VIC RL and GC RAG #44

2nd March 2025

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Rock Lobster Assessment Results

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Western Zone Assessment

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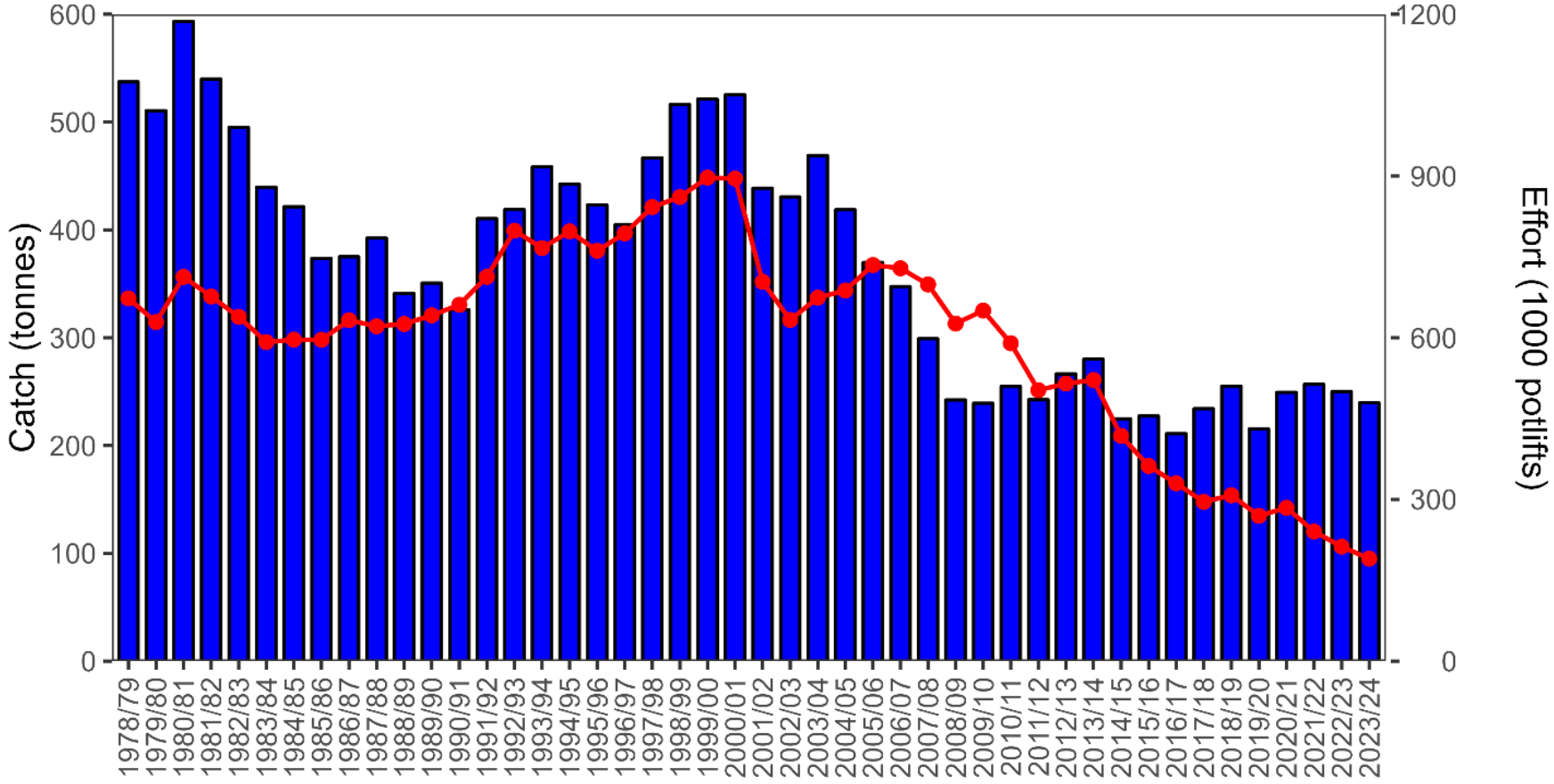
Western Zone Catch and Effort



