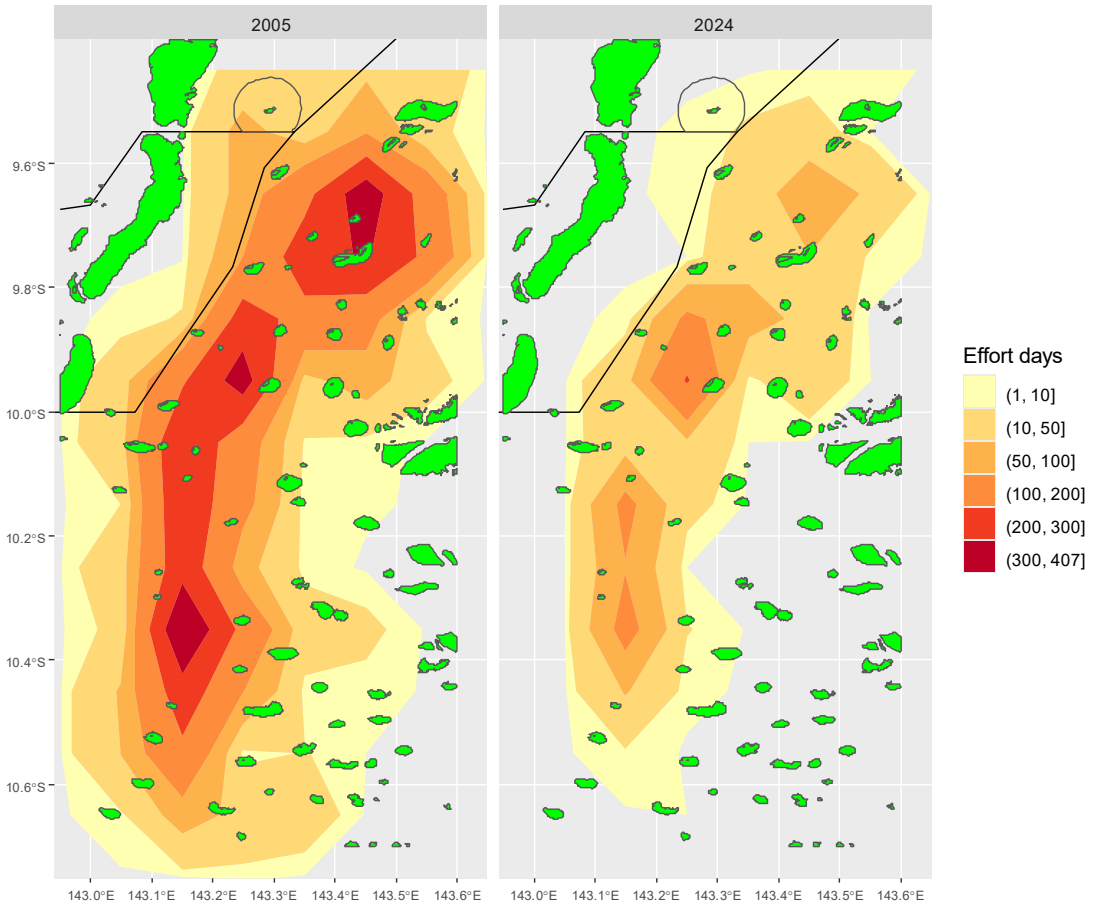


Figure 8 The spatial distribution of fishing effort for the 2005 and 2024 fishing seasons.

The 2005 fishing season was chosen as a base year for comparison with the most recent fishing seasons because in November 2005 there was a pro rata effort reduction for the fishery to a 9,200 day cap. Also, the 2005 fishing effort was approximately 60 percent of the years of highest effort (1991-2001) and the 2005 tiger prawn catch of 655 tonne was just below the 1991-2003 mean of 668 tonne and the estimate of MSY (676t). The fishing effort within the East of Warrior closure occurs during August to November when this area is open to fishing.

The distribution of fishing effort in 2024 (Figure 8) is typical of recent years and compared with 2005 it shows how the spread of fishing effort has contracted with the decrease in fishing effort. The areas of highest fishing effort are now in the middle and southern sections of the fishery.

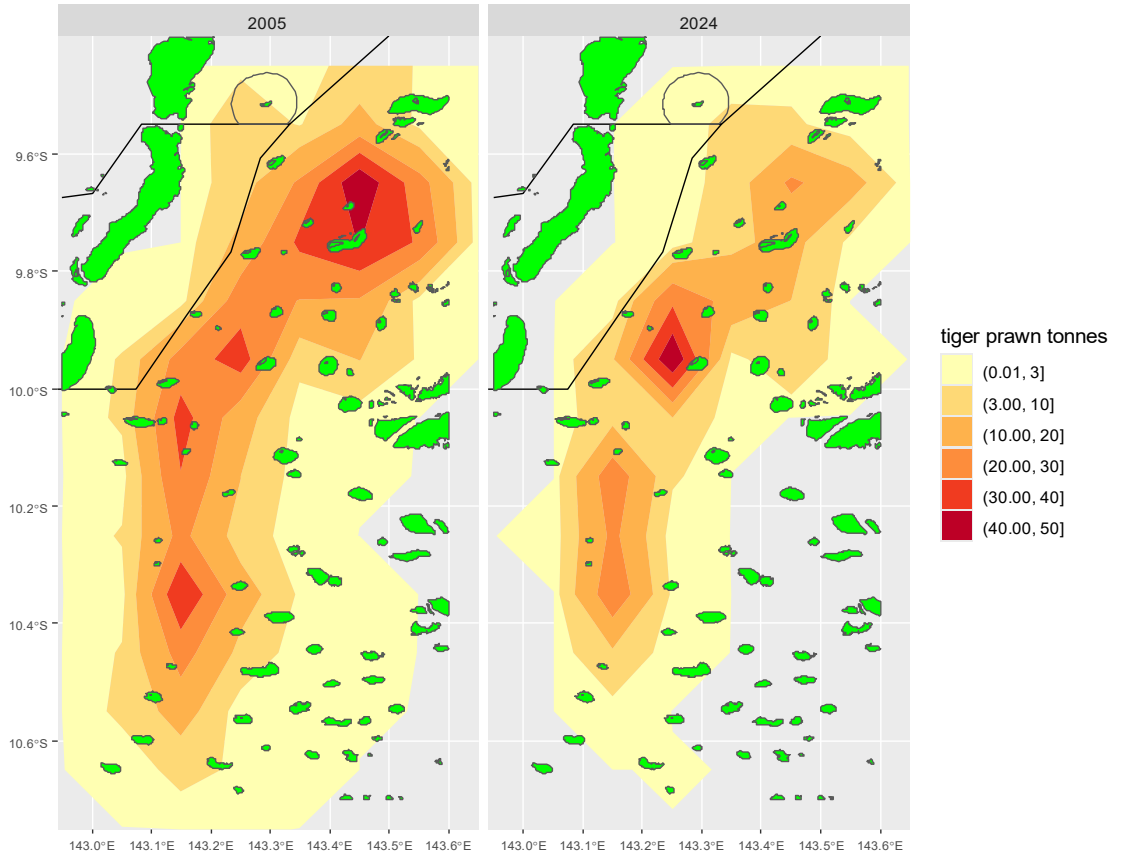


Figure 9 The spatial distribution of tiger prawn catch for the 2005 and 2024 fishing seasons.

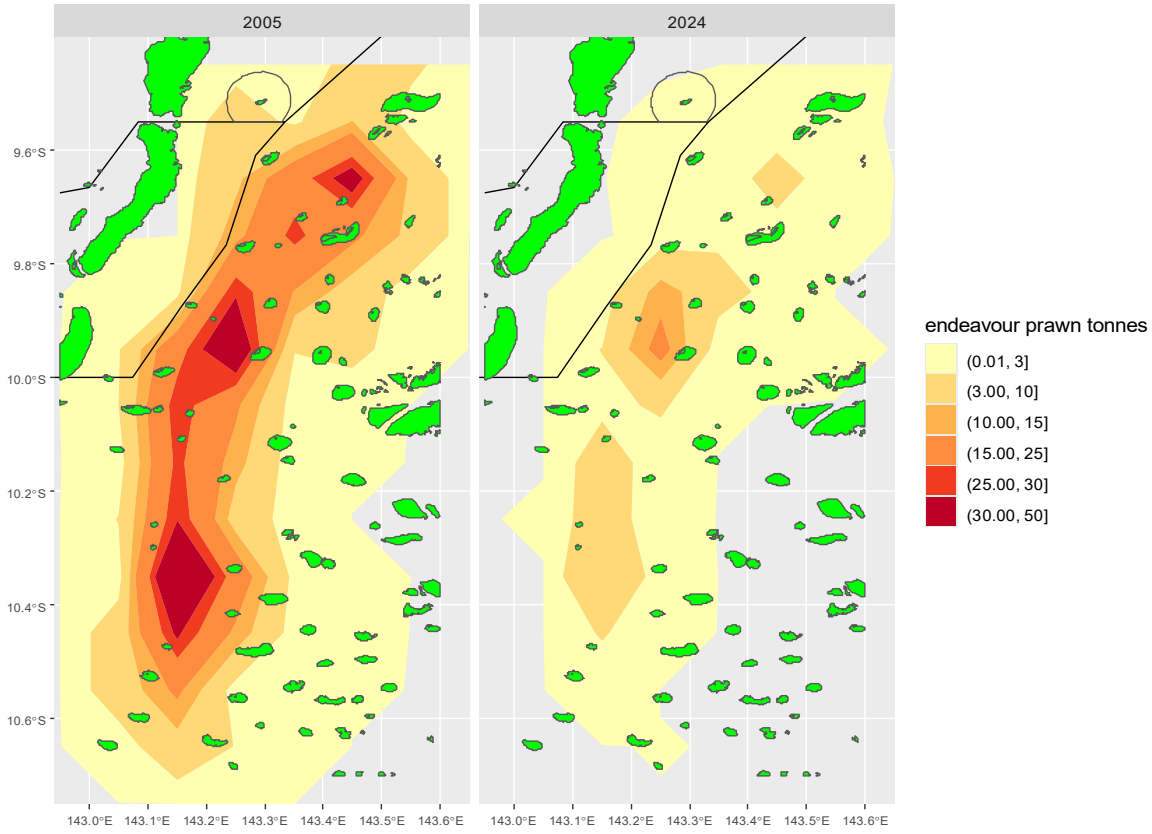


Figure 10 The spatial distribution of endeavour prawn catch for the 2005 and 2024 fishing seasons.

