

Fishery statistics summary 2023 – Sea Urchin and Turban Shell Fishery

Red Sea Urchin (*Heliocidaris tuberculata*)

October 2023

Acknowledgement of Country

The Department of Primary Industries acknowledges the Traditional Custodians of the lands where we work and live. We celebrate the diversity of Aboriginal peoples and their ongoing cultures and connections to the lands and waters of NSW.

We pay our respects to Elders past, present and emerging and acknowledge the Aboriginal and Torres Strait Islander people that contributed to the development of this document.

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Executive summary

This report provides updated fishery statistics for the NSW Sea Urchin and Turban shell (SUTS) Fishery- Red Urchin stock for 2023 and should be read in conjunction with the 2020 stock assessment report for Red Urchin (Chick 2020).

Stock status

The determination of stock status has not been revised from the 2020 stock assessment report and the status of the Red Urchin stock remains classified as **sustainable**. Importantly, this determination remains reliant on assumptions including a biomass of Red Urchin, expected to be maintained at or about levels of an unfished stock, in areas closed to commercial fishing for over 20 years. Further, the 2020 assessment report stated that the status of the Red Urchin stock from areas open to commercial fishing is likely depleting. However, substantially reduced fishing mortality, from low levels of commercial catch since 2021, that have generally been substantially below regional catch limits and the total allowable catch, together with the introduction of a minimum legal size from Oct. 2019, reduces the likelihood of stocks in areas open to fishing becoming depleted.

An assessment of the Red Urchin stock was completed in 2020 (Chick 2020). Subsequent annual reports have been Fishery Statistics Summary reports that update fishery statistics but do not review stock status, due to the low level of commercial fishery data and limited new data to reliably inform it. This decision was made by DPI Fisheries, in consultation with the NSW Total Allowable Fishing Committee (TAFC), understanding that levels of commercial catch in recent years have been low, related to factors including COVID-19 management and natural disasters (fires and flooding) impacting on the domestic economy, recent changes to fishery operations (TAFC 2022) and areas closed to fishing Red Urchins remain, indicating stock status has unlikely changed.

Uncertainty associated with the distribution and abundance of Red Urchins in areas closed to their commercial harvest remains, with no quantitative data to inform the assumption of Red Urchin abundance in closed areas remaining at or around unfished levels. This need is contributing to that of a broader research project proposal informing the dynamics of algal and macroinvertebrate distribution and abundance on NSW temperate reefs. However, qualitative information, from observations by SUTS Fishery licence holders and divers who have fished in areas previously closed to all SUTS Fishery species but opened to harvest Long Spined Urchins only (since December 2022), report relatively high abundances and large sizes of Red Urchins in these areas. Further, in 2023, observations by commercial fishers of Red Urchin in some areas in Region 5 (closed to Red Urchin fishing), indicate their abundance is relatively high and there are large individuals among the populations.

Fishery statistics

In 2023 (to 4 September), the commercial fishery had reported a total catch of 1.6 t of Red Urchin, the second lowest catch reported to the end of August since 2000 (lowest was 1.5 t in 2022) and ~20% of the last 5-year average catch to the same time. Further, the catch in 2023 (1.6 t) was ~5% of the TAC (30 t) and <20% of the Regional Catch Limit (9 t). In 2022, the total catch was 3.6 t, the lowest annual total catch in the history of the fishery (6% of the TAC; and <20% Regional Catch Limit of 19 t). Similarly, the trend in effort (hours) has generally reflected that of catch, although the decline has been marginally less than that in catch, resulting in nominal catch rates (kg/hr) for harvesting Red Urchin only and Red Urchin together with other SUTS species on the same day at or among the lowest levels since 2000. Whilst the catch rate (kg/hr) on Red Urchin only fishing days remains among historically low levels it was about 30% greater than the previous 5-year average and double that in 2022 (the lowest in the history of the fishery). However, it remains 80% of the 10-year average (54 kg/hr) and substantially below historical peaks in excess of 100 kg/hr.

Stakeholder engagement

- SUTS Fishery licence holders (or representatives) were invited to an online meeting and presentation of the fishery statistics to 2023. Feedback was provided, informing the understanding of fishery operations and the performance of the stock and fishery.
- Meeting participants were informed that there is now an industry lead association of the SUTS Fishery with Abalone Association of NSW.
- A number of issues were raised around fishery harvest controls, including;
 - opening areas closed to Red Urchin fishing to take pressure of existing populations, understanding this was not a unanimous position of SUTS Fishery licence holders
 - the potential of a daily catch limit to support the economic viability of fishing for Red Urchin and to maintain a high value for the Red Urchin resource
 - consideration of having more rigorous controls on access within the commercial sector to protect and encourage resource stewardship e.g. limiting leasing to proportions of ownership to limit the opportunity for short-term exploitation of the resource.
 - strong support for the maintenance of the Regional Catch Limits and Minimum Legal Size
- Discussions included fishery operational aspects that could influence interpretation of the fishery statistics, including;
 - an expanding market and fishery for Long Spined Urchins (*Centrostephanus rodgersii*). Increased processing capacity and fishing has developed to service the market, supporting a more viable and larger volume urchin fishery, including the harvest of Red Urchin whilst fishing for Long Spined Urchin, when it may not otherwise be viable.
 - fewer SUTS Fishery fishers harvesting Red Urchins only on a day and Red Urchin fishing only requiring ‘flat days’ (low swell and ocean conditions) to harvest in shallow water (likely influencing levels of catch rate) and other fishers harvesting Red Urchins opportunistically whilst primarily harvesting Long Spined Urchins.
- A number of operational and economic issues were also raised including the market price for Red Urchins being vulnerable to changes in the volume of daily catch between ~30-100 kg, resulting in prices changing from ~\$16 to \$8-10/kg, and hence the point above regarding a daily catch limit.