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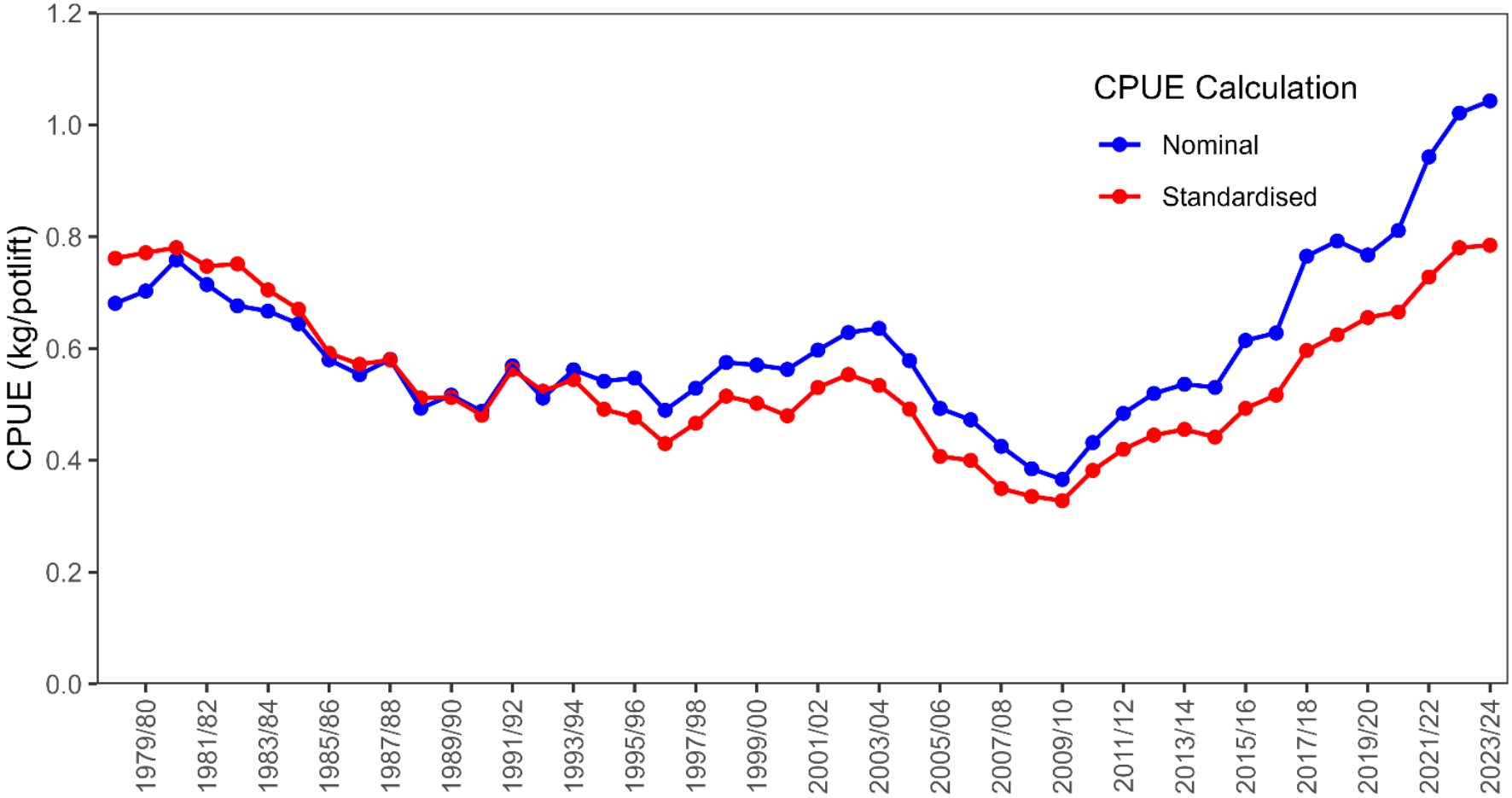
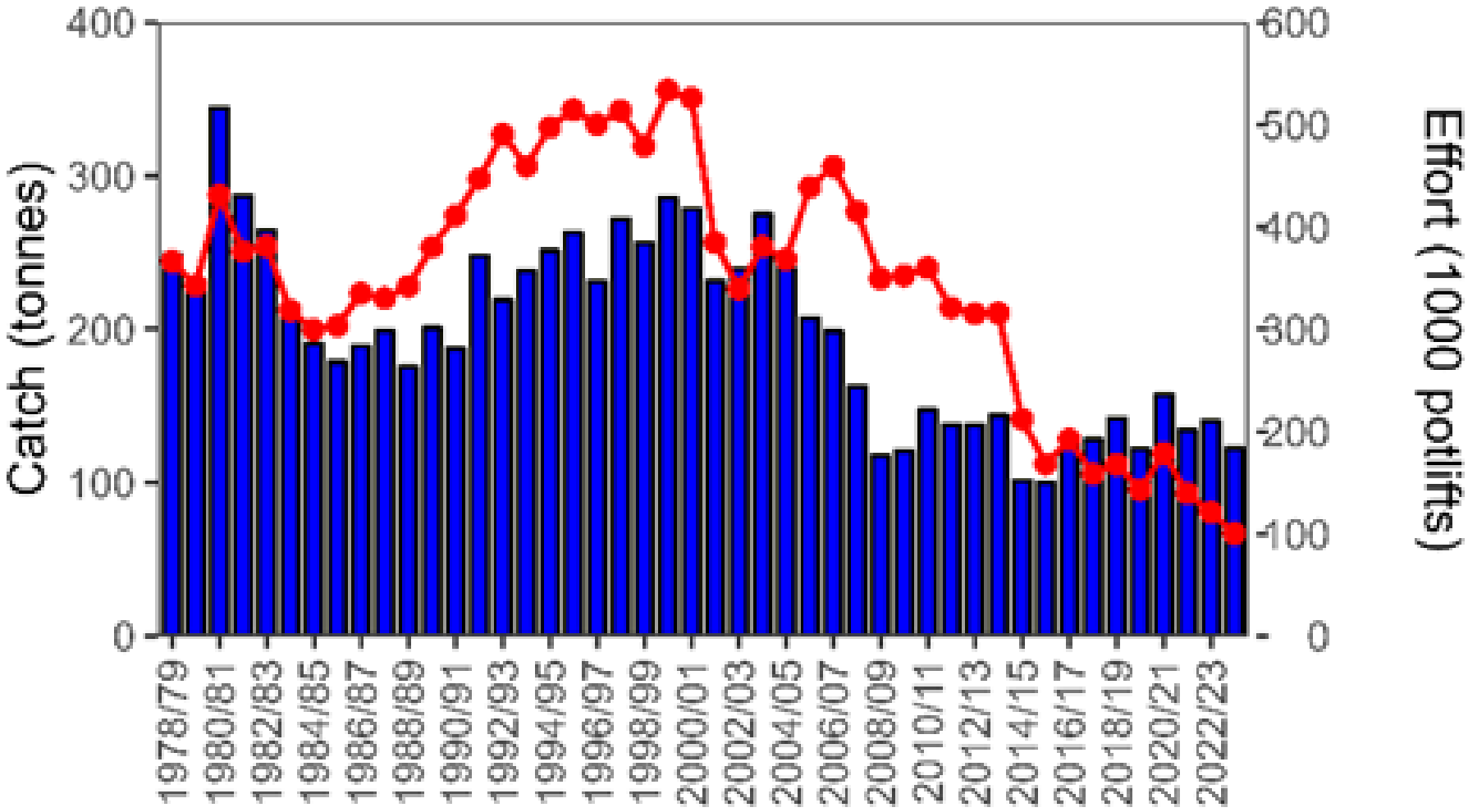
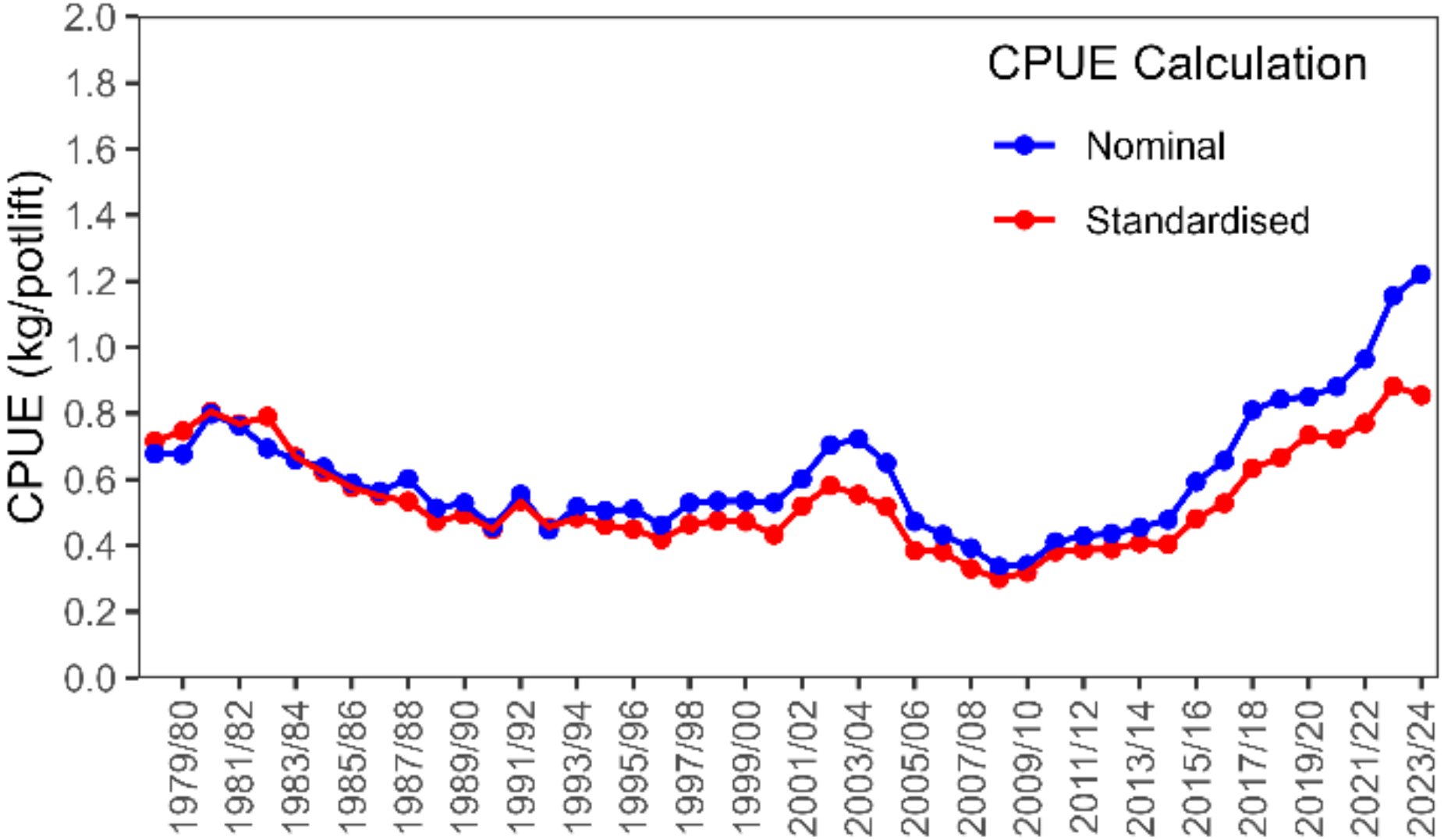
Western Zone CPUE