In 2024 the highest tiger prawn catch (Figure 9) was from the middle of the fishery whereas in 2005 it was in the northern section of the fishery between Yorke and Stephens Islands. The 2005 spatial distribution of the endeavour prawn catch (Figure10) is similar to the 2005 tiger prawn catch but the largest areas of highest endeavour prawn catch are in the middle and southern part of the fishery. In 2024 the highest endeavour prawn catches were from the middle of the fishery where the fishing effort and tiger prawn catches are concentrated. This is typical of recent years and shows the contraction in the area fished now compared with 2005.

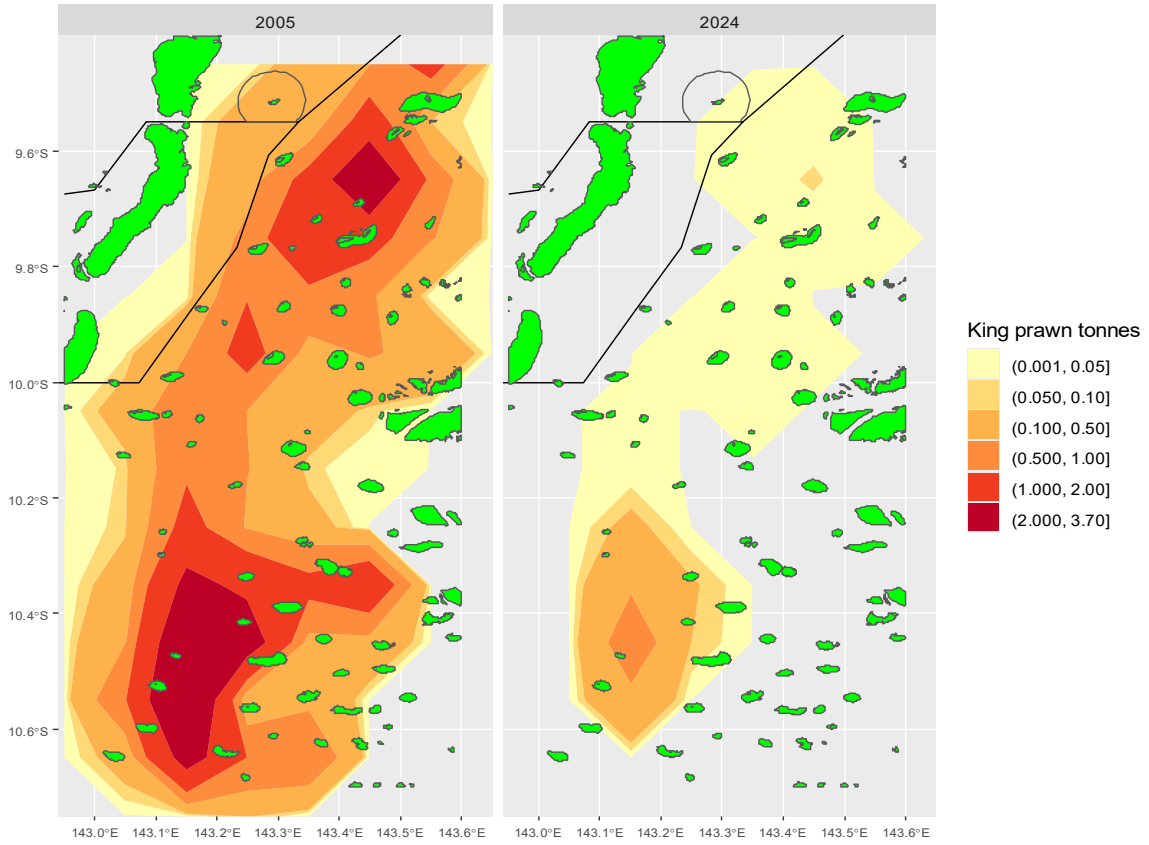


Figure 11 The spatial distribution of king prawn catch for the 2005 and 2024 fishing seasons.

Historically a small amount of king prawn catch has occurred through the fishery with higher abundance at the southern and northern ends of the fishery (Figure 11. In 2024 only the southern area of the fishery reported catches of king prawn that were greater than 100 kilograms per 6 Nautical miles squared. It is possible that the king prawn catch is higher than recorded because when the king prawn catch is insufficient to box up separately fishers mix it in with the endeavour prawn catch.

Monthly trends in Fishing Effort and Number of active Vessels

During the years of high annual fishing effort (1991-2003) the monthly fishing effort was generally highest at the start of the season (March), decreased until June, was level until September and then decreased until the end of the season (Figure 12). The trend in the number of vessels (Figure 13) is similar. The individual monthly values for the high effort season are shown as black triangles and the mean or average is shown as a solid black line.

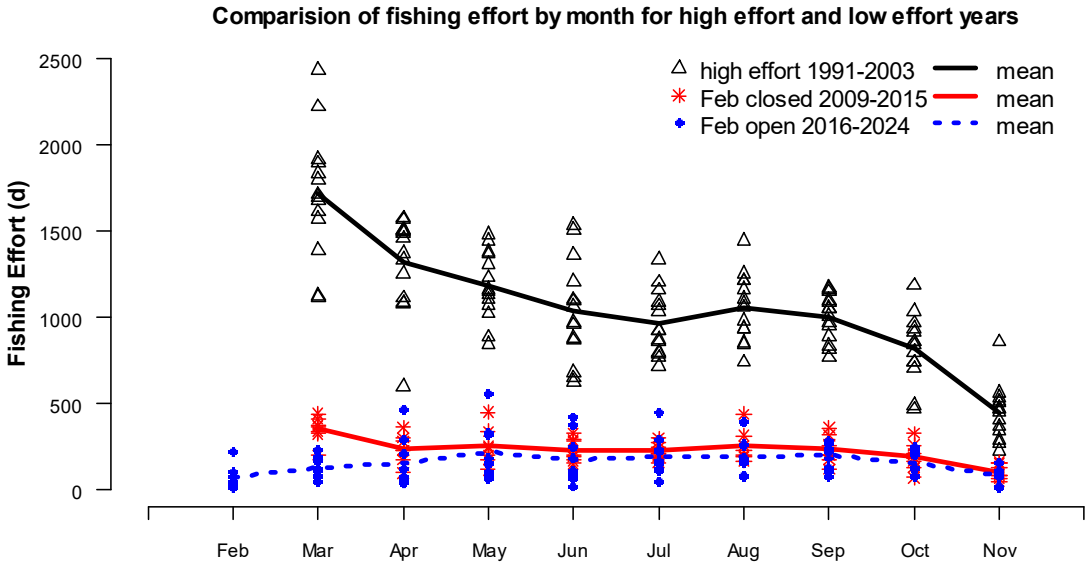


Figure 12 The monthly fishing effort (days) for the years of high fishing effort (1991-2003△) are compared to the recent years of low fishing effort grouped into February closed (2009-2015 ✳) and February open to fishing (2016-2024 ●). The dotted and dashed lines are the means for to three time periods.

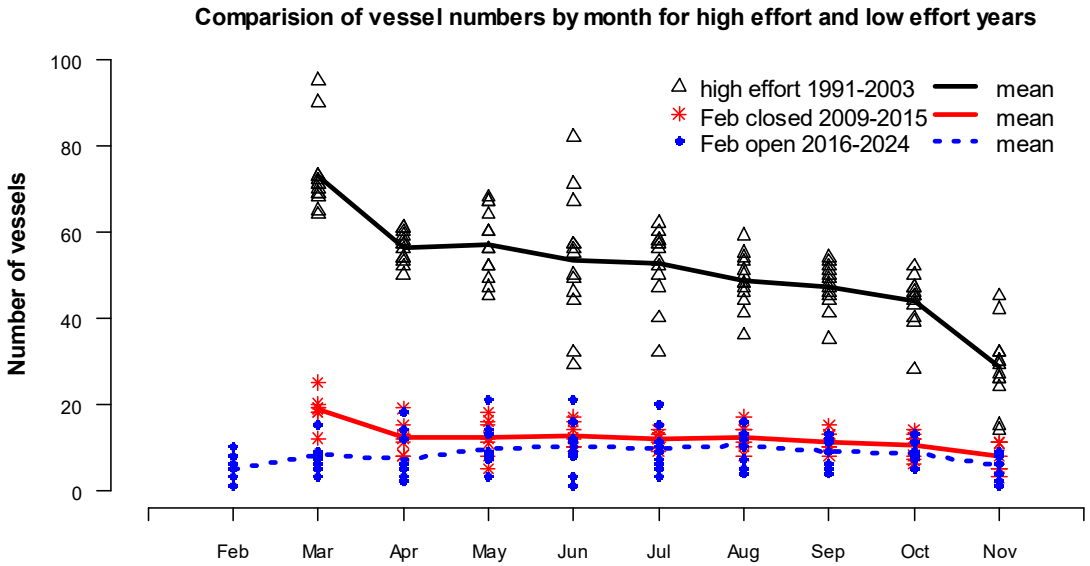


Figure 13 The monthly vessel numbers for the years of high fishing effort (1991-2003 △) are compared to the recent years of low fishing effort grouped into February closed (2009-2015 ✳) and February open to fishing (2016-2024 ●). The dotted and dashed lines are the means for to three time periods.

Post 2008 the annual fishing effort has been much lower and the mean monthly effort and vessel numbers is virtually flat across the season. In Figures 12 and 13 the data

for low effort seasons is separated into 2009-2015 where the season start date was the 1st of March and 2016-2024 where the season started on the 1st of February. The red mean line for 2009-2015 shows that when February is closed effort and vessel numbers are on average highest in March. In contrast when February is open to fishing (blue dotted line) effort and vessel number are lowest in February and ramp up to May which in often the highest month for the season.