Stock status

The determination of stock status for the Sea Urchin and Turban Shell (SUTS) Fishery – Red Sea Urchin (*Heliocidaris tuberculata*, CAAB 25 247002, hereafter referred to as Red Urchin) has not been revised from the 2020 stock assessment report (Chick 2020) and the status of this stock remains classified as **sustainable**. However, as stated in the 2020 assessment report, this determination is complex and reliant on an assumed biomass of Red Urchin, expected to be maintained at or about levels of an unfished stock, in areas closed to commercial fishing that comprise about 30% of the total area inhabited by Red Urchin in NSW, including SUTS Fishery specific closures since 1994 (~18% of area). Moreover, the 2020 assessment report stated that the status of the Red Urchin stock from areas open to commercial fishing was likely depleting. This determination remains as no new determination of status is made from the summaries of limited fishery statistics to this report. Further, whilst relatively low fishing mortality, from relatively small commercial catches, as well as the introduction of a minimum legal size since Oct. 2019, reduces the likelihood of the biomass of Red Urchin in areas open to fishing becoming depleted, prolonged low catches together with low catch rates indicate productivity of the Red Urchin stock is low. Although the reliability of these measures of resource performance are reduced as fewer data are available through time as fishing activity reduces and fishery operations change.

This report provides a summary of the fishery statistics at the state-wide level for Red Urchin and the SUTS fishery as a whole (Appendix 1), from 2000 to 2023 (to 4 September). It updates those data presented in the 2022 fishery statistics report (Chick 2022) and the 2020 stock assessment report (Chick 2020) and should be read in conjunction with them. The data in this 2023 report have not resulted in any substantial and unexpected change in previously reported data. The methodology and rationale for the determination of stock status, uncertainty in the assessment, and detailed presentations and interpretations of fishery statistics for Red Urchin at scales of the whole fishery (state-wide) and SUTS Regions and Subzones are provided in the 2020 assessment report.

An assessment of the Red Urchin stock has not done since 2020 due to the low level of commercial fishery data and limited new data available to reliably inform it. This decision was made by DPI Fisheries, in consultation with the NSW Total Allowable Fishing Committee (TAFC), understanding that reduced demand, primarily a consequence of COVID-19 management impacting on the domestic economy and recent changes to fishery operations (TAFC 2022) has substantially influenced levels of commercial catch in recent years and areas closed to fishing Red Urchins have remained, indicating stock status has unlikely changed.

Background information regarding the biology and stock structure of Red Urchin is described and cited in the 2020 stock assessment report (Chick 2020) and provides evidence for the determination of stock status of Red Urchin to be made at the biological stock level.

Fisheries statistics

Information regarding the structure and development of the SUTS Fishery (in particular, that for Red Urchin) together with a detailed interpretation of fishery statistics to inform the assessment was provided in the 2020 stock assessment report (Chick, 2020). This presented the weight of evidence for determination of stock status and support for the determination of a total allowable catch (TAC) for Red Urchin.

This 2023 update of state-wide fishery statistics is provided to maintain a current series of fishery statistics to inform stakeholders, including management decision makers (including the TAFC) and to support determination of a TAC for Red Urchin. Due to the limited data since 2020 the presentation of data in this report to spatial scales below the state-wide level are restricted to the total catch at the SUTS Fishery Region level only. All reference to fishery statistics in 2023 includes data from January to 4 September 2023, unless otherwise stated. The update of fishery data in 2023 included a review of data records back to 2010. As such, minor differences in summary statistics from previous reports are apparent and expected as records have been exposed to quality assurance and control processes.

Catch, effort and catch rate information

Commercial

In 2023, the commercial fishery had reported a total catch of 1.6 t of Red Urchin, harvested by 10 active fishers over a total of 69 hours (Figure 1 and Table 1). This is the second lowest level of catch reported to the end of August since 2000 (previous lowest was 1.5 t in 2022) and equates to ~20% of the most recent 5-year (7.8 t), and 10-year (6.9 t) average catch to the end of August (excluding 2023). In 2022 the total catch was ~6% of the allocated 60 t total allowable catch and 18% of the total regional catch limits applied in 2022 (19 t; Figure 1). In 2023 (to 4 Sept.), reported catch (1.6 t) was ~5% of the TAC (30 t) and 18% of the Regional Catch Limit (9 t).

In the SUTS Fishery, fishers can harvest Red Urchin and/or other SUTS Fishery species on the same FisherDay, whilst still reporting species specific catch and effort. In 2023, 42 FisherDays and 46 hours were reported harvesting Red Urchin when also reporting the catch of other SUTS species (RU+SUTS) and a total of 12 FisherDays and 23 hours were reported harvesting Red Urchin only (RU only) (Figure 2A and Table 2). These levels of effort are at or among the lowest levels reported for harvesting Red Urchin to the end of August since 2000. In 2023, nominal catch rates (kg/hr and kg/day) from records where both Red Urchin and other SUTS species (RU+SUTS) and Red Urchin only (RU only) were harvested are also at or among the lowest levels recorded since at least 2000 (Figure 3 and Table 3). In 2023, catch rates (kg/hr) recorded for Red Urchin on days where other SUTS species were harvested (RU+SUTS; 25 kg/hr) and Red Urchin only (RU only; 42.1 kg/hr) remain among the lowest catch rates (kg/hr) recorded since 2000. This is despite the catch rate (kg/hr) on Red Urchin only fishing days in 2023 (42.1 kg/hr) being about 30% greater than the previous 5 year average (31.6 kg/hr) and double that in 2022 (21.2 kg/hr).

Catch among Regions and as a proportion of annual catch has varied substantially through time (Figure 4 and Table 4). In 2023, the 1.6 t of catch was predominantly

harvested from Region 2 (49%) with that in Region 4 and Region 1 contributing 32% and 19%, respectively. Notably, in 2023, there has been no reported catch of Red Urchin from Region 3 (Table 4).

In October 2020, a voluntary industry-based catch sampling program was established (a recommendation from the TAFC in 2020) to obtain size frequency data of commercially harvested Red Urchin. Instructions and a data sheet are available to fishers online (Information paper and data sheet - Red Urchin) to provide spatially referenced size-frequency information from each fishing day. Low levels of fishing in addition to other priorities of fishers has resulted in limited samples from across the fishery in 2021 and 2022, with the exception of that in sub-zone L4, and no samples in 2023 (Figure 5).