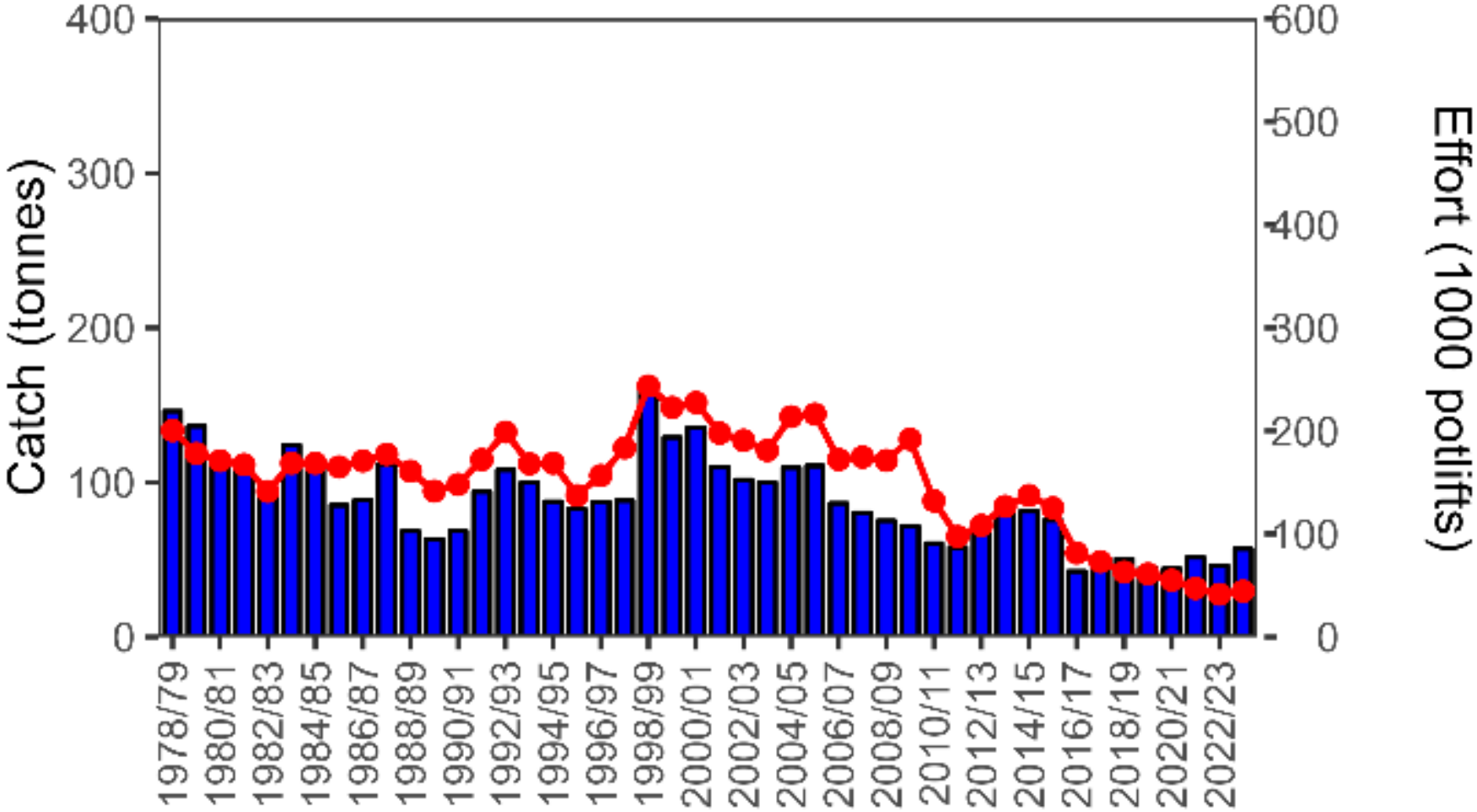
Portland Catch and Effort



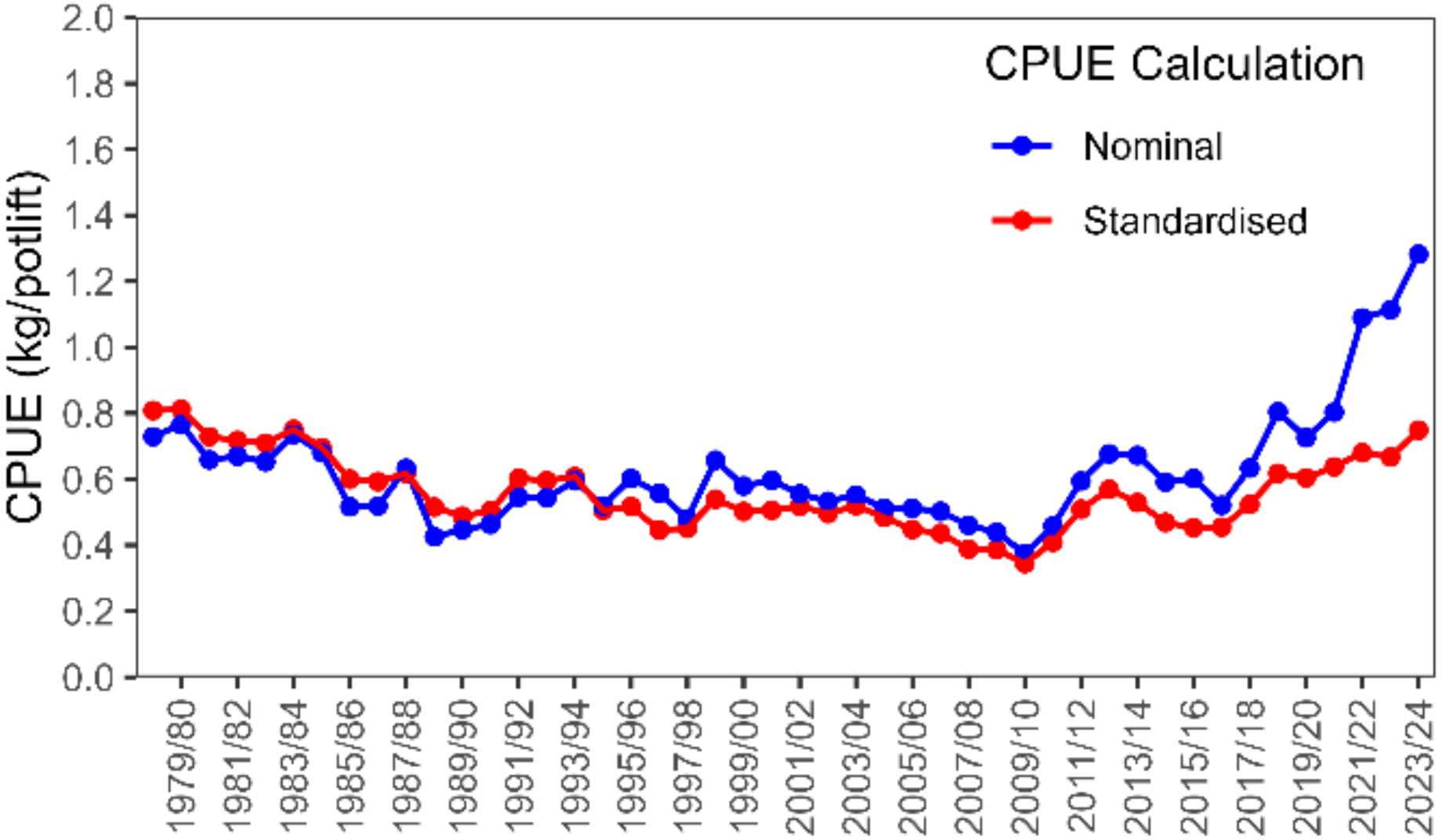
Portland CPUE