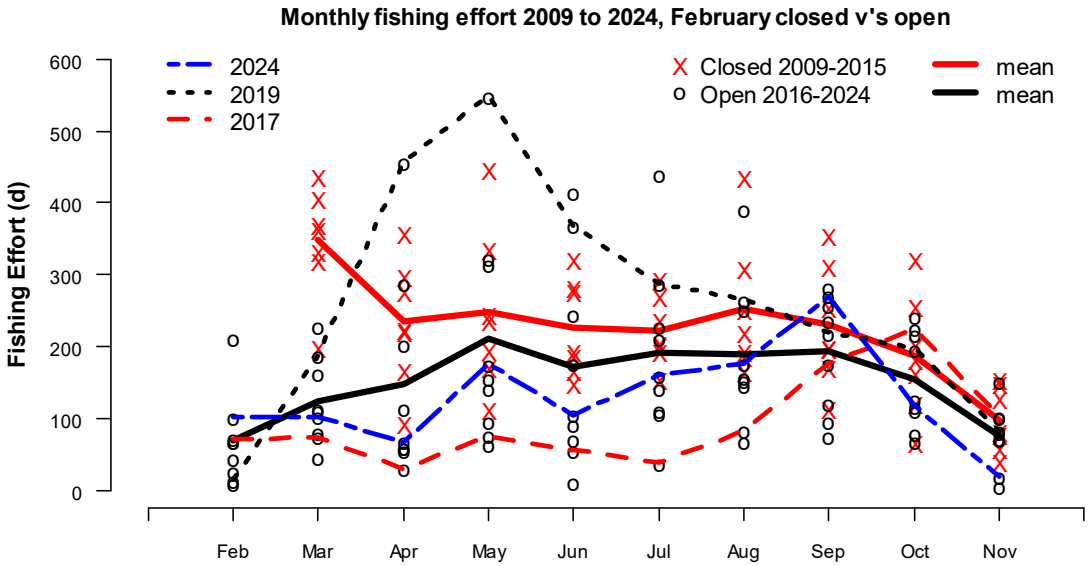


Figure 14 Monthly fishing effort for the years of low fishing effort grouped into the seasons where February was closed (2009-2015 x) compared to the years where February was open to fishing (2016-2024 o). The solid lines are the means and the dotted and dashed lines 2024 compared to 2019 and 2017.

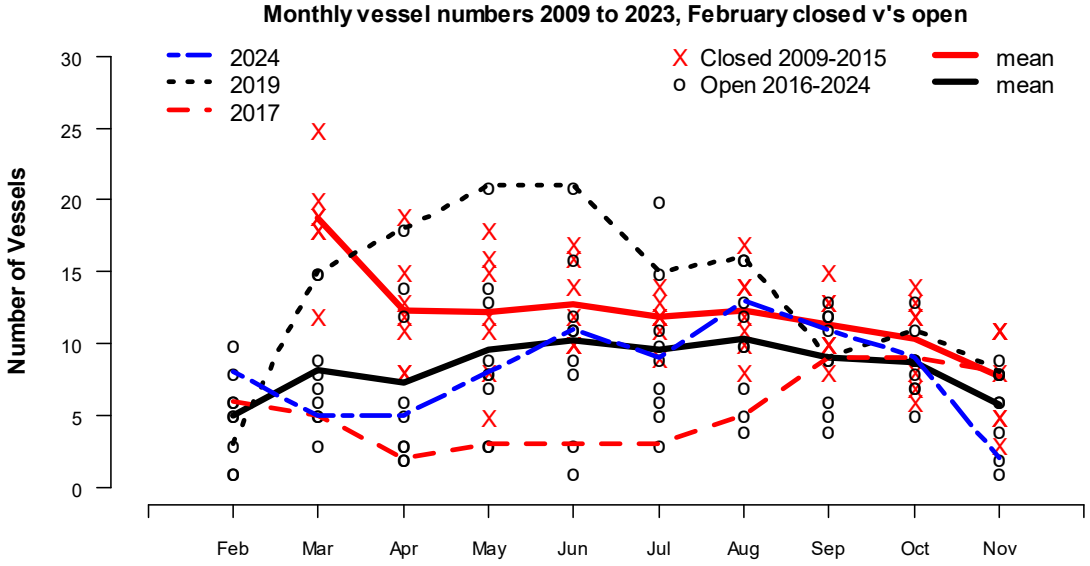


Figure 15 Monthly vessel numbers for the years of low fishing effort grouped into the seasons where February was closed (2009-2015 x) compared to the years where February was open to fishing (2016-2024 o). The solid lines are the means and the dotted and dashed lines 2024 compared to 2019 and 2017.

The fishing effort and vessel numbers for each month for the years 2016-2024 with a 1st of February season start (Figures 14 to 15) indicate that only a few vessels fish February. Based on the individual vessel records this fishing usually occurs in the last week or two of February. More vessels enter the fishing during March to May and the fishing effort increases.

The 2024 monthly fishing effort was highest in September and number of vessels was highest in August. (blue dashed line in Figures 14 and 15). Industry noted at the November 2024 TSPMAC that the presence of the mothership (Torres Express) in the TSPF is why there were more vessels during the latter half of the 2024 season.

The year of highest fishing effort with February open was 2019. In that year monthly fishing effort ramped up from a minimum in February to a maximum in May then ramped down to November (black dotted line in Figure 14). The trend for the number of vessels fishing was similar to the effort but the peak vessel numbers occurred in May-June. The 2017 season (Figures 14 and 15, red dashed line) was the year of second lowest annual fishing effort. The 2017 effort was well below average until September when a few more vessels entered the fishery.

Monthly trends in CPUE

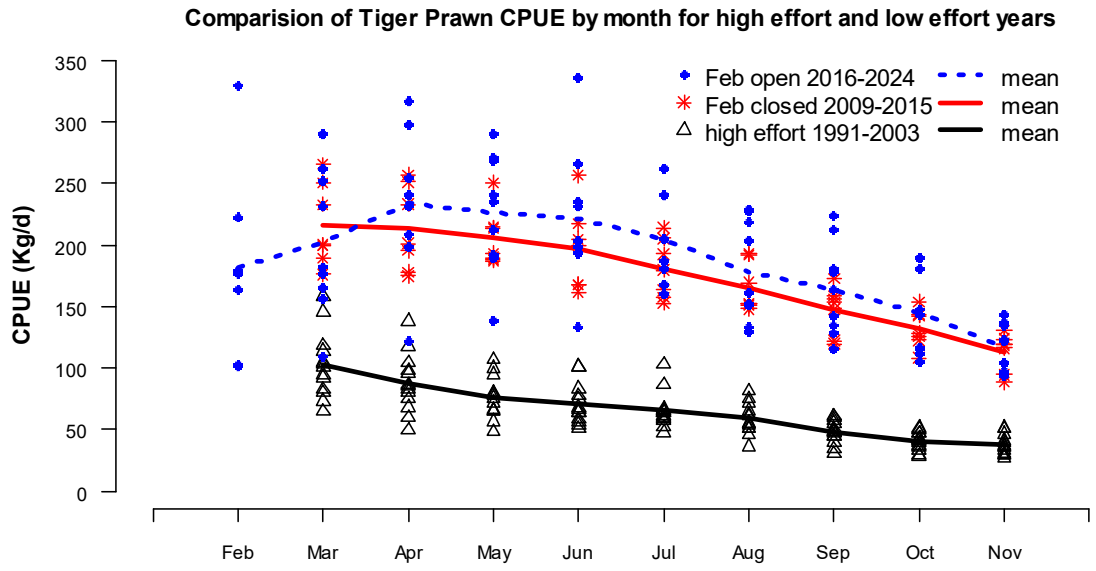


Figure 16 Comparison of monthly tiger prawn CPUE for the high effort years (1991-2003) with the low effort seasons of 2009-2015. The years post 2015 (February season open) are also plotted. The point symbols (●∗ △) show the individual monthly CPUEs. The solid and dotted lines are the means.

During the years of high fishing effort (1991-2023) the monthly tiger prawn CPUEs (Figure 16, black triangles) were much lower than during the years of low fishing effort post 2008 (Figure 16, blue dot and red asterisk). The 1991-2003 mean (black line) steadily decreased from March to November with the steepest decrease over the first few months. In contrast the mean for 2009-2015 (red line) is at a much higher level and the decrease is steepest in the later part of the season. The mean for 2016-2024

(blue dotted line) ramps up during February to April then closely follows the 2009-2015 mean from April to November.

The 2024 monthly tiger prawn CPUEs (Figure 17, blue dot-dash line) show that CPUE was well above the 2016-2024 mean (black line) from March to October with the highest CPUE occurring in June. In 2019 tiger prawn CPUE steadily decreased from February to November as fishing effort (Figure 14) rapidly ramped up to a maximum in May of 550 days then steadily decrease throughout the rest of the season.

During February to June of the 2017 season both tiger prawn and endeavour prawn CPUE's were the lowest post 2008 (Figures 17 and 19, red dashed lines) indicating a poor recruitment of both species during the early months of the season.