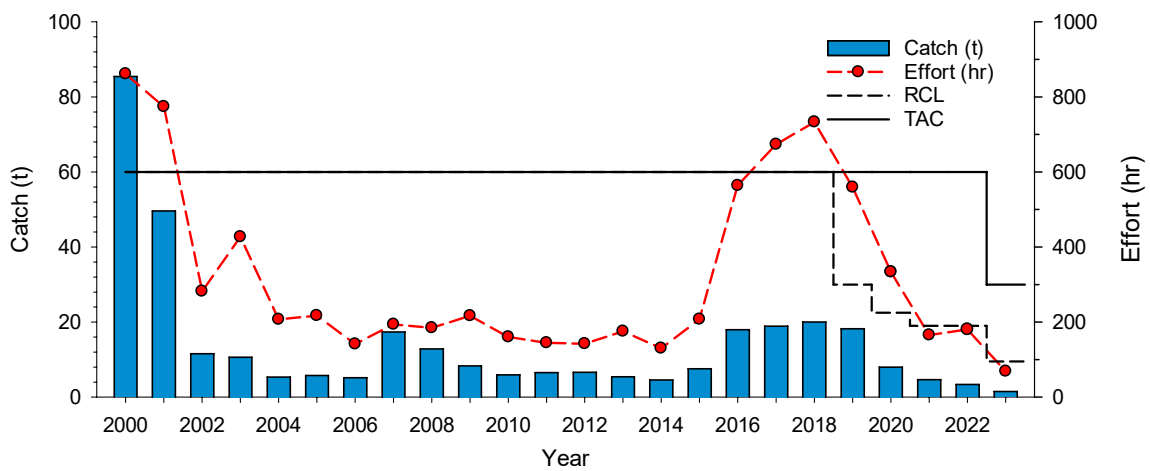


Figure 1 Annual catch (t), effort (hr), Total Allowable Catch (TAC) and total Regional Catch Limit (RCL) on Red Urchin in the Sea Urchin and Turban Shell (SUTS) Fishery, from 2000 to 2023* (*data to 4 September).

Table 1 Annual catch (t), effort (hr) and number of active fishers harvesting Red Urchin in the SUTS Fishery, from 2000 to 2023* (*data to 4 September). Effort excludes records with <0.25 or >8 hrs effort per FisherDay.

Year	Catch (t)	Effort (hr)	No. active fishers (RU)
2000	85.5	861	11
2001	49.7	774	13
2002	11.7	282	6
2003	10.8	427	9
2004	5.4	207	11
2005	5.9	217	14
2006	5.3	142	9
2007	17.5	194	8
2008	12.9	185	8
2009	8.5	217	12
2010	6.1	160	10
2011	6.6	145	10
2012	6.7	143	8
2013	5.5	176	9
2014	4.7	130	8
2015	7.7	208	10
2016	18.1	564	11
2017	19.0	674	16
2018	20.1	733	13
2019	18.4	559	17
2020	8.2	334	13
2021	4.8	166	10
2022	3.6	180	7
2023*	1.6	69	10

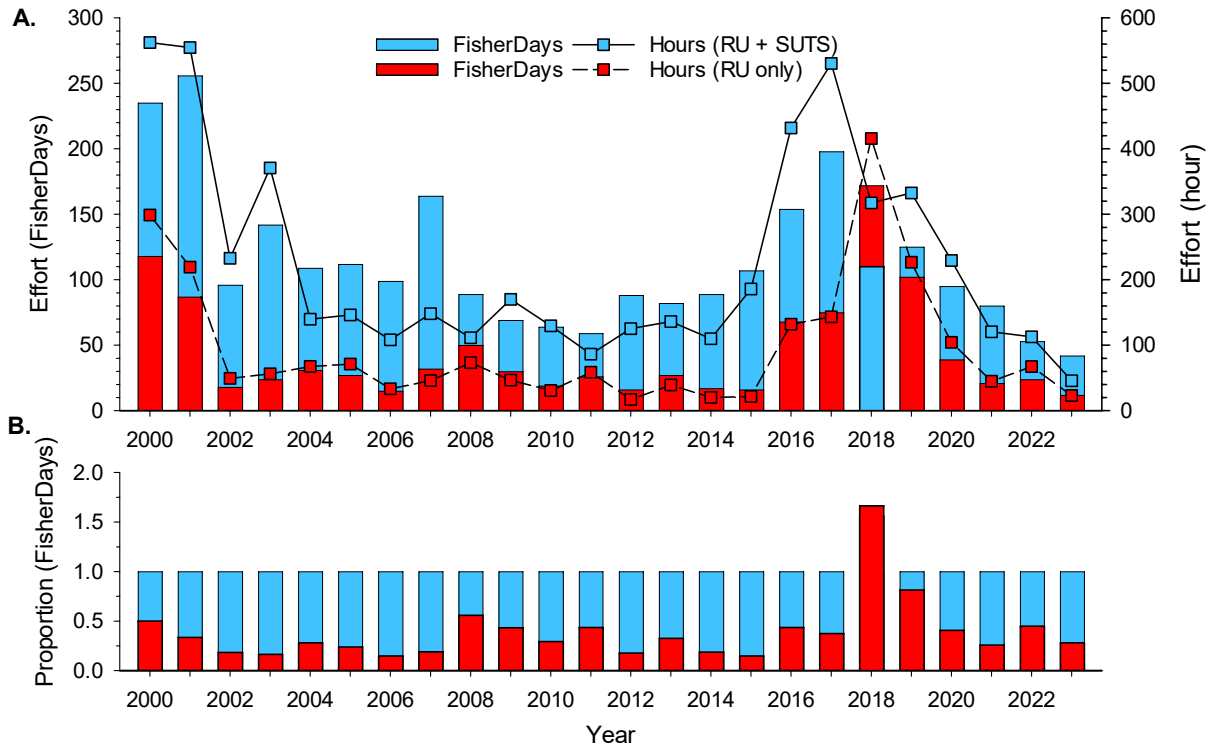


Figure 2 Whole Fishery – Effort – A. Number of FisherDays and hours where Red Urchin and other SUTS species (RU + SUTS) and Red Urchin only (RU only) were reported; and B. FisherDays (RU only) as a proportion of FisherDays (RU + SUTS), from 2000 to 2023* (*data to 4 September).