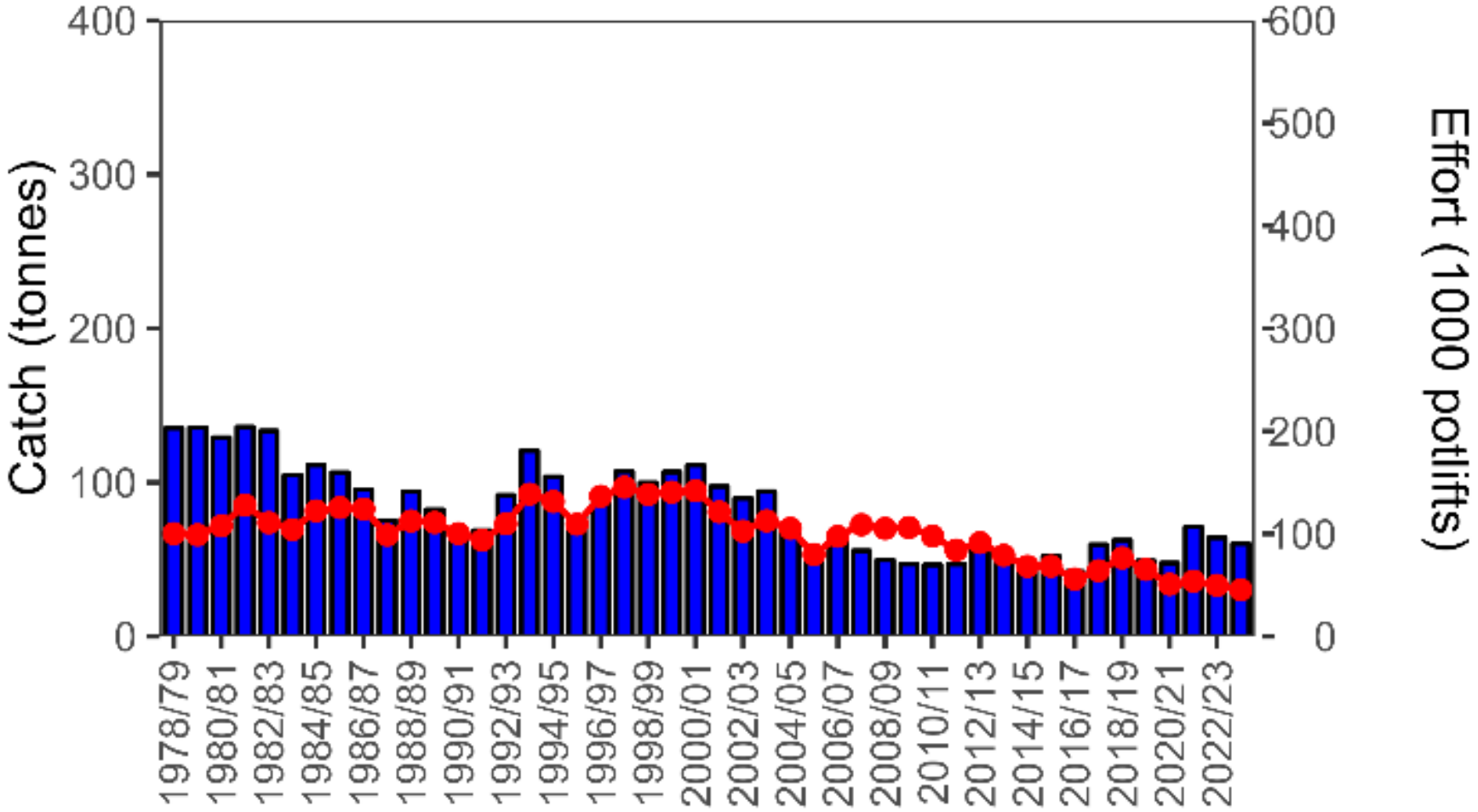
Warrnambool Catch and Effort



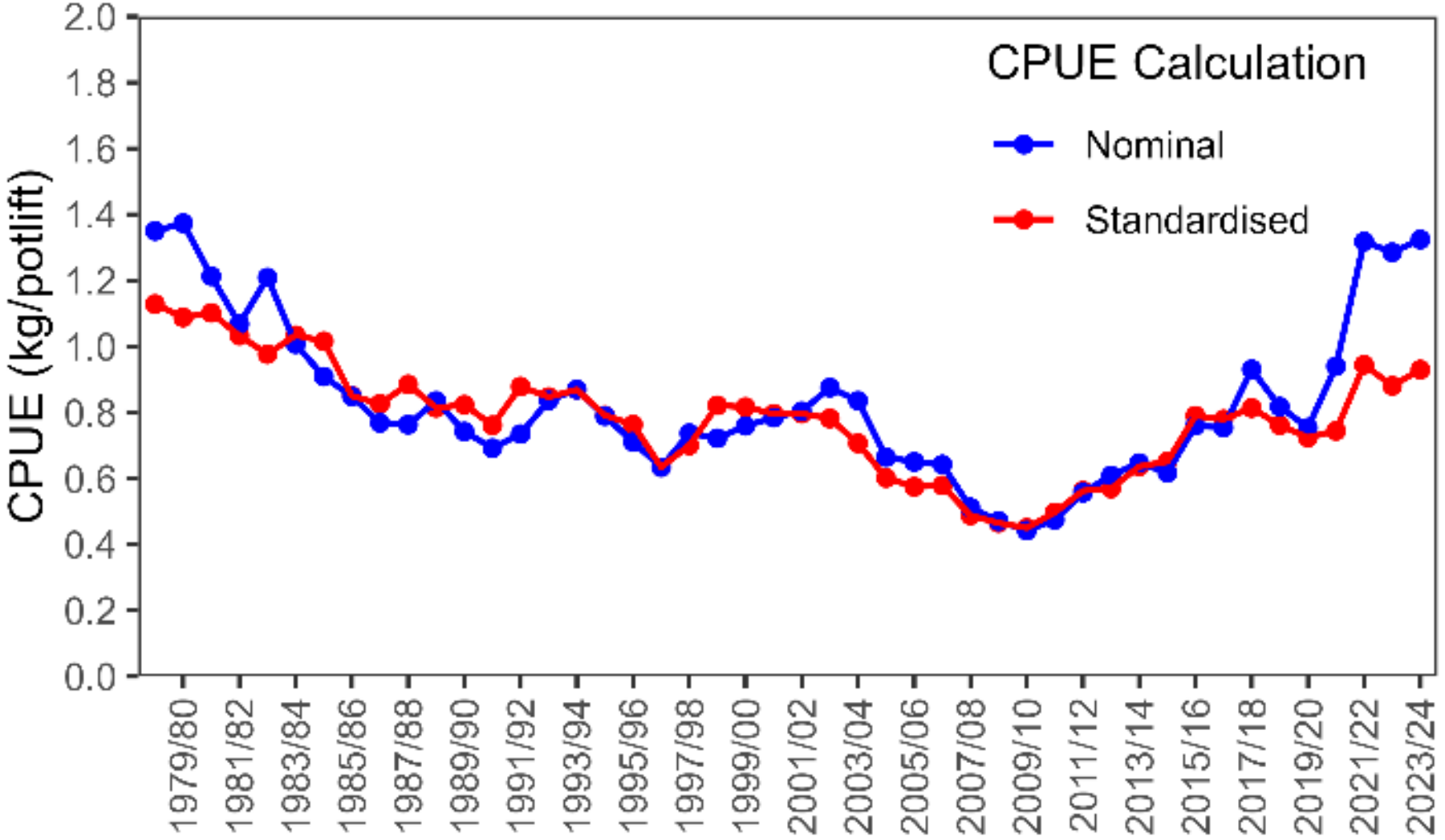
Warrnambool CPUE