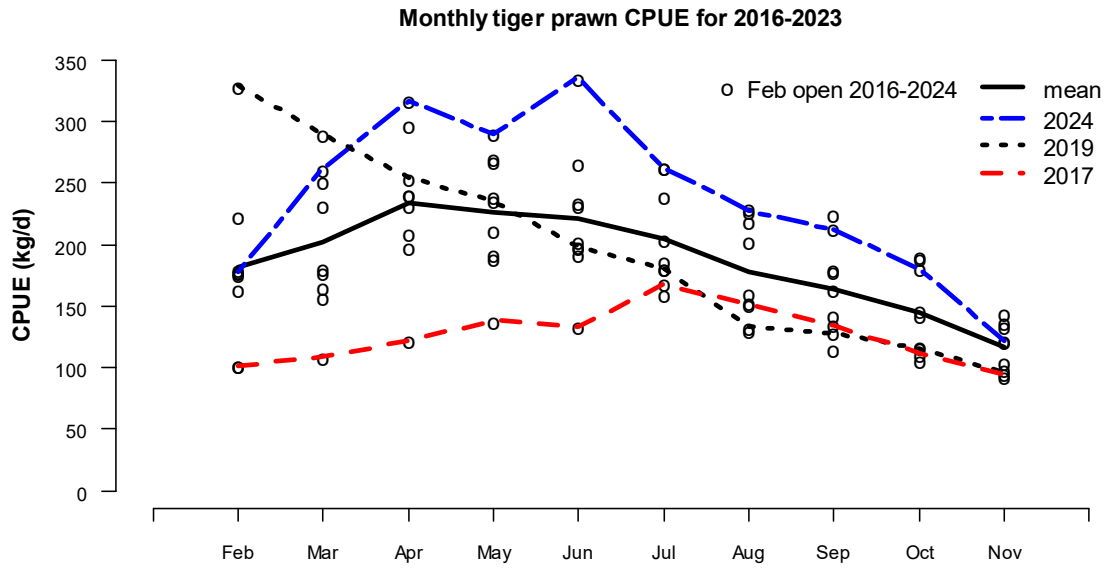


Figure 17 Monthly tiger prawn CPUE as kilograms per day for the low effort years with February open to fishing (2016-2024). The point symbols (o) show the individual monthly CPUEs for each season. The black solid line is the mean of the years 2016-2024. The dotted and dashed lines show the monthly trajectories for 2024, 2019 and 2017.

In contrast to tiger prawns, during the years of high fishing effort (1991-2003, Figure 18, black triangles) the monthly CPUE for endeavour prawns was much higher than for the years of low fishing (2009-2024, red asterisk and blue dots). The mean endeavour prawn CPUE for the high effort years (black line) was highest in March-April, decreased to June, and was level until September then decreased to November.

Although spread of the monthly endeavour prawn CPUE values for the years post 2008 overlap with the high effort years, means for 2009-2015 (red line) and 2016-2023 (blue dotted line) are almost same and much lower especially for the early months of the season. This is the opposite of the tiger prawn CPUE which was lowest when the fishing effort was high. This could be a result of a shift from targeting both stocks during the high effort years to just tiger prawns in recent years. It could also indicate that endeavour prawns are more productive under a higher level of fishing.

Although the endeavour prawn CPUE for 2024 (Figure 19, blue dot-dash line) had an April peak well above the mean for 2016-2023 (black line), the rest of the season was close to the mean. The 2019 endeavour prawn CPUE (black dotted line) was also well above average for March – July.

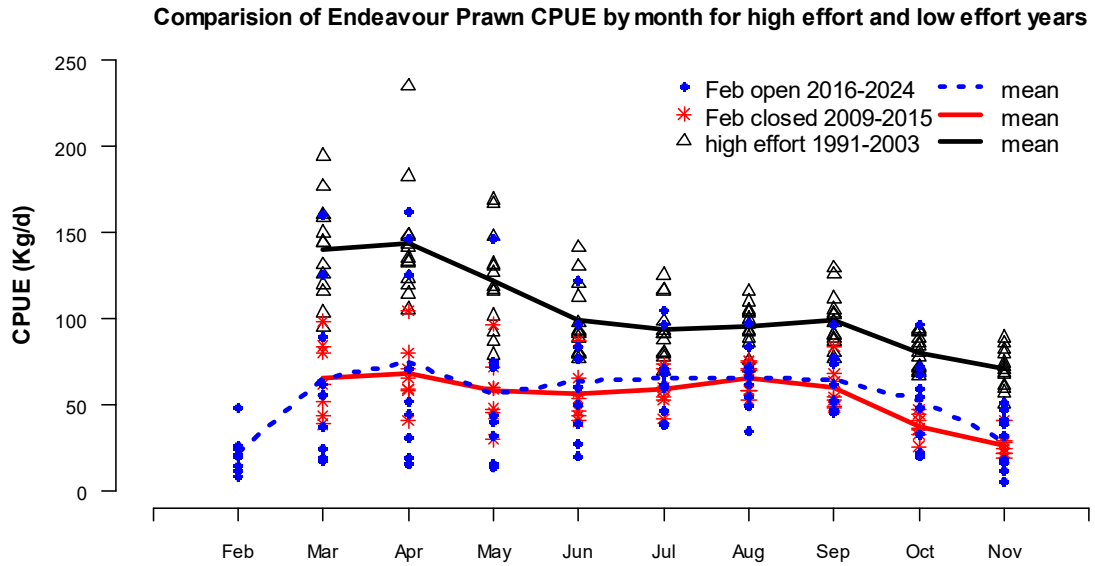


Figure 18 Comparison of monthly endeavour prawn CPUE for the high effort years (1991-2003) with the low effort seasons of 2009-2015. The years post 2015 (February season open) are also plotted. The point symbols (●∗△) show the individual monthly CPUEs. The solid and dotted lines are the means.

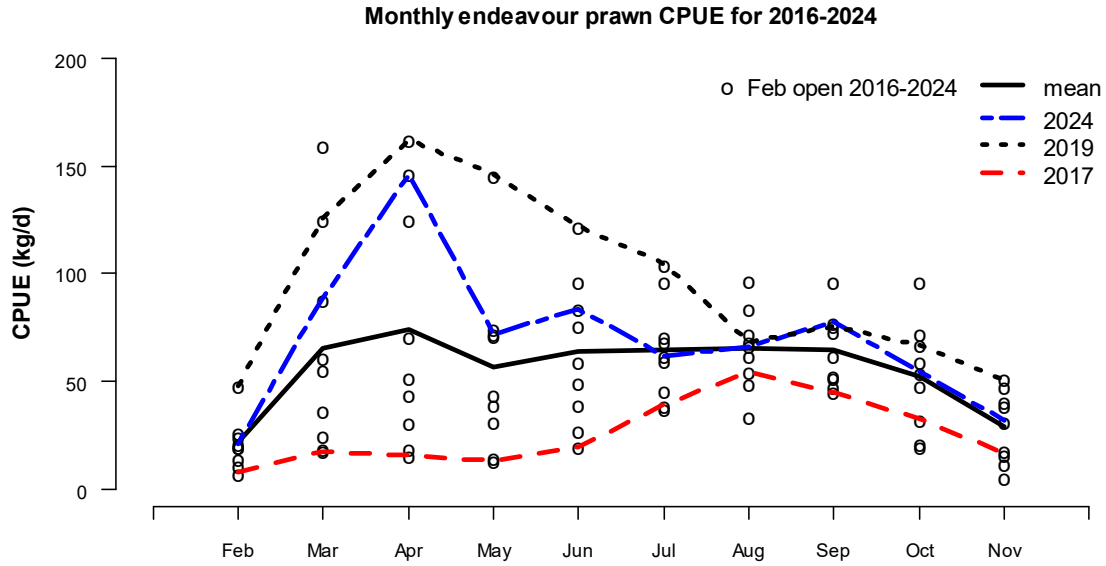


Figure 19 Monthly endeavour prawn CPUE as kilograms per day for the low effort years with February open to fishing (2016-2024). The point symbols (o) show the individual monthly CPUEs for each season. The black solid line is the mean of the years 2016-2024. The dotted and dashed lines show the monthly trajectories for 2024, 2019 and 2017.

At the January 2020 TSPMAC meeting industry members noted that there had not been any change in the way the fishery was operating and that endeavour prawn CPUE's were also higher in the adjacent Northern Prawn Fishery (NPF) and East Coast Otter Trawl Fishery (ECOTF) during 2019. The red dashed line is the 2017 endeavour prawn CPUE and was well below the average especially during the first

half of the season; indicting a poor recruitment for endeavour prawns at the start of the 2017 season.

Analysis of prawn grades

The breakup of each year's catch of tiger and endeavour prawns as a proportion by the major grade categories (U10, 10/20, 21/30 and 30+) is shown in Figures 22(a) & 23(a). There are small amounts of other less common categories (10/15, 15/20 etc.) in the data. Where possible these uncommon categories were assigned to the four major categories for these plots. If this was not possible, they were group into the "other" category.