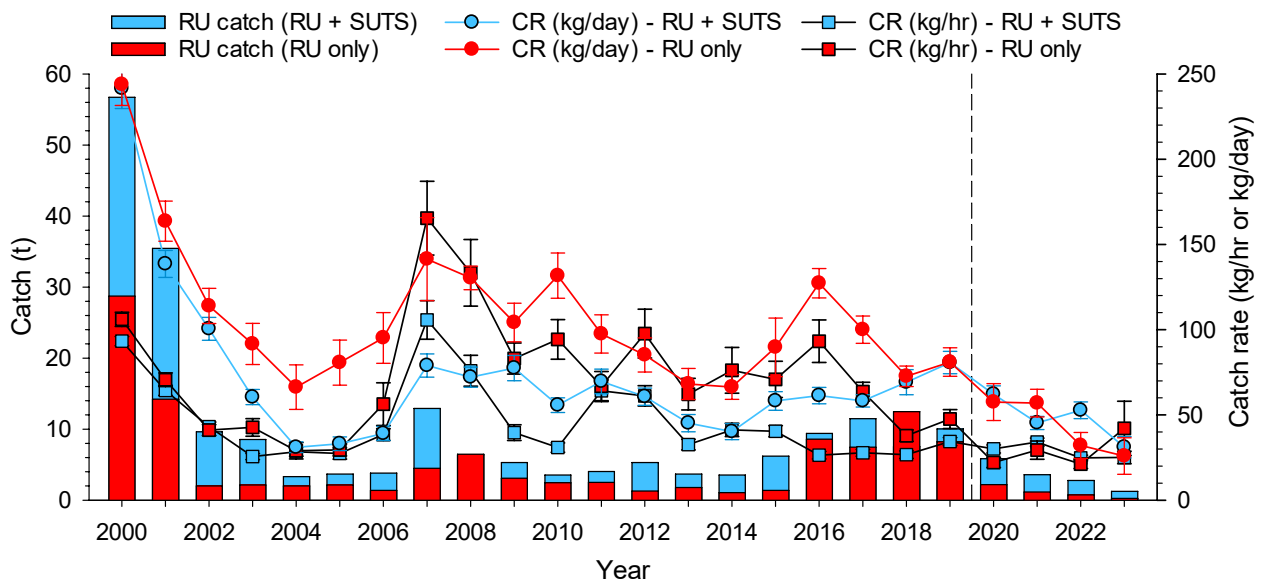


Figure 3 Whole Fishery – Catch and catch rate. Catch (t) where Red Urchin and other SUTS species (RU + SUTS) and Red Urchin only (RU only) were reported each day; and Catch rate (kg/day and kg/hr as average \pm SE) of daily records for RU + SUTS and RU only days from 2000 to 2023* (*data to 4 September). Vertical dashed line indicates the introduction of a MLL (95 mm test diameter)

Table 2 Whole Fishery – Effort – Number of FisherDays and hours where Red Urchin and other SUTS species were reported (RU + SUTS) and Red Urchin only were reported (RU only); and FisherDays (RU only) as a proportion of FisherDays (RU + SUTS), from 2000 to 2023* (*data to 4 September).

Year	FisherDays (A) (RU + SUTS)	FisherDays (B) (RU only)	Proportion FisherDays (B/A)	Effort (hr) (RU + SUTS)	Effort (hr) (RU only)
2000	235	118	0.50	562	299
2001	256	87	0.34	555	219
2002	96	18	0.19	233	50
2003	142	24	0.17	371	56
2004	109	31	0.28	140	68
2005	112	27	0.24	146	71
2006	99	15	0.15	108	33
2007	164	32	0.20	148	46
2008	89	50	0.56	111	74
2009	69	30	0.43	170	47
2010	64	19	0.30	130	31
2011	59	26	0.44	86	59
2012	88	16	0.18	125	17
2013	82	27	0.33	136	39
2014	89	17	0.19	110	20
2015	107	16	0.15	186	22
2016	154	68	0.44	432	132
2017	198	75	0.38	530	143
2018	110	172	1.56	317	416
2019	125	102	0.82	333	227
2020	95	39	0.41	230	104
2021	80	21	0.26	121	45
2022	53	24	0.45	113	68
2023*	42	12	0.29	46	23

Table 3 Whole Fishery – Catch and catch rate – Catch of Red Urchin on FisherDays where Red Urchin and other SUTS species were reported (RU + SUTS) and Red Urchin catch from FisherDays (RU only); Catch rate (kg/hr and kg/day) from FisherDays (RU + SUTS) and FisherDays (RU only), from 2000 to 2023* (*data to 4 September). Catch rate data excludes FisherDays with effort <0.25 and >8 hr.

Year	Catch (t) (RU + SUTS)	Catch (t) (RU only)	CR (kg/hr) (RU + SUTS)	CR (kg/hr) (RU only)	CR (kg/day) (RU + SUTS)	CR (kg/day) (RU only)
2000	56.76	28.78	93.3	106.1	241.5	243.9
2001	35.48	14.24	64.3	70.7	138.6	163.6
2002	9.65	2.05	43.1	41.1	100.5	114.0
2003	8.59	2.20	25.6	42.7	60.5	91.6
2004	3.38	2.06	28.4	29.0	31.0	66.3
2005	3.70	2.18	27.4	29.4	33.1	80.7
2006	3.87	1.43	38.5	56.3	39.1	95.2
2007	12.95	4.53	105.7	165.4	79.0	141.4
2008	6.43	6.52	75.9	133.3	72.2	130.4
2009	5.35	3.13	39.6	83.1	77.5	104.2
2010	3.57	2.50	30.9	94.3	55.7	131.7
2011	4.11	2.53	64.2	66.9	69.7	97.5
2012	5.34	1.36	61.2	97.7	60.7	85.2
2013	3.70	1.84	32.6	62.2	45.2	68.1
2014	3.58	1.13	41.3	76.2	40.2	66.4
2015	6.23	1.43	40.5	70.9	58.2	89.6
2016	9.45	8.65	26.4	93.2	61.4	127.2
2017	11.53	7.50	27.8	63.7	58.2	100.0
2018	7.61	12.50	26.7	37.9	69.2	72.7
2019	10.09	8.26	34.4	47.6	80.7	81.0
2020	5.91	2.24	30.1	22.1	62.2	57.5
2021	3.62	1.20	34.1	29.4	45.3	57.0
2022	2.80	0.77	24.8	21.2	52.7	32.1
2023*	1.30	0.31	25.0	42.1	31.1	25.9