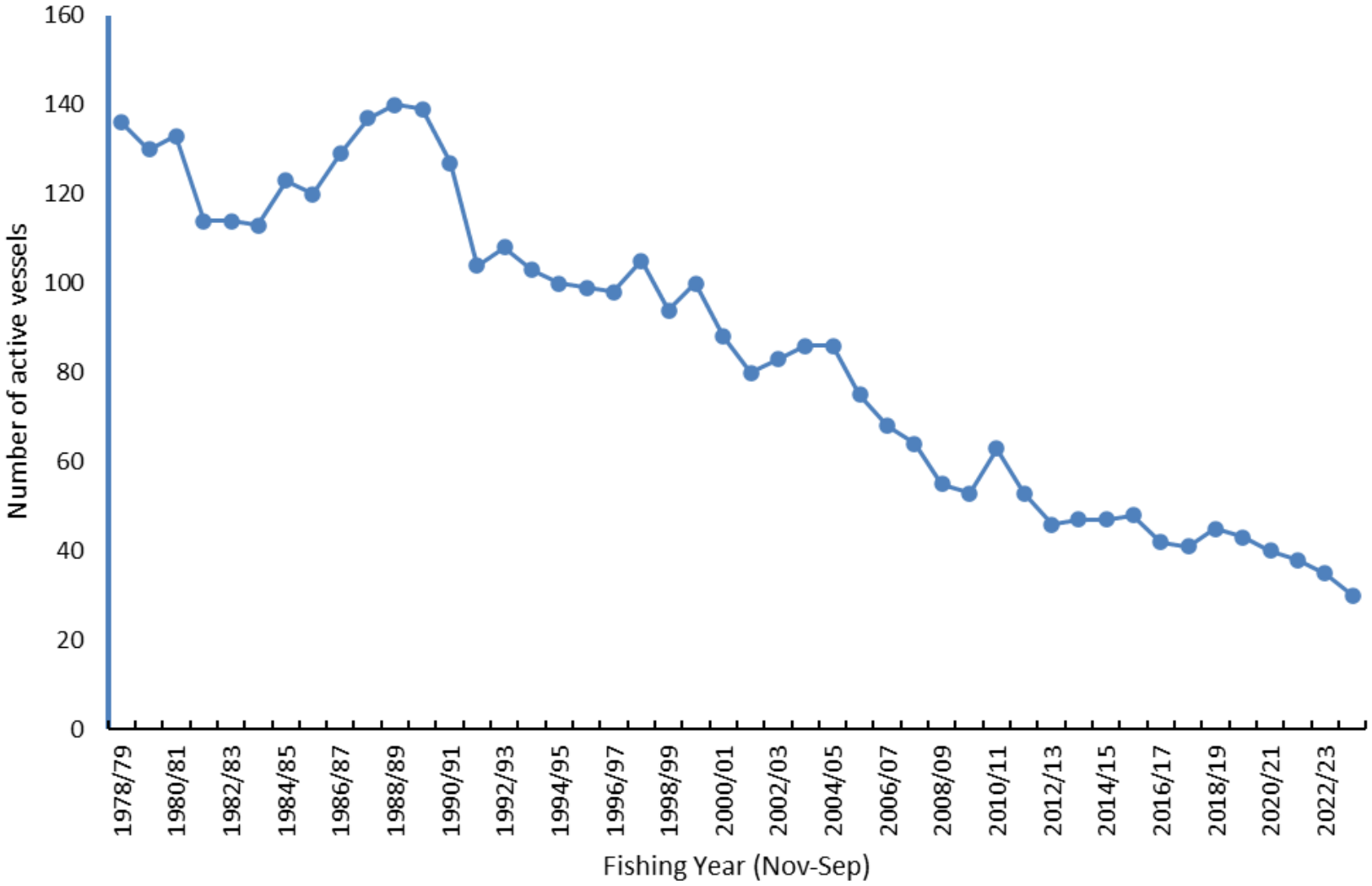
Apollo Bay Catch and Effort



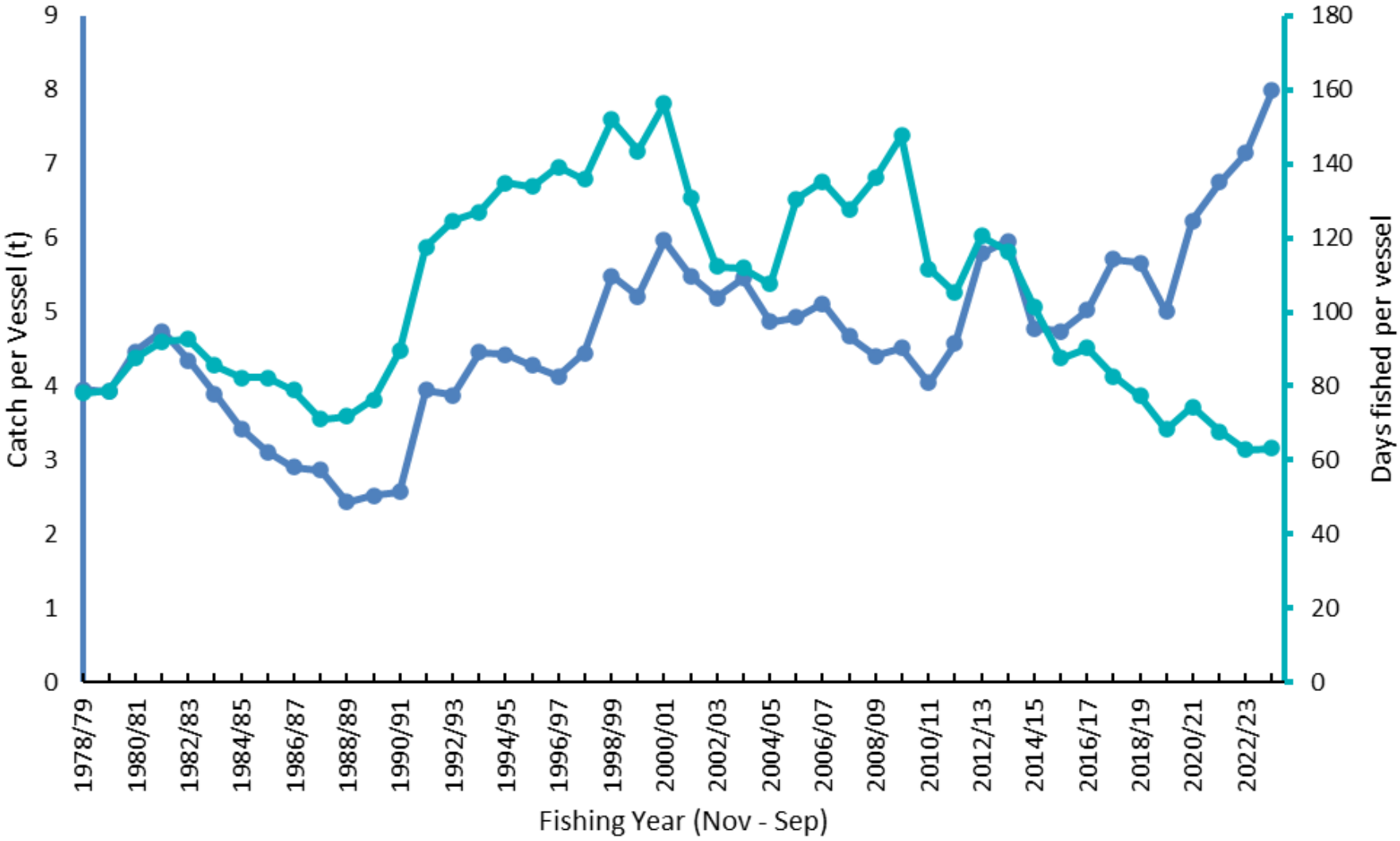
Apollo Bay CPUE



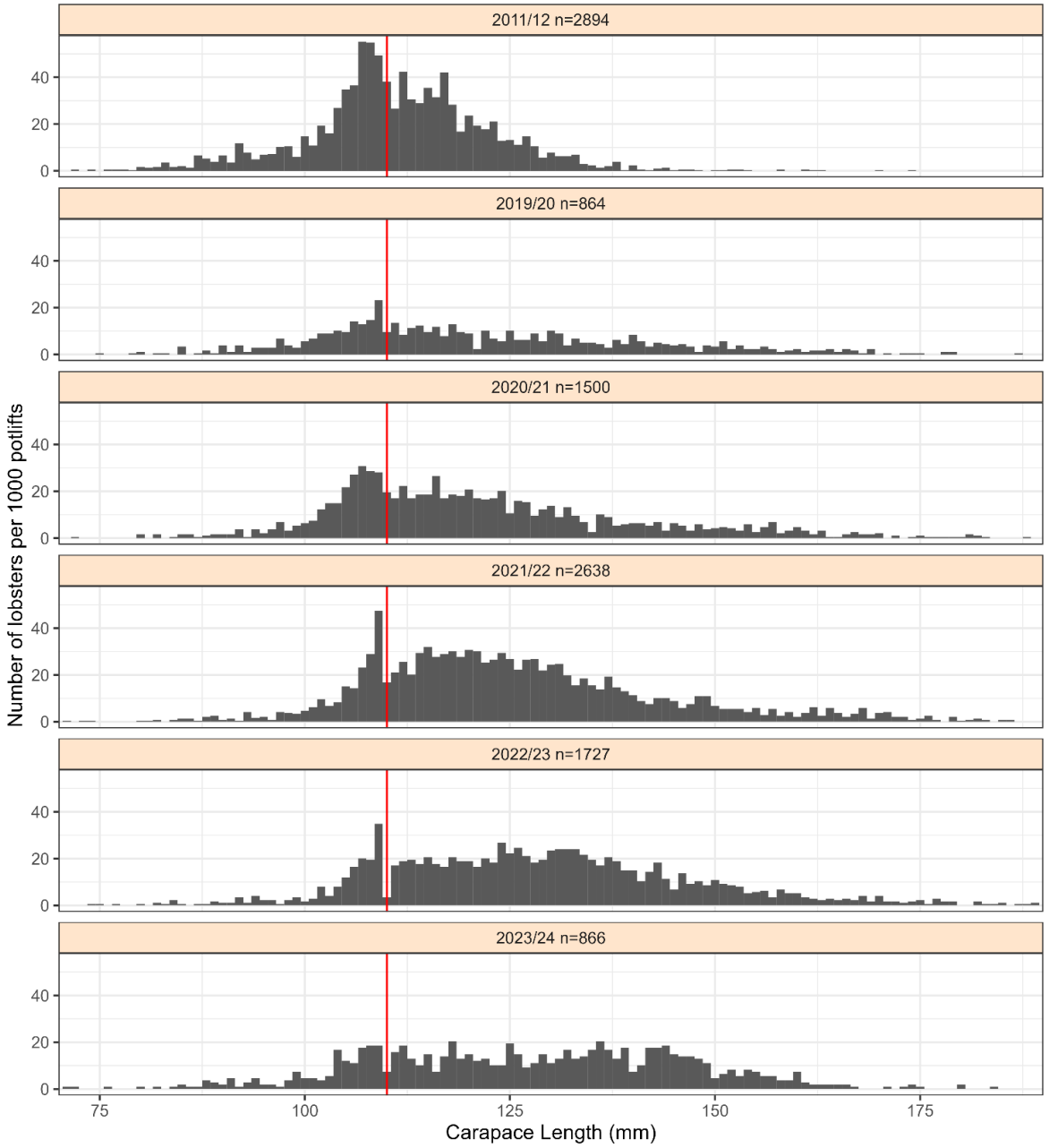