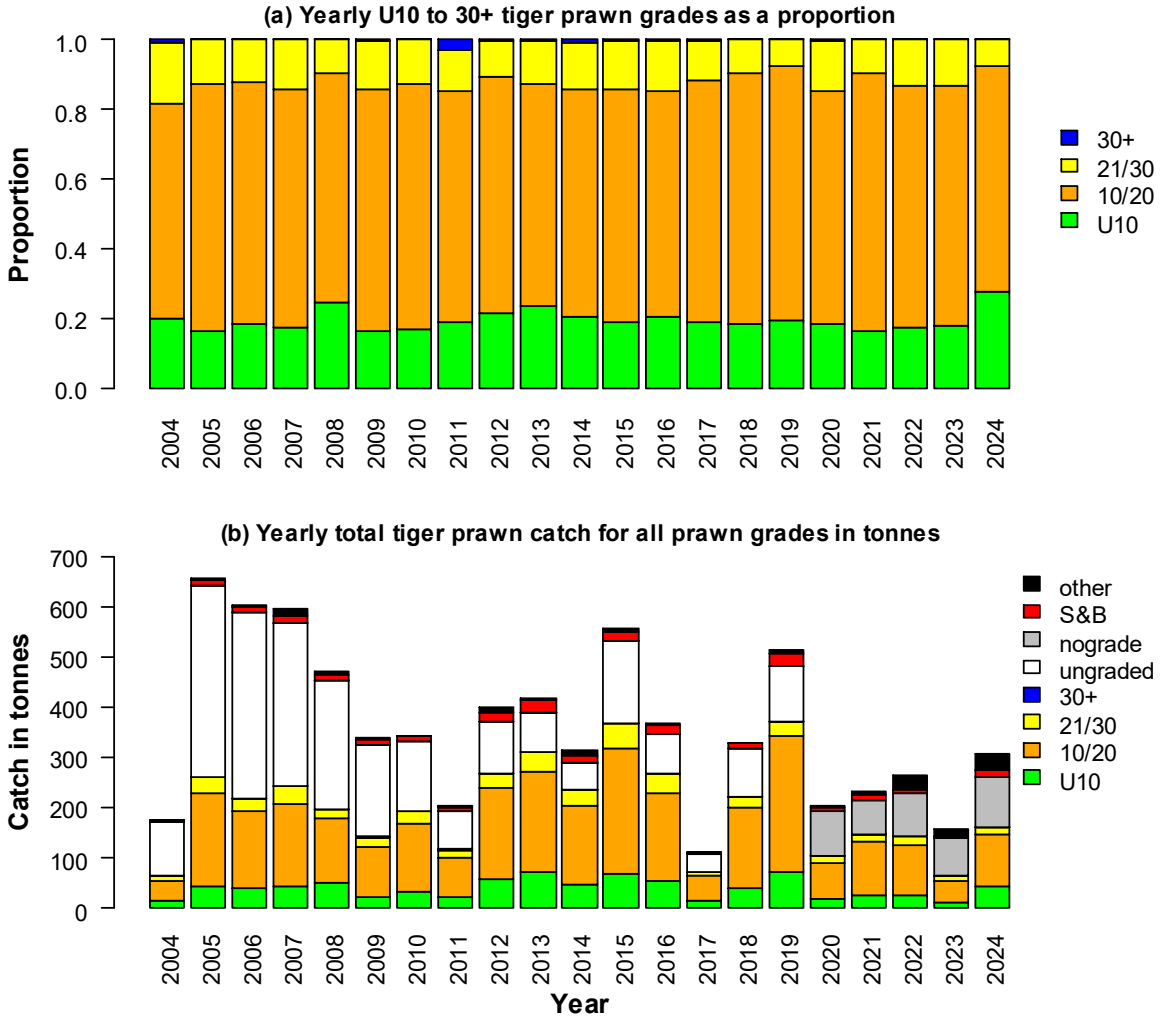


Figure 20 (a) The yearly U10 to 30+ tiger prawn grades as a proportion for 2004-2024. (b) Yearly total tiger prawn catch for all grades in tonnes. Note: that 2004 is only partial data due the phasing in of the new logbook format that included grade. No grading information is shown as "nograde" and for the years prior to 2020 this category was entered as "ungraded" in the database.

There is no trend across the years in the tiger and endeavour prawn grades (sizes). Tiger prawn catch is dominated by the 10/20 grade whereas endeavour prawn catch is dominated by 21/30 grade. This reflects the growth characteristics of the two species. Tiger prawns, females in particular, grow to a larger size and hence weight than endeavour prawns.

Figures 22(b) & 23(b) are stacked bar plots that show the yearly total catch weights divided into each grade category. These plots include the four main grades (U10, 10/20, 21/30 and 30+ and the categories; “ungraded”, “nograde” (logbook records with no information for grade), “soft and broken” (S&B) and “other” which includes a range of non-standard grade descriptions that could not be assigned to any of the other categories.

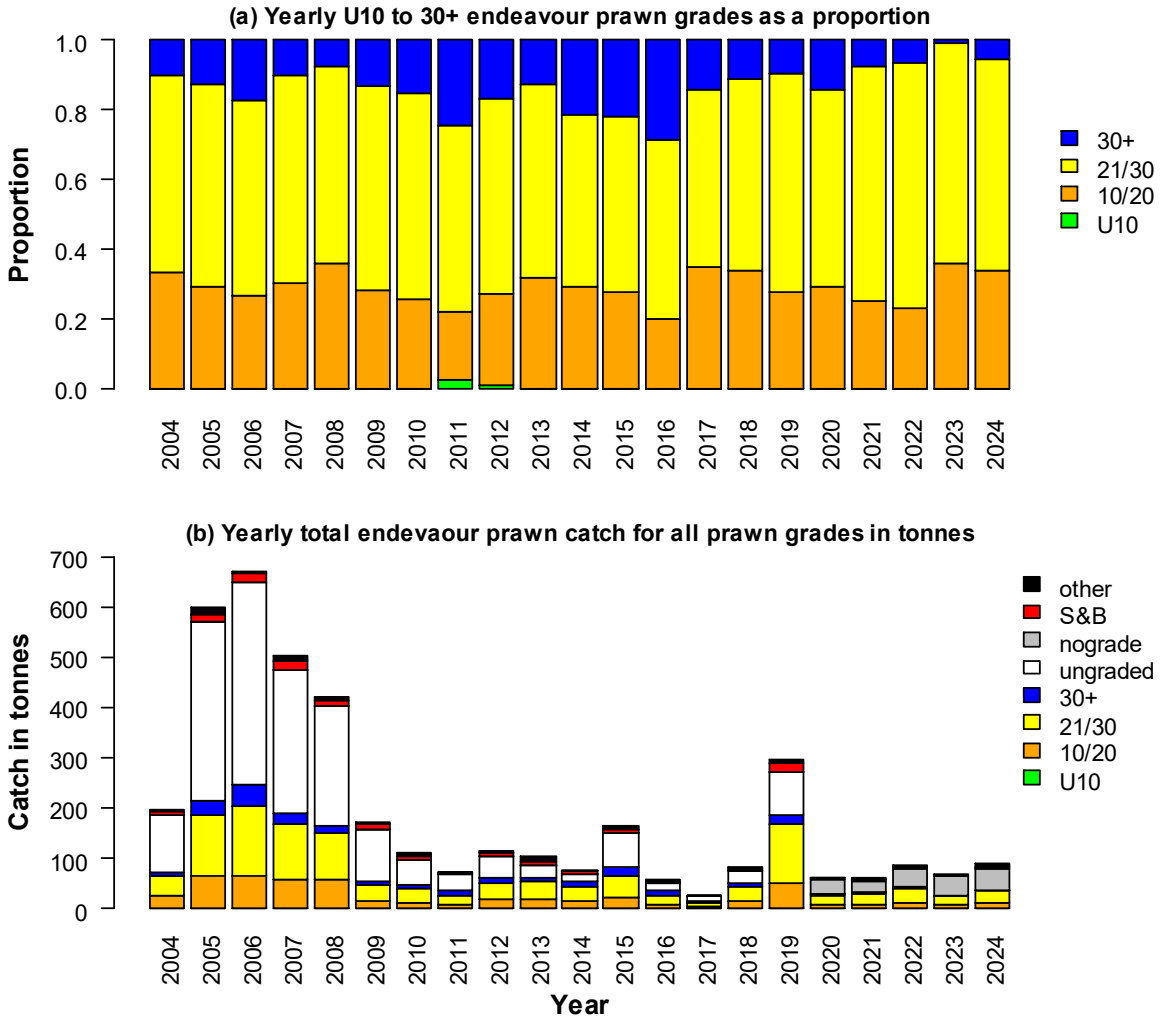


Figure 21 (a) The yearly U10 to 30+ endeavour prawn grades as a proportion for 2004-2024. (b) Yearly total endeavour prawn catch for all grades in tonnes. Note: that 2004 is only partial data due the phasing in of the new logbook format that included grade. No grading information is shown as “nograde” and for the years prior to 2020 this category was entered as “ungraded” in the database.

Prior to 2020 records with no grading information (“nograde”) were entered into the AFMA logbook database under the code for “ungraded”. Therefore, most of the “ungraded” prawn prior to 2020 is probably for records with no grading information. Industry members on the TSMPAC have noted that there should only be a small amount of “ungraded” product from the TSPF.

Note: that 2004 is only partial data due to the phasing in of a new logbook format that included grade. The height of the bars for 2004 in plots 20(b) at 21(b) would be equal to 606 tonnes for tiger prawn and 690 tonnes for endeavour prawn if grade data was available for all of the 2004 logbook records.

By-product and Threatened, Endangered and Protected species catches

Table 3 lists the annual catches of by-product species for the year 2005-2024. The main by-product species in the TSPF include king prawns and various species of bugs (Morton Bay bugs and shovel nosed and slipper lobsters). Cuttlefish and squid are also taken, some years in reasonable quantities. Occasionally a small amount of scallop has been retained. The mixed prawn category includes both target and bycatch prawn species (tiger, endeavour and red spot king prawn) and are generally soft and broken prawns. They are put in this category as soft and broken prawns are generally not abundant enough make up a whole box for sale.

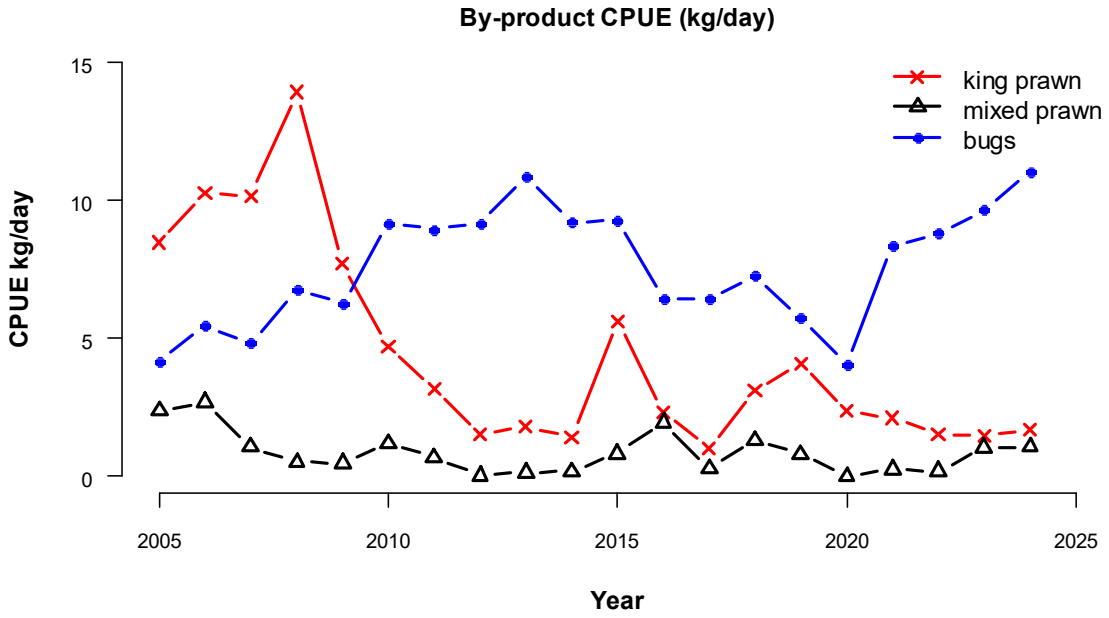


Figure 22 By-product CPUE (kg/d) for king prawn (the combined red spot king prawn + king prawn mixed columns listed it table 3), prawn mixed and bugs for the years 2005 to 2024.