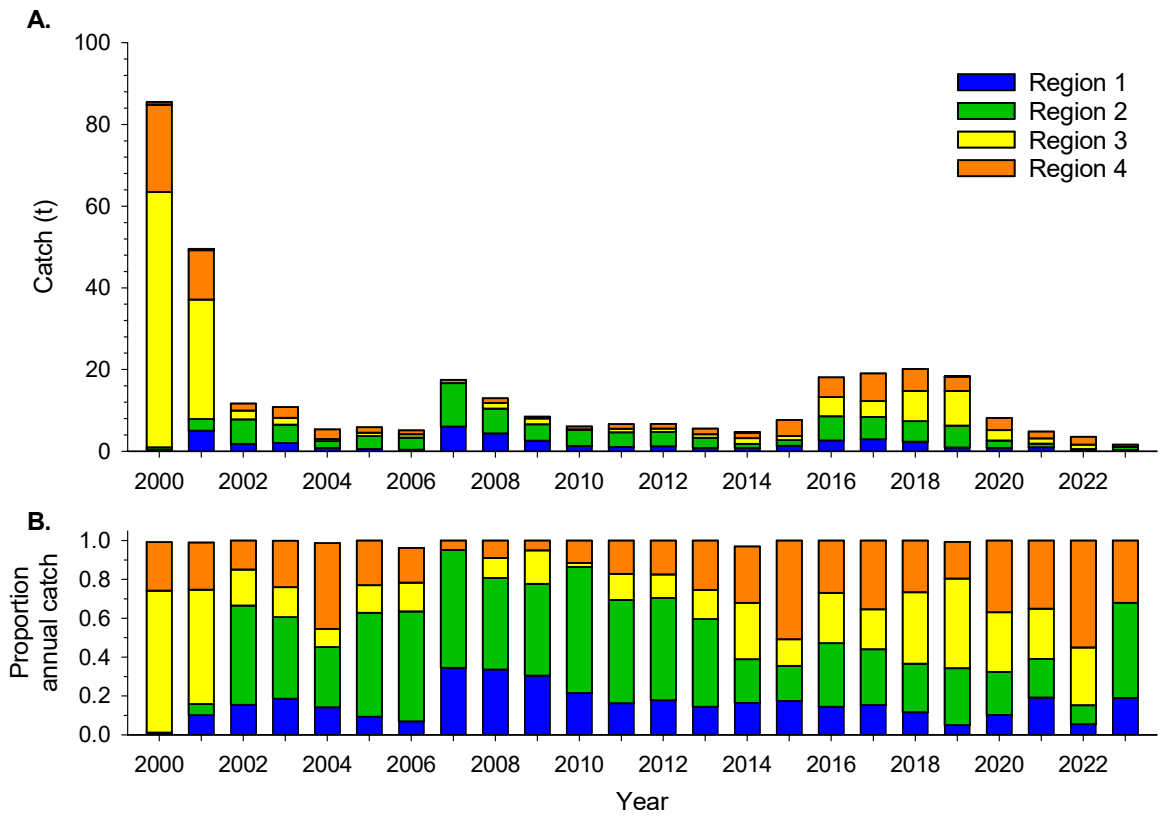


Figure 4 A. Catch (t); and B. Proportion of annual catch for Regions 1-4, from 2000 to 2023* (*data to 4 September).

Table 4 Catch (t) (percent) for Regions 1-4, from 2000 to 2023* (*data to 4 September).

Year	Region 1 Catch (t) (%)	Region 2 Catch (t) (%)	Region 3 Catch (t) (%)	Region 4 Catch (t) (%)
2000	0.27 (0.3)	0.68 (0.8)	62.50 (73.1)	21.37 (25)
2001	5.02 (10.1)	2.85 (5.7)	29.28 (59)	12.07 (24.3)
2002	1.81 (15.5)	5.97 (51)	2.17 (18.5)	1.75 (15)
2003	2.00 (18.6)	4.53 (42)	1.67 (15.5)	2.58 (23.9)
2004	0.77 (14.1)	1.69 (31)	0.52 (9.5)	2.40 (44.1)
2005	0.55 (9.3)	3.15 (53.5)	0.83 (14.2)	1.35 (23)
2006	0.36 (6.8)	3.00 (56.6)	0.79 (14.9)	0.95 (17.9)
2007	6.03 (34.5)	10.60 (60.6)	0.00 (0)	0.85 (4.9)
2008	4.34 (33.5)	6.11 (47.2)	1.33 (10.3)	1.16 (9)
2009	2.58 (30.5)	4.00 (47.2)	1.45 (17.2)	0.43 (5.1)
2010	1.30 (21.5)	3.94 (65)	0.12 (2)	0.70 (11.5)
2011	1.08 (16.2)	3.54 (53.3)	0.90 (13.5)	1.14 (17.1)
2012	1.19 (17.7)	3.53 (52.7)	0.82 (12.2)	1.17 (17.4)
2013	0.80 (14.4)	2.50 (45.1)	0.83 (15)	1.41 (25.4)
2014	0.78 (16.5)	1.05 (22.4)	1.37 (29.1)	1.36 (29)
2015	1.34 (17.5)	1.38 (18.1)	1.04 (13.6)	3.90 (50.9)
2016	2.61 (14.4)	5.93 (32.8)	4.69 (25.9)	4.87 (26.9)
2017	2.92 (15.3)	5.46 (28.7)	3.92 (20.6)	6.74 (35.4)
2018	2.33 (11.6)	5.04 (25.1)	7.39 (36.8)	5.35 (26.6)
2019	0.90 (4.9)	5.38 (29.3)	8.47 (46.2)	3.47 (18.9)
2020	0.84 (10.3)	1.80 (22.1)	2.50 (30.7)	3.01 (36.9)
2021	0.92 (19.2)	0.96 (19.9)	1.25 (25.9)	1.69 (35)
2022	0.20 (5.5)	0.35 (9.8)	1.06 (29.7)	1.96 (55)
2023*	0.31 (18.9)	0.79 (49)	0.00 (0)	0.52 (32)
Min [#]	0.20 (5.5)	0.68 (0.8)	0.00 (0)	0.43 (5.1)
Max [#]	6.03 (34.5)	10.60 (60.6)	62.50 (73.1)	21.37 (25)
Mean (5 Yr) [#]	1.04 (10.3)	3.73 (21.2)	4.71 (33.9)	4.05 (34.5)
Mean (10 Yr) [#]	1.46 (13)	3.30 (25.3)	3.23 (27.4)	3.30 (34)