Vessel Numbers



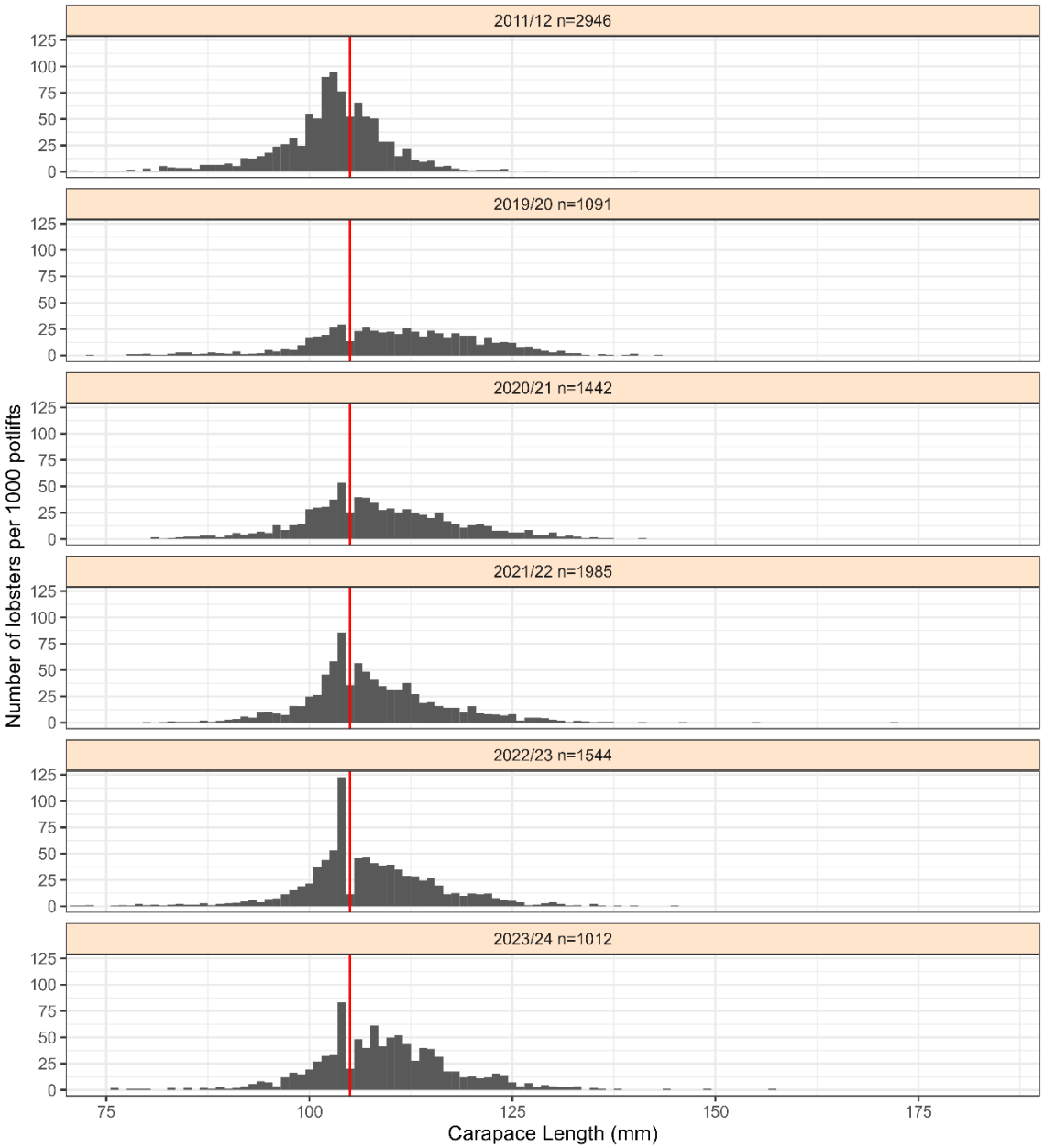
Per vessel catch and days fished



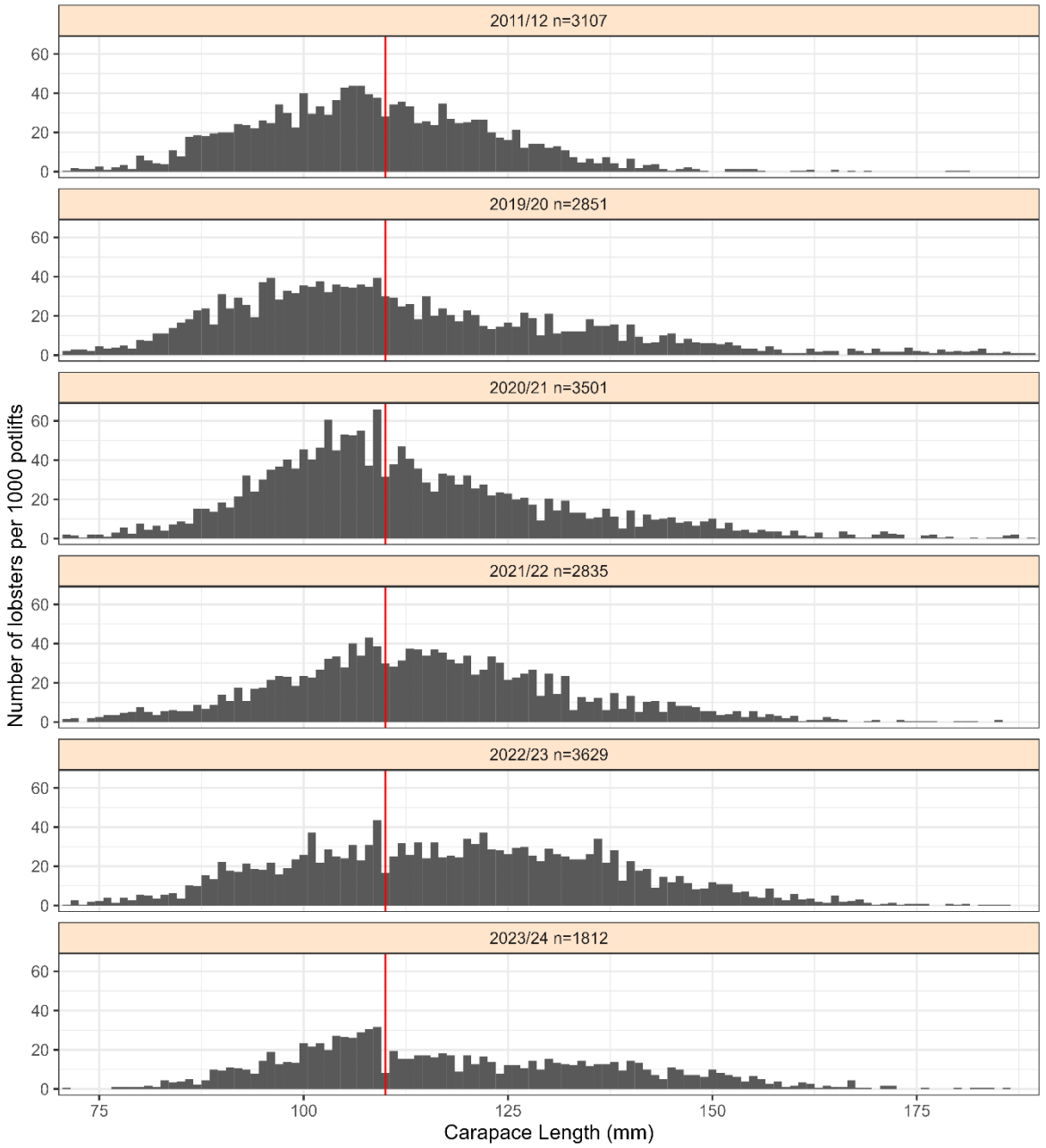