In the logbooks king prawns are recorded as either “king prawn” or as “red spot king prawn”. Random research trawl surveys conducted in the fishery during May, June, September and November of 2007-2008 (Turnbull et.al 2009) indicate that ~98% of the king prawn catch is red spot king (prawns (*Melicertus longistylus*) and the rest (~2%) is the western king prawn (*Melicertus latisulcatus*).

The mean annual CPUE (kg/day) of bugs and “prawns mixed” was fairly consistent over the years 2005–2024 whereas the CPUE of king prawn has been lower since 2009 (Figure 22). This may be a result of reduced fishing effort in the southern and northern grids that have historically produced the higher catch rates of king prawn. It may also be due to underreporting of king prawn catches, as they are often packaged and counted with endeavour prawns when small quantities are caught.

Table 3 Logbook catches of the 8 main by-product species groups that were caught in the TSPF during 2005 -2024

Year	Effort (days)	Prawns mixed (t)	King prawn mixed (t)	Red spot king prawn (t)	Bugs (t)	Cuttlfish mixed (kg)	Squid (kg)	Octupus (kg)	Scallops (kg)
2005	6024	14.249	45.608	5.488	25.009	1212	802	184	0
2006	4410	11.87	36.456	8.755	24.018	362	1290	191	0
2007	4833	5.099	41.326	7.849	23.414	971	2322	478	0
2008	3479	1.778	38.654	9.833	23.495	1152	2482	77	0
2009	2107	0.982	13.165	3.101	13.178	923	1008	224	0
2010	1886	2.215	5.156	3.672	17.308	206	426	41	200
2011	1306	0.895	3.695	0.468	11.697	111	139	30	5
2012	2082	0.034	2.089	1.041	19.138	22	455	73	0
2013	1992	0.285	2.57	1.021	21.628	54	34	100	0
2014	1956	0.333	2.609	0.167	18.015	113	131	104	0
2015	2998	2.47	15.972	0.858	27.854	531	252	45	0
2016	2324	4.531	4.575	0.825	14.933	604	40	134	0
2017	935	0.25	0.955	0.005	6.023	513	59	25	7790
2018	2078	2.73	3.774	2.705	15.107	1179	524	167	0
2019	2629	2.074	7.319	3.385	15.119	1312	840	284	0
2020	1037	0	1.146	1.299	4.213	252	125	162	0
2021	1285	0.33	1.585	1.138	10.74	213	245	74	0
2022	1303	0.235	1.054	0.925	11.483	153	92	32	0
2023	824	0.865	0.343	0.88	7.966	374	178	53	0
2024	1295	1.38	1.204	1	14.314	672	192	20	0

Table 4 Threatened, Endangered and Protected Species caught (individuals) for 2005-2024. Three animals were misreported as common sawshark and have been moved to the sawfishes category.

Year	Flatback Turtle	Green Turtle	Hawksbill Turtle	Leatherback Turtle	Loggerhead Turtle	Pacific (Olive) Ridely Turtle	Turtles	Sawfishes	Seahorses & pipefishes	Seasnakes	Effort (days)
2005	1	2			1					1152	6024
2006	1	2							3	1105	4410
2007	3	2	2	2		1		1	16	1585	4833
2008	1	2						3		1090	3479
2009	1							1		1003	2107
2010	1	2							1	1532	1886
2011										1162	1306
2012		4					1	1	69	1550	2082
2013		2					2	1		1204	1992
2014		1					4	1		1337	1956
2015		1					6	1		671	2998
2016	1		1				2	2	9	634	2324
2017							1	6		274	935
2018						1	1			722	2078
2019		1	1					2		1035	2629
2020								1		637	1037
2021								3		354	1285
2022		1								203	1303
2023							1	4	1	860	824
2024		2					1	1	4	663	1295
Totals	**9**	**22**	**4**	**2**	**1**	**2**	**19**	**28**	**103**	**18773**	

The majority of the Threatened, Endangered and Protected (TEP) species caught in the TSPF are seasnakes, followed by sygnathids (seahorses and pipefish). Occasionally turtles and sawfish are caught (Table 4). Only 2% of seasnakes were observed as “dead”; 62% were noted as being alive and the condition of 36% was “unknown” when returned to the sea.

Figure 25 plots the annual number of interactions with seasnakes against the number of fishing days for each year.

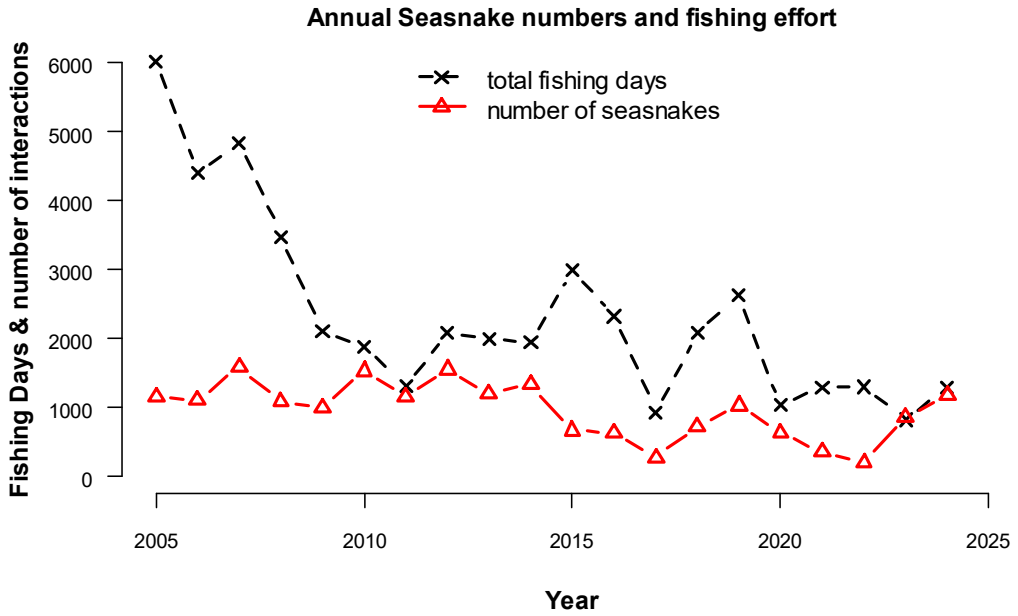


Figure 23 The annual number of interactions (reported in logbooks) with seasnake (red line with triangles) plotted against the number of fishing days (black dotted line with x).

Fuel Price and Prawn Value

At TSPMAC 20 it was agreed that fuel prices and landed product values for the TSPF would be recorded in future editions of the Data Summary as metadata that could assist with the explaining changes in the fishing behaviour of the TSPF fleet. The following plots summaries historical information on diesel and product value obtained from the internet and information supplied by operators in the fishery. Note that the fisher information has been summarised so that the records of individual operators cannot be identified.

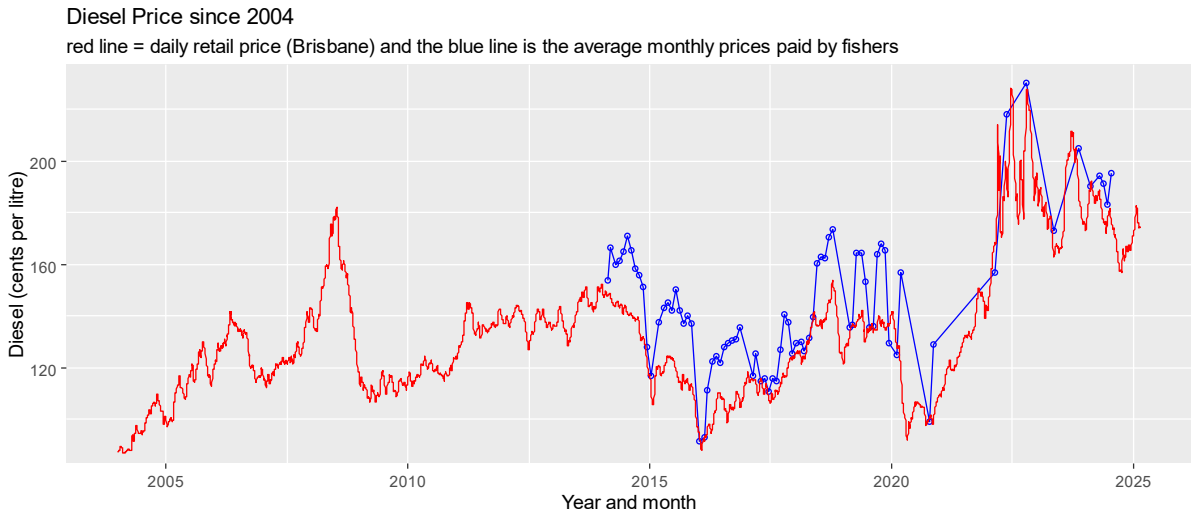


Figure 24 Historical diesel price.

In Figure 24 the “red line” is the Brisbane “gate price” of diesel and the “blue circles and lines” are the monthly average (mean) price paid by fishers for diesel since 2014. Comparison of the two lines indicates that diesel price paid by TSPF operators generally follows the changes in the “gate price” but at slightly higher level. Therefore, the “gate price” provides a useful index of the historical changes in TSPF diesel prices since 2004. Because the “gate price” data can be quickly and easily updated it could provide a useful proxy for fuel price at TSPMAC meetings.

The “blue dots” in Figure 25 are a “Product Value index” (dollars/kilogram), calculated from fisher records of the value of their product divided the kilograms of the trawl product. This product includes all of the catch; mainly tiger and endeavour prawns but also some byproduct like king prawn, bugs and squid. The “thick blue line” is a smoothed trend line fitted to the year and month price estimates. This “Produce Value index” is based on information from a subset of the fleet that was summarised to year and month.