excludes 2023 data

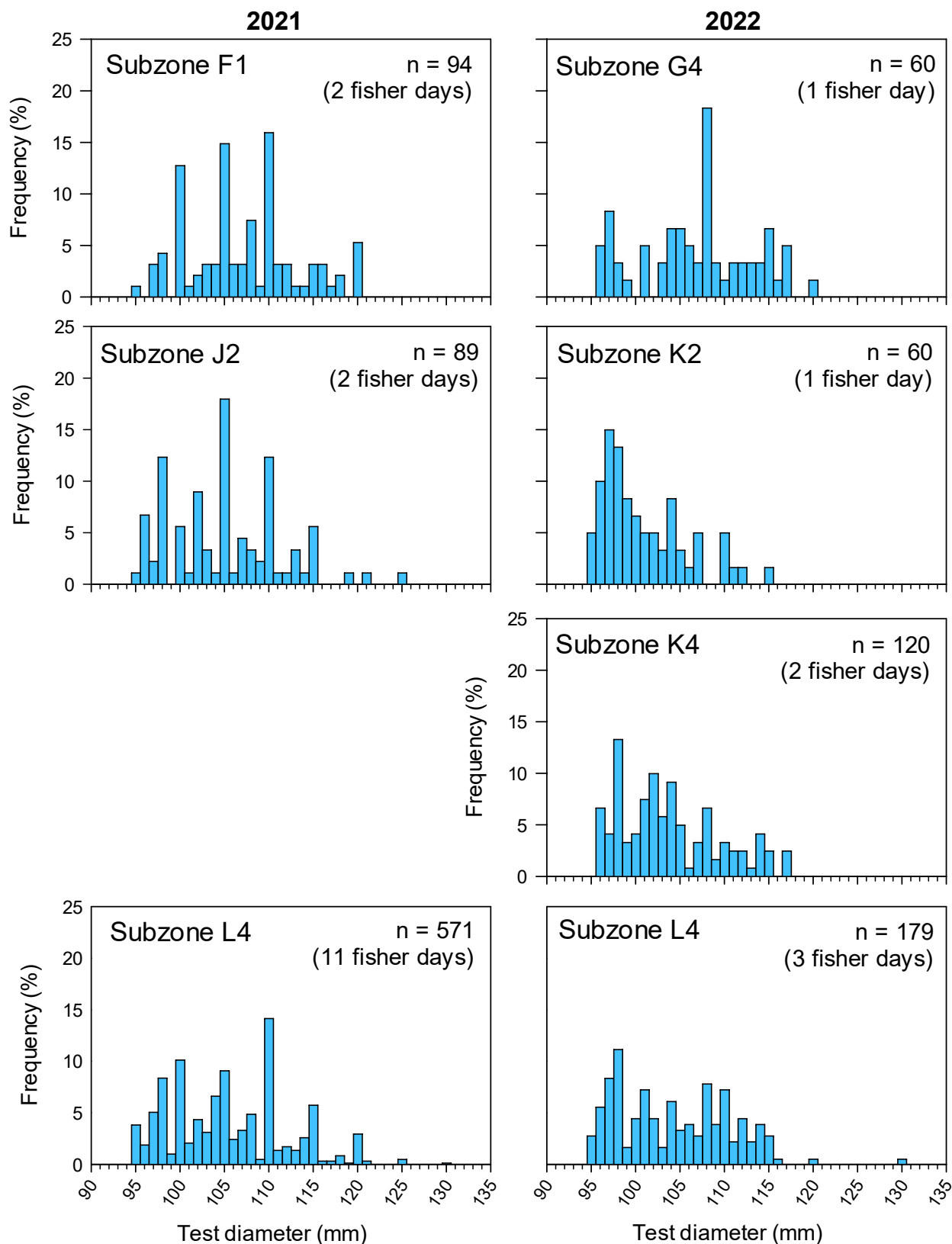


Figure 5 Test diameter frequency distribution for Red Urchin from voluntary commercial catch sampling from 2021 to 2023* (*no data received in 2023).

Recreational fishery

In NSW, there is a recreational daily bag limit of ten sea urchins (Red Urchin and/or other sea urchin species). Recreational fishery statistics for the harvest of sea urchins are limited. During 2018-19, NSW recreational fishery retained harvest estimates for all sea urchins was about 1 t (~2400 individuals) (Murphy et al. 2020), the majority of which are considered Long Spined Sea Urchin. No recreational catch estimates for sea urchins are available from previous state and national recreational fishing surveys, with sea urchins either not having been reported (West et al. 2015) or included into a species reporting group 'Other Taxa' along with various other 'non-fish' species (Henry and Lyle, 2003).

Aboriginal cultural fishery

There are limited data to inform the level of catch from Aboriginal fishers in NSW. Synthesis of catch composition from Indigenous fisheries indicated that the SUTS Fishery overlaps with Indigenous fisheries (Schnierer and Egan 2016) and sea urchins were identified by Aboriginal fishers in a 1999 survey, as a species either targeted or harvested. Further, in the Tweed region, annual catch of sea urchins (unidentified species) by Aboriginal fishers was estimated at 1.8% of total harvest. Schnierer (2011) described the importance of marine invertebrate species as culturally important but did not specify sea urchins in this study.

Illegal Unregulated and Unreported

The level of Illegal Unregulated and Unreported (IUU) fishing has not been quantified.

NSW Fisheries Compliance provide annual summaries of seizures of fish and invertebrates due to non-compliance ([NSW DPI Fishing compliance](#)). These reports indicate regular seizures of sea urchins (range 482-1274 sea urchins p.a.) within financial years between 2014-15 and 2021-22. In 2021-22, 733 sea urchins and 2 233 turban snails were seized.

Stakeholder engagement

Contemporary data supporting the assessment of Red Urchin are fishery-dependent i.e. sourced from logbook and size structure data from compulsory logbook returns and catch sampling voluntarily, respectively, provided by commercial fishers in the NSW SUTS Fishery. NSW DPI Fisheries convened an online meeting of SUTS Fishery licence holders, or their representatives, and presented a summary of information in this report together with that from the 2020 assessment report (Chick 2020). The objective was to present the data and its interpretation and gain feedback and any other information from stakeholders who have contributed to the data, to help inform assessments.