Western Zone LF, Male Observer Program



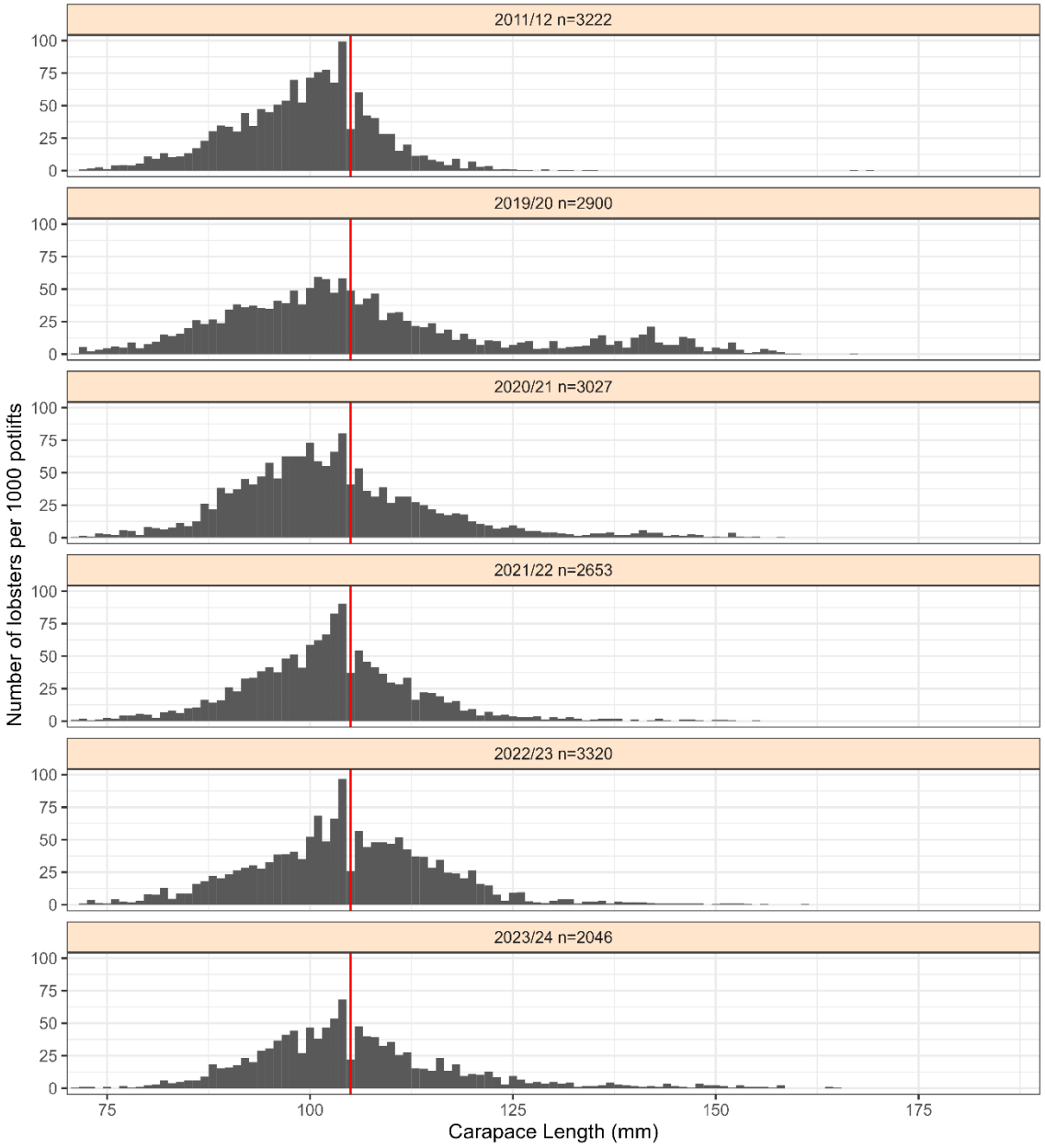
Western Zone LF, Female Observer Program



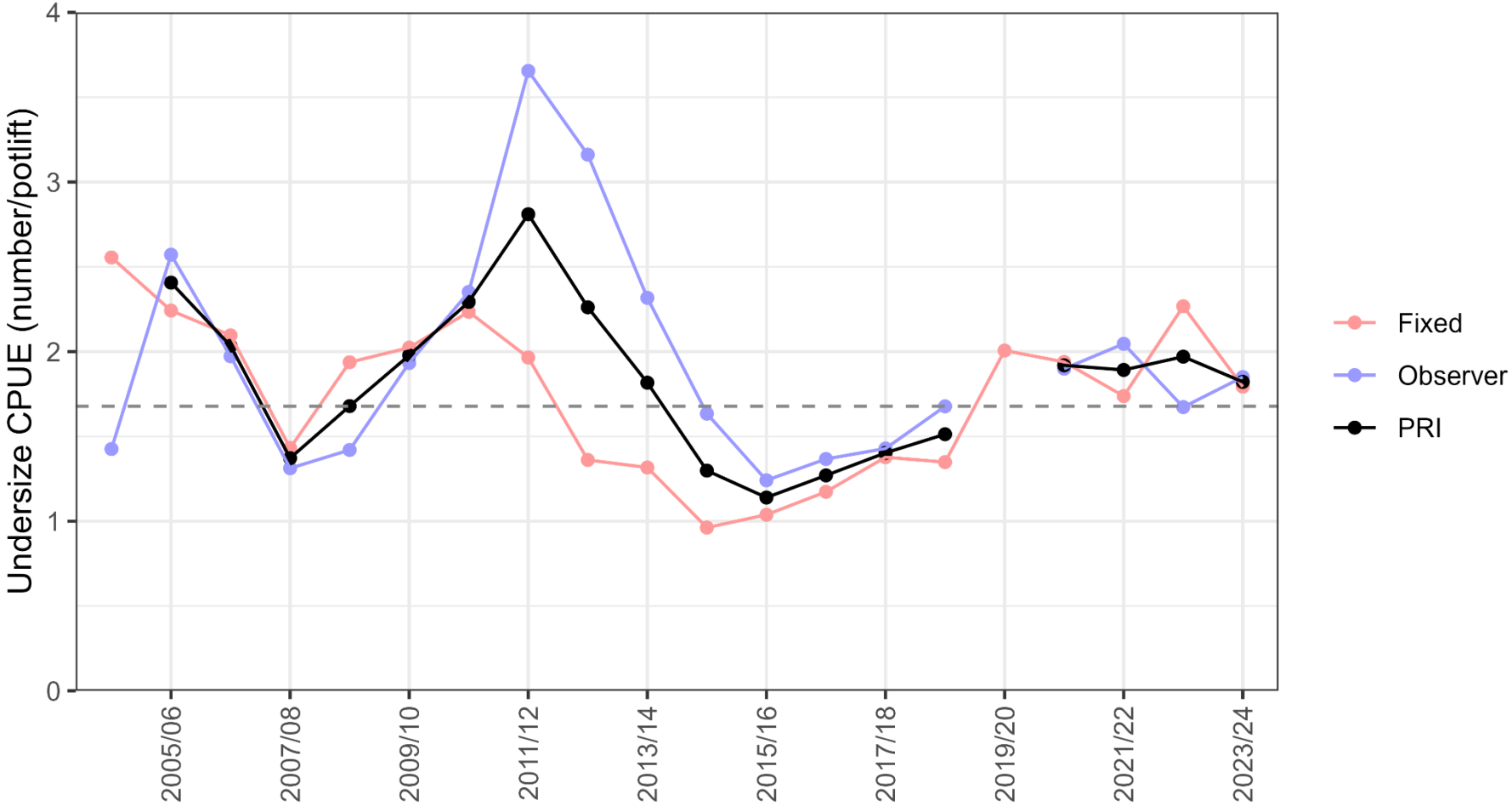
Western Zone LF, Male Fixed Sites



Western Zone LF, Female Fixed Site



Western Zone PRI



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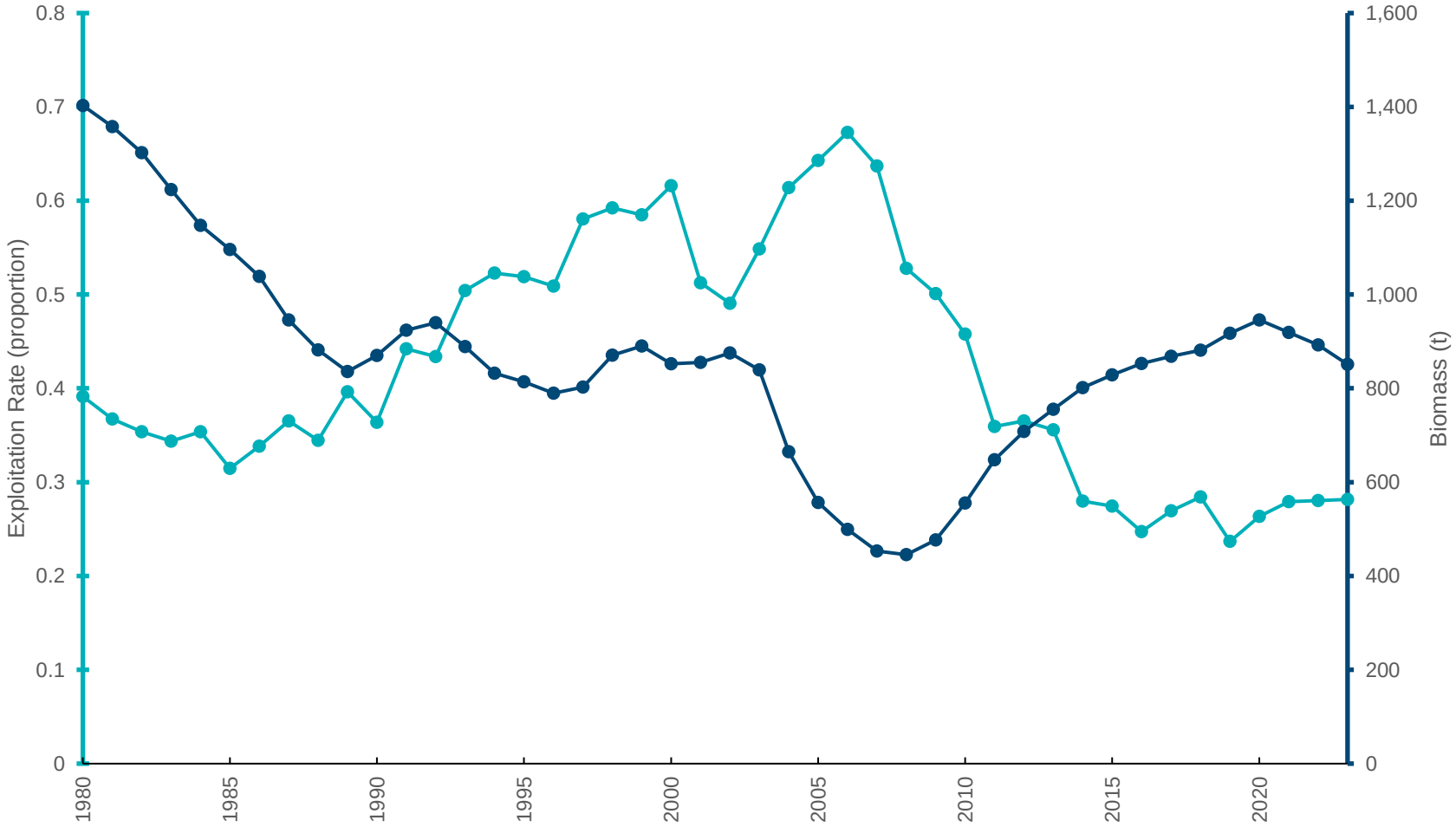
Western Zone biomass and exploitation rate



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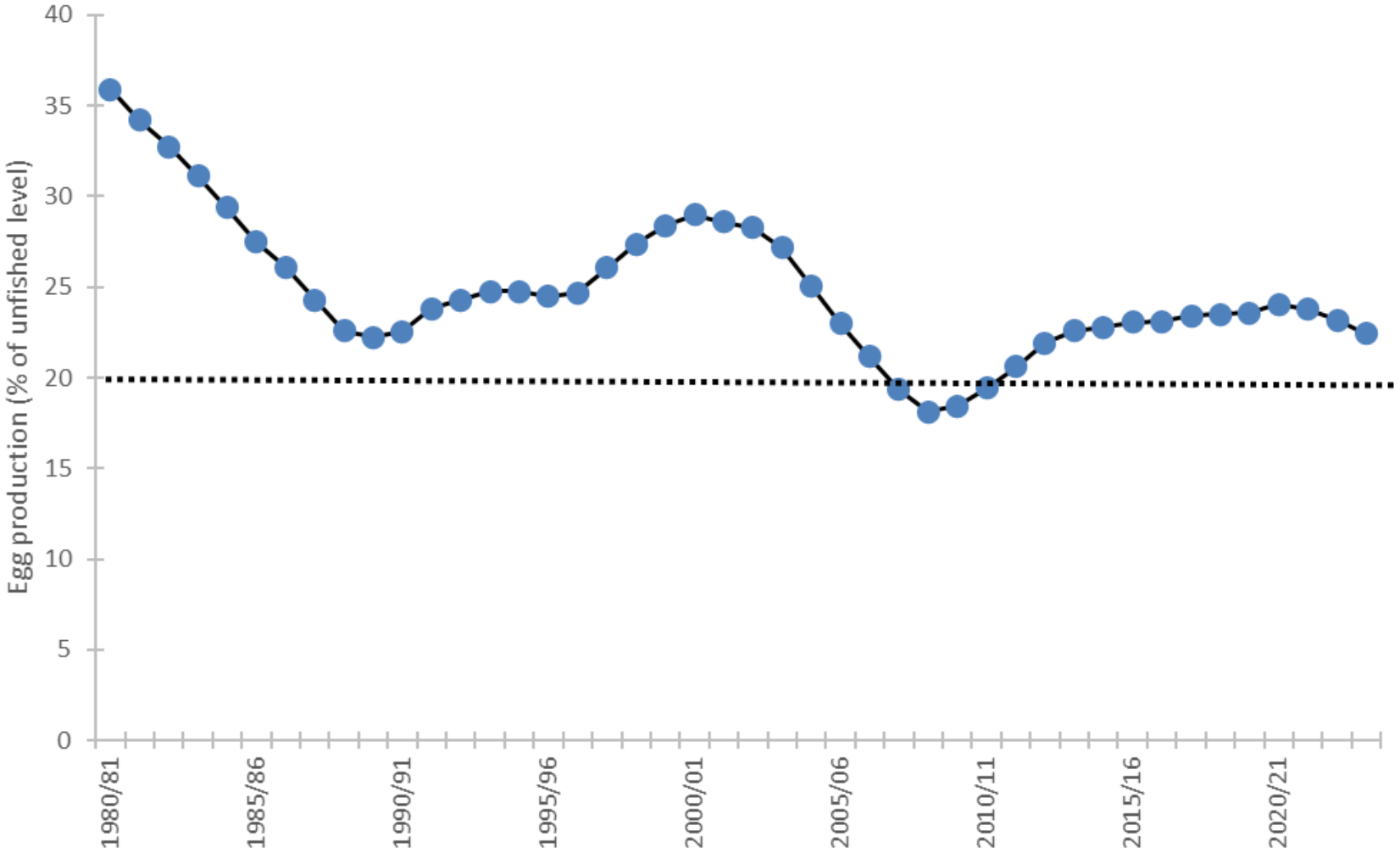