Tiger prawn has a higher value than endeavour prawn therefore, the species mix also needs to be considered. The ‘percentage of tiger’ in the records used to estimate the “Product Value Index” is plotted as “red circles and lines” in Figure 25. The “red dashed line” is the smooth trend line fitted to the year and month percentage estimates.

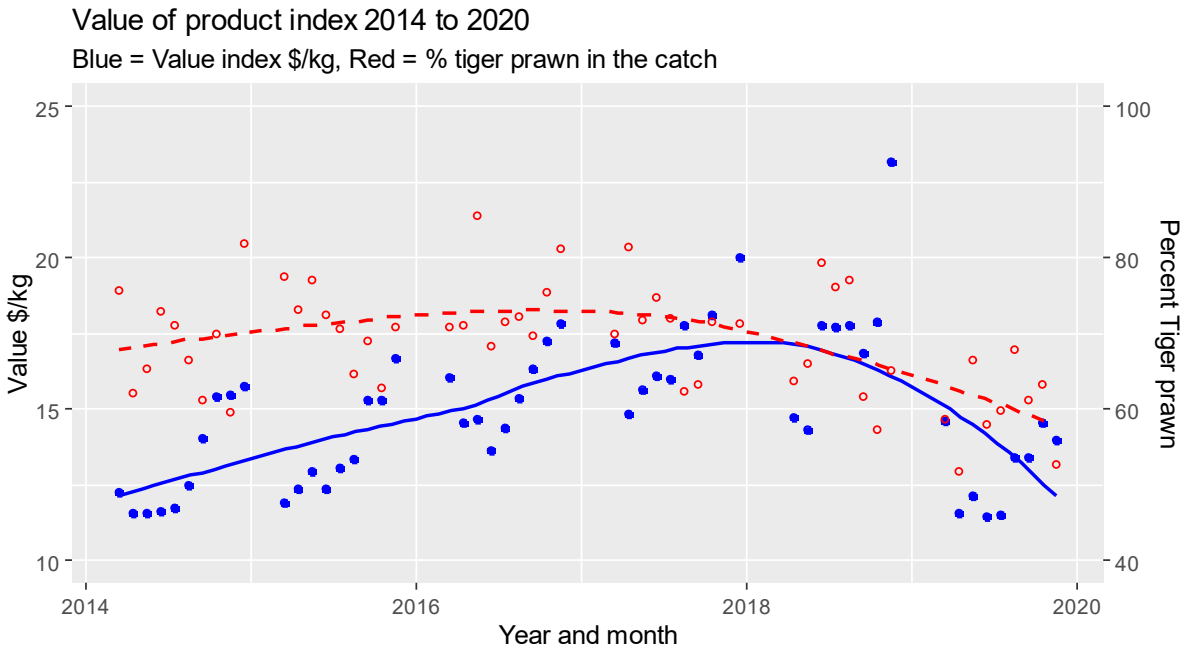


Figure 25 Product Value index ($/kg) of product based on information from a subset of the fleet aggregated to year and month. Note product includes all of the catch; mainly tiger and endeavour prawns but also some king prawn, bugs and squid etc. The blue dots are the product value index and blue line is the smoothed trend line for product value. The red circles are the monthly proportions of tiger in the catch. The red dashed line is smoothed trend line for the percentage of tiger prawn in the catch.

References

O'Neill, M. F. and C. T. Turnbull (2006). Stock assessment of the Torres Strait tiger prawn fishery (Penaeus esculentus). Queensland, Department of Primary Industries and Fisheries.

Turnbull, C.T., Tanimoto, M., O'Neill, M.F., Campbell, A. and Fairweather, C.L. (2009) Torres Strait Spatial Management Research Project 2007-09. Final Report for DAFF Consultancy DAFF83/06. Department of Employment, Economic Development and Innovation, Brisbane, Australia.

Turnbull, C.T. (2019) Updated Tiger Prawn Stock Assessment for the Torres Strait Prawn Fishery. A report to AFMA for the TSPMAC and TSSAC. Project: 180802

Appendix Details by Year and Month of Fishing Effort and Catches since 1989

The appendix tables provide a summary by year and month of fishing effort, catch and CPUE since 1989; the year when full logbook coverage commenced.

Note: Only the southern section of Torres Strait was open during March of 1989 so this data was neither presented nor used to calculate the averages displayed in the previous monthly figures.

Table 5 Tiger prawn catch in tonnes by month for the years 1989 to 2024.

Year	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
1989		13	169	126	64	60	43	30	25	9
1990			99	76	41	66	46	34	22	11
1991		217	67	117	110	56	42	49	31	20
1992		245	147	102	87	62	87	67	52	29
1993		90	87	64	40	51	72	37	30	16
1994		124	87	64	51	42	41	26	20	10
1995		187	120	107	73	53	45	36	20	9
1996		246	90	68	71	58	57	40	29	10
1997		172	109	92	59	53	74	69	43	23
1998		261	185	117	108	99	77	60	43	15
1999		129	89	96	74	76	62	49	35	18
2000		121	74	52	61	59	42	36	23	10
2001		132	124	88	75	64	56	48	24	10
2002		195	141	111	57	46	54	48	44	24
2003		177	134	79	61	77	74	54	36	20
2004		141	111	80	61	65	66	44	23	16
2005		194	165	96	51	31	36	44	28	10
2006		191	116	79	45	45	49	38	28	11
2007		121	126	112	60	40	46	42	34	13
2008		95	86	77	41	51	49	34	27	15
2009		81	51	44	45	28	28	30	25	7
2010		63	43	32	31	31	58	52	23	11
2011		39	16	21	28	32	38	20	7	3
2012		84	69	71	54	52	32	14	15	9
2013		99	56	60	47	49	35	30	27	15
2014		65	34	36	32	31	24	40	36	18
2015		88	82	95	65	51	72	52	39	14
2016	21	37	56	58	46	39	39	35	27	7
2017	7	8	4	10	7	6	12	23	24	10
2018	2	10	17	37	82	69	49	32	22	8
2019	5	53	114	128	71	51	34	28	22	8
2020	11	29	14	17	3	37	29	21	21	20
2021	8	20	23	36	41	41	23	12	18	12
2022	5	20	48	61	18	26	35	41	10	1
2023	10	18	12	20	17	22	14	21	15	9
2024	18	26	21	50	35	40	38	57	21	2

Table 6 The endeavour prawn catch in tonnes by month for the years 1989 to 2024. Note the data is rounded integers therefore "0" indicates an endeavour prawn catch of less than 0.5 tonnes and blanks indicate no endeavour prawn catch for that year and month.

Year	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
1989		32	135	125	70	73	59	55	48	15
1990			64	67	35	57	65	69	54	24
1991		293	81	172	136	86	73	125	70	43
1992		222	160	119	104	79	122	125	104	67
1993		172	148	99	57	69	123	93	82	42
1994		202	215	146	112	86	102	78	50	21
1995		279	222	189	131	105	92	97	45	19
1996		241	141	98	78	82	97	85	47	24
1997		236	189	149	92	76	118	111	67	26
1998		190	164	130	120	134	110	90	85	27
1999		263	308	239	189	151	133	113	80	33
2000		278	200	136	101	102	88	95	58	19
2001		289	226	177	89	82	73	91	47	19
2002		225	174	109	67	48	62	76	68	33
2003		165	163	89	48	60	78	75	52	29
2004		116	129	101	65	73	85	67	35	18
2005		117	124	101	54	31	44	66	47	14
2006		186	177	95	51	41	40	41	32	8
2007		124	113	87	43	30	36	36	27	6
2008		87	93	71	34	34	42	33	19	6
2009		43	31	22	24	13	14	16	8	2
2010		20	14	10	7	9	23	20	6	1
2011		10	6	7	9	14	14	8	3	1
2012		15	21	23	18	17	12	5	3	2
2013		32	12	11	8	12	13	9	5	1
2014		14	7	6	8	8	8	13	9	3
2015		26	21	19	15	14	30	22	15	4
2016	2	4	4	3	5	9	12	13	4	1
2017	0	1	0	1	1	1	4	8	7	1
2018	0	1	3	4	15	16	13	14	12	3
2019	1	23	73	79	43	30	17	16	13	4
2020	1	9	2	3	1	9	12	9	8	6
2021	1	4	6	6	10	13	9	5	6	2
2022	0	5	14	23	7	11	15	11	1	0
2023	1	18	7	7	4	7	5	9	8	3
2024	2	9	10	12	9	9	10	21	6	1

Table 7 King prawn catch in tonnes by month for the years 1989 to 2024. Note "0" indicates a king prawn catch of less than 0.05 tonnes and blanks indicate that no king prawn catch was recorded for that year and month.