Stakeholders expressed high levels of support for the information provided in the reports and the opportunity to engage and contribute to the assessment process. Points raised by stakeholders included:

- Meeting participants were informed that there is now an industry lead association of the SUTS Fishery with Abalone Association of NSW.
- A number of issues were raised around fishery harvest controls, including;

- opening areas closed to Red Urchin fishing to take pressure of existing populations, understanding this was not a unanimous position of SUTS Fishery licence holders
- the potential of a daily catch limit to support the economic viability of fishing for Red Urchin and to maintain a high value for the Red Urchin resource
- consideration of having more rigorous controls on access within the commercial sector to protect and encourage resource stewardship e.g. limiting leasing to proportions of ownership to limit the opportunity for short-term exploitation of the resource.
- strong support for the maintenance of the Regional Catch Limits and Minimum Legal Size
- Discussions included fishery operational aspects that could influence interpretation of the fishery statistics, including;
 - An expanding market and fishery for Long Spined Urchins (*Centrostephanus rogersii*). Increased processing capacity and fishing has developed to service the market, supporting a more viable and larger volume urchin fishery, including the harvest of Red Urchin whilst fishing for Long Spined Urchin, when it may not otherwise be viable.
 - Fewer SUTS Fishery fishers harvesting Red Urchins only on a day and Red Urchin fishing only requiring ‘flat days’ (low swell and ocean conditions) to harvest in shallow water (likely influencing levels of catch rate) and other fishers harvesting Red Urchins opportunistically whilst primarily harvesting Long Spined Urchins.
- A number of operational and economic issues were also raised including the market price for Red Urchins being vulnerable to changes in the volume of daily catch between ~30-100 kg, resulting in prices changing from ~\$16 to \$8-10/kg, and hence the point above regarding a daily catch limit

Notably, stakeholder comments received from previous stock assessment meetings, and captured, as summaries, in those annual stock assessment and fishery statistics summary reports, remain relevant and contribute further information to those issues raised during the most recent engagement. For example, the comment captured in 2022 “...fishing practices (late 2010’s) by some fishers (i.e. indiscriminate harvesting of Red Urchins at very small sizes (<95 mm)) leaving areas that were otherwise curated for sustainable fishing (fished at >100 mm test diameter), substantially depleted and unable to be fished for years.’ supports the issue raised above regarding commercial access to the resource; and others.

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Appendix 1 – Sea Urchin and Turban Shell Fishery – All species – Summary fishery statistics

SUTS Fishery species catch

The total reported catch (t) of each of the species described in the Sea Urchin and Turban Shell (SUTS) Fishery, from 2000 to 2023 (data to 4 September) are provided in Figure A1-1 and Tables A1-1 (Sea Urchin) and A1-2 (Turban Shell). Species catch as a percentage of total annual catch of all SUTS species is provided in Figure A1-2 and Tables A1-1 (Sea Urchin) and A1-2 (Turban Shell). The catch of Turban Shell was reported to species from mid-2009. Prior to this date all Turban Shell catch was reported to the code ‘Turban Shell – other’. Similarly, the code ‘Sea Urchin – other’ is a reporting code available to fishers.

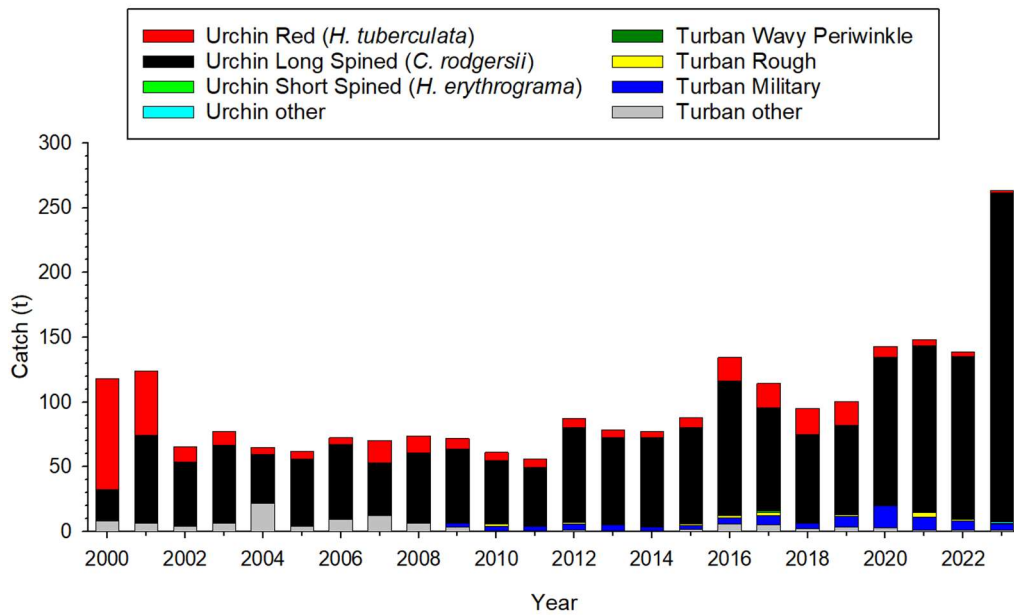


Figure A1 - 1 Annual catch (t) of all SUTS Fishery species, from 2000 to 2023* (*data to 4 Sept.).

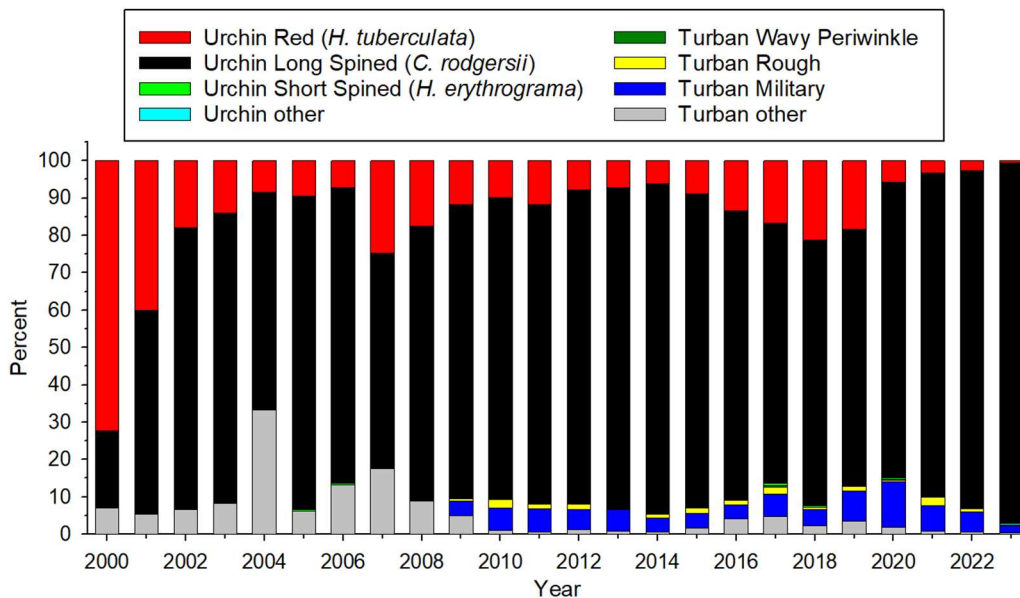


Figure A1 - 2 Species catch as a percent of annual SUTS Fishery catch, from 2000 to 2023* (*data to 4 Sept.).