Year	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
1989		3.3	5.7	6.2	3.2	1.7	1.4	1.5	1.7	0.6
1990			5.3	6.6	2.7	3.2	2.0	1.5	0.8	1.5
1991		30.0	5.5	8.8	5.9	4.4	3.3	4.5	4.6	3.0
1992		20.3	8.0	5.2	5.6	2.5	3.3	4.3	2.9	3.1
1993		12.0	7.0	5.4	2.8	3.5	4.7	1.3	1.3	0.6
1994		13.2	10.9	8.3	3.8	2.3	2.1	1.2	1.0	2.2
1995		9.6	6.3	6.1	2.8	2.7	1.2	1.0	0.8	0.1
1996		9.6	5.9	2.7	1.4	1.3	0.9	1.2	1.1	0.4
1997		6.3	7.3	4.4	3.1	1.5	2.9	2.6	3.2	3.4
1998		29.4	24.5	13.7	9.5	5.8	6.0	5.8	6.8	2.7
1999		19.3	13.2	6.3	4.1	3.6	3.0	3.8	3.9	3.5
2000		33.8	18.2	6.1	4.3	3.8	2.0	2.1	1.6	0.8
2001		27.6	14.3	6.2	2.6	1.3	1.6	5.4	9.6	8.6
2002		75.5	45.1	15.4	4.5	2.6	2.1	4.1	8.2	7.2
2003		48.0	26.0	15.2	7.2	5.0	4.3	5.6	8.4	6.2
2004		26.2	16.1	8.0	4.7	3.8	3.8	4.8	4.0	2.5
2005		11.8	13.5	9.9	4.6	1.4	2.3	3.5	3.3	0.8
2006		15.7	12.3	6.2	2.6	2.0	2.5	2.1	1.3	0.5
2007		18.8	12.1	6.0	3.3	2.2	2.2	1.6	1.7	1.3
2008		16.1	11.9	4.9	2.3	4.9	4.1	2.3	1.4	0.6
2009		5.2	3.7	1.8	2.3	1.2	0.6	0.7	0.7	0.1
2010		2.4	1.6	1.1	0.7	0.4	1.1	1.1	0.3	0.2
2011		0.2	0.2	0.2	1.0	1.2	1.0	0.1	0.1	0.2
2012		0.2	0.8	0.4	1.2	0.2	0.0	0.2	0.1	0.0
2013		0.2	0.3	0.5	0.2	0.3	0.3	0.4	0.2	1.3
2014		0.3	0.2	0.1	0.1	0.8	0.5	0.7	0.2	0.1
2015		0.1	0.3	0.8	1.4	0.6	3.0	0.7	4.1	5.9
2016	1.1	0.4	0.7	0.2	0.2	0.2	0.9	0.8	0.8	0.2
2017	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.2
2018	0.0	0.0	0.0	0.0	0.3	0.6	0.6	0.6	3.1	1.3
2019	0.0	0.5	2.1	3.3	1.6	0.7	0.9	0.3	0.4	0.8
2020	0.0	0.2	0.0	0.0	0.0	0.2	0.0	0.1	0.0	1.9
2021	0.0	0.1	0.0	0.0	0.1	0.0	0.5	0.3	0.4	1.3
2022	0.0	0.1	0.6	0.6	0.2	0.1	0.1	0.2	0.1	0.0
2023	0.4	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.4
2024	1.3	0.2	0.0	0.0	0.1	0.1	0.1	0.4	0.1	0.0

Table 8 Number of days recorded as fished in Torres Strait by the fleet by month for the years 1989 to 2024.

Year	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
1989		184	1370	1605	1059	1064	812	744	670	282
1990			910	1005	509	867	812	724	543	318
1991		2431	596	1228	1531	1030	734	1046	856	531
1992		2218	1453	1377	1358	1084	1209	1170	1183	854
1993		1115	1076	1016	645	794	1440	949	933	557
1994		1570	1494	1160	956	921	1161	887	734	361
1995		1610	1249	1147	970	868	842	763	488	221
1996		1709	1080	882	877	918	1078	833	736	340
1997		1672	1488	1306	1092	853	1209	1157	853	467
1998		1694	1369	1126	1098	1199	1104	1051	1029	507
1999		1387	1332	1479	1505	1334	1252	1147	964	502
2000		1889	1506	1101	1059	1153	933	1094	835	398
2001		1830	1562	1365	1206	1063	1056	1082	700	284
2002		1916	1506	1440	864	714	851	970	908	466
2003		1797	1573	1066	620	765	930	1004	794	447
2004		1123	1107	842	675	788	975	810	461	269
2005		1126	1184	917	604	387	451	616	554	185
2006		1145	877	578	362	316	356	361	304	111
2007		1023	871	703	442	342	426	432	410	184
2008		534	536	531	341	370	414	297	286	170
2009		437	299	238	284	193	194	200	203	59
2010		321	223	172	149	155	309	312	163	82
2011		199	93	112	167	204	253	171	67	40
2012		364	276	335	276	295	220	116	122	78
2013		407	222	245	186	238	186	198	183	127
2014		371	168	195	194	203	165	255	256	149
2015		334	357	446	323	271	435	356	322	154
2016	213	227	288	315	244	213	251	257	243	73
2017	72	74	30	76	56	38	83	177	225	104
2018	8	46	59	142	415	438	391	282	216	81
2019	14	188	457	549	369	288	265	219	197	83
2020	67	162	59	64	12	143	147	121	112	150
2021	45	111	114	155	177	227	154	74	128	100
2022	26	81	203	324	92	111	157	235	69	5
2023	67	114	54	96	71	108	68	96	80	70
2024	101	102	67	176	105	160	177	271	117	19

Table 9 Number of vessels recorded as fished in Torres during each month for the years 1989 to 2024.

Year	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
1989		27	95	84	69	64	43	41	37	25
1990			70	56	30	46	39	36	30	25
1991		95	54	60	82	57	36	50	47	30
1992		90	58	56	71	58	48	52	52	45
1993		65	52	52	32	58	59	51	44	32
1994		72	59	49	46	60	54	44	46	26
1995		68	50	47	50	53	44	35	28	14
1996		73	54	45	49	57	53	41	40	26
1997		73	60	56	55	50	50	48	45	30
1998		70	53	52	56	56	51	54	50	42
1999		64	61	67	67	62	55	53	47	32
2000		71	57	64	57	52	46	49	43	29
2001		69	57	68	57	47	47	47	39	15
2002		71	56	67	44	32	41	45	45	24
2003		69	61	60	29	40	48	46	45	27
2004		46	53	45	36	40	47	40	30	14
2005		52	54	50	36	28	31	32	31	19
2006		42	40	32	22	22	23	20	17	7
2007		42	44	38	29	21	26	27	23	12
2008		29	25	28	22	19	20	21	16	12
2009		25	19	15	17	12	14	13	13	11
2010		18	12	11	10	9	14	13	12	5
2011		12	8	5	12	12	12	10	6	3
2012		19	11	16	14	14	10	8	7	5
2013		20	13	12	10	12	8	10	8	8
2014		18	8	8	10	11	11	10	12	11
2015		19	15	18	16	13	17	15	14	11
2016	10	15	12	13	12	10	12	12	13	9
2017	6	5	2	3	3	3	5	9	9	8
2018	1	3	2	9	16	20	16	12	9	8
2019	3	15	18	21	21	15	16	9	11	8
2020	6	9	3	3	1	6	7	6	8	6
2021	5	8	6	8	11	11	10	5	7	6
2022	1	7	14	14	8	7	10	13	7	1
2023	5	6	3	7	9	5	4	4	5	4
2024	8	5	5	8	11	9	13	11	9	2

Table 10 Tiger prawn CPUE (kg/d) by month for the years 1989 to 2024.

Year	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
1989		70	129	82	64	59	56	42	41	34
1990			113	79	85	80	60	50	43	36
1991		92	117	100	75	57	61	49	39	40
1992		114	104	78	66	61	75	60	47	36
1993		83	83	65	64	66	51	40	33	31
1994		80	60	56	54	47	36	30	28	30
1995		118	98	95	78	64	55	48	43	41
1996		146	85	80	83	65	55	49	41	29
1997		105	75	72	56	65	62	61	52	51
1998		158	138	107	101	86	72	58	42	33
1999		95	68	66	51	59	51	44	37	36
2000		65	50	48	59	52	46	34	29	27
2001		73	81	66	64	61	54	45	36	37
2002		104	96	80	68	65	66	51	50	52
2003		101	87	76	101	103	81	55	47	47
2004		129	102	97	93	84	70	57	51	65
2005		176	144	107	88	84	80	74	52	57
2006		170	135	139	130	143	141	108	93	96
2007		121	148	162	140	121	112	99	84	72
2008		179	163	146	123	140	121	115	97	90
2009		189	175	190	162	153	151	153	128	116
2010		200	195	193	217	205	192	173	143	130
2011		200	178	188	168	163	152	120	108	89
2012		233	251	213	200	180	148	122	123	120
2013		251	257	250	257	214	193	156	154	119
2014		176	201	187	168	157	152	158	143	123
2015		266	233	215	205	193	170	148	126	95
2016	103	165	198	189	192	187	161	142	117	104
2017	102	109	122	138	134	168	152	135	111	93
2018	223	232	297	270	203	160	129	115	105	98
2019	329	290	254	236	198	181	133	128	115	96
2020	178	182	241	268	266	262	203	180	190	137
2021	179	177	209	240	232	181	153	164	143	123
2022	176	251	240	192	198	240	229	178	147	144
2023	163	156	231	212	235	204	219	224	189	134
2024	178	261	317	290	335	262	227	212	181	122

Table 11 Endeavour prawn CPUE (kg/d) by month for the years 1989 to 2024.

Year	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
1989		70	129	82	64	59	56	42	41	34
1990			113	79	85	80	60	50	43	36
1991		92	117	100	75	57	61	49	39	40
1992		114	104	78	66	61	75	60	47	36
1993		83	83	65	64	66	51	40	33	31
1994		80	60	56	54	47	36	30	28	30
1995		118	98	95	78	64	55	48	43	41
1996		146	85	80	83	65	55	49	41	29
1997		105	75	72	56	65	62	61	52	51
1998		158	138	107	101	86	72	58	42	33
1999		95	68	66	51	59	51	44	37	36
2000		65	50	48	59	52	46	34	29	27
2001		73	81	66	64	61	54	45	36	37
2002		104	96	80	68	65	66	51	50	52
2003		101	87	76	101	103	81	55	47	47
2004		129	102	97	93	84	70	57	51	65
2005		176	144	107	88	84	80	74	52	57
2006		170	135	139	130	143	141	108	93	96
2007		121	148	162	140	121	112	99	84	72
2008		179	163	146	123	140	121	115	97	90
2009		189	175	190	162	153	151	153	128	116
2010		200	195	193	217	205	192	173	143	130
2011		200	178	188	168	163	152	120	108	89
2012		233	251	213	200	180	148	122	123	120
2013		251	257	250	257	214	193	156	154	119
2014		176	201	187	168	157	152	158	143	123
2015		266	233	215	205	193	170	148	126	95
2016	103	165	198	189	192	187	161	142	117	104
2017	102	109	122	138	134	168	152	135	111	93
2018	223	232	297	270	203	160	129	115	105	98
2019	329	290	254	236	198	181	133	128	115	96
2020	178	182	241	268	266	262	203	180	190	137
2021	179	177	209	240	232	181	153	164	143	123
2022	176	251	240	192	198	240	229	178	147	144
2023	163	156	231	212	235	204	219	224	189	134
2024	178	261	317	290	335	262	227	212	181	122