Table A1 - 1 Annual catch (t) of each species of Sea Urchin and percent of total annual catch of all SUTS species (%), from 2000 to 2023* (*data to 4 Sept.).

Year	Urchin-Red Urchin Catch (t) (%)	Urchin-Long Spined Catch (t) (%)	Urchin-Short Spined Catch (t) (%)	Urchin_other Catch (t) (%)
2000	85.5 (72.3)	24.5 (20.7)	0.1 (0.06)	
2001	49.7 (40)	67.7 (54.5)	0.2 (0.14)	
2002	11.7 (17.9)	49.4 (75.5)	0.04 (0.06)	
2003	10.8 (13.9)	60.3 (77.9)	0.01 (0.02)	
2004	5.4 (8.3)	38.0 (58.2)	0.04 (0.06)	
2005	5.9 (9.5)	51.8 (83.9)	0.3 (0.47)	
2006	5.3 (7.3)	57.3 (79.1)	0.4 (0.48)	
2007	17.5 (24.8)	40.5 (57.6)	0.03 (0.043)	
2008	12.9 (17.5)	54.4 (73.7)		
2009	8.5 (11.8)	56.6 (78.8)		
2010	6.1 (9.9)	49.5 (80.9)		
2011	6.6 (11.8)	45.1 (80.1)		
2012	6.7 (7.7)	73.3 (84.2)	0.01 (0.01)	0.01 (0.01)
2013	5.5 (7.1)	67.3 (86)	0.1 (0.12)	
2014	4.7 (6.1)	68.5 (88.5)		
2015	7.7 (8.7)	73.9 (84.2)	0.04 (0.04)	
2016	18.1 (13.5)	103.9 (77.3)	0.1 (0.05)	0.1 (0.05)
2017	19.0 (16.6)	79.7 (69.7)	0.8 (0.7)	0.02 (0.01)
2018	20.1 (21.2)	67.7 (71.3)	0.3 (0.29)	0.1 (0.06)
2019	18.4 (18.3)	69.1 (68.8)	0.04 (0.04)	0.01 (0.01)
2020	8.2 (5.7)	113.1 (79.2)	0.6 (0.4)	0.03 (0.02)
2021	4.8 (3.3)	128.6 (86.9)	0.07 (0.05)	0.00 (0)
2022	3.6 (2.6)	125.4 (90.3)	0.0 (0.01)	0.43 (0.3)
2023	1.6 (0.6)	254.1 (96.5)	0.16 (0.06)	1.05 (0.4)

Table A1 - 2 Annual catch (t) of Turban Shell species, percent of total annual catch of all SUTS species (%), total catch of all SUTS Fishery species and number of active fishers in the SUTS fishery and harvesting Red Urchin, from 2000 to 2023* (*data to 4 Sept.).

Year	Turban-Wavy Periwinkle	Turban-Rough	Turban-Military	Turban-other	SUTS Fishery		No. active fishers	
	Catch (t) (%)	Catch (t) (%)	Catch (t) (%)	Catch (t) (%)	Total catch (t)	SUTS	RU	
2000				8.2 (6.9)	118.3	15	11	
2001				6.6 (5.3)	124.2	20	13	
2002				4.3 (6.6)	65.5	10	6	
2003				6.4 (8.2)	77.4	11	9	
2004				21.7 (33.4)	65.2	12	11	
2005				3.8 (6.1)	61.7	19	14	
2006				9.5 (13.2)	72.5	11	9	
2007				12.3 (17.5)	70.4	9	8	
2008				6.5 (8.8)	73.9	11	8	
2009		0.5 (0.6)	2.8 (3.9)	3.5 (4.9)	71.9	17	12	
2010		1.4 (2.3)	3.7 (6)	0.6 (0.9)	61.2	13	10	
2011	0.04 (0.06)	0.6 (1.2)	3.5 (6.2)	0.4 (0.6)	56.3	16	10	
2012	0.1 (0.09)	1.2 (1.4)	4.7 (5.4)	1.1 (1.2)	87.1	13	8	
2013	0.04 (0.05)	0.2 (0.2)	4.4 (5.7)	0.7 (0.9)	78.3	15	9	
2014	0.1 (0.12)	0.7 (0.9)	2.9 (3.8)	0.5 (0.6)	77.4	21	8	
2015	0.04 (0.05)	1.2 (1.3)	3.4 (3.9)	1.5 (1.7)	87.7	18	10	
2016	0.1 (0.09)	1.6 (1.2)	4.9 (3.7)	5.6 (4.2)	134.4	20	11	
2017	0.4 (0.32)	2.1 (1.9)	7.0 (6.1)	5.4 (4.7)	114.4	24	16	
2018	0.1 (0.08)	0.5 (0.5)	4.1 (4.3)	2.2 (2.3)	95.0	20	13	
2019	0.2 (0.17)	1.2 (1.2)	8.0 (8)	3.6 (3.6)	100.5	20	17	
2020	0.3 (0.18)	0.7 (0.5)	17.2 (12.1)	2.8 (1.9)	142.8	26	13	
2021	0.02 (0.01)	3.2 (2.1)	10.2 (6.9)	1.1 (0.8)	148.1	20	10	
2022	0.02 (0.02)	1.0 (0.7)	7.5 (5.4)	0.9 (0.6)	138.8	22	7	
2023	0.00 (0)	0.7 (0.3)	4.8 (1.8)	1.1 (0.4)	263.5	26	10	

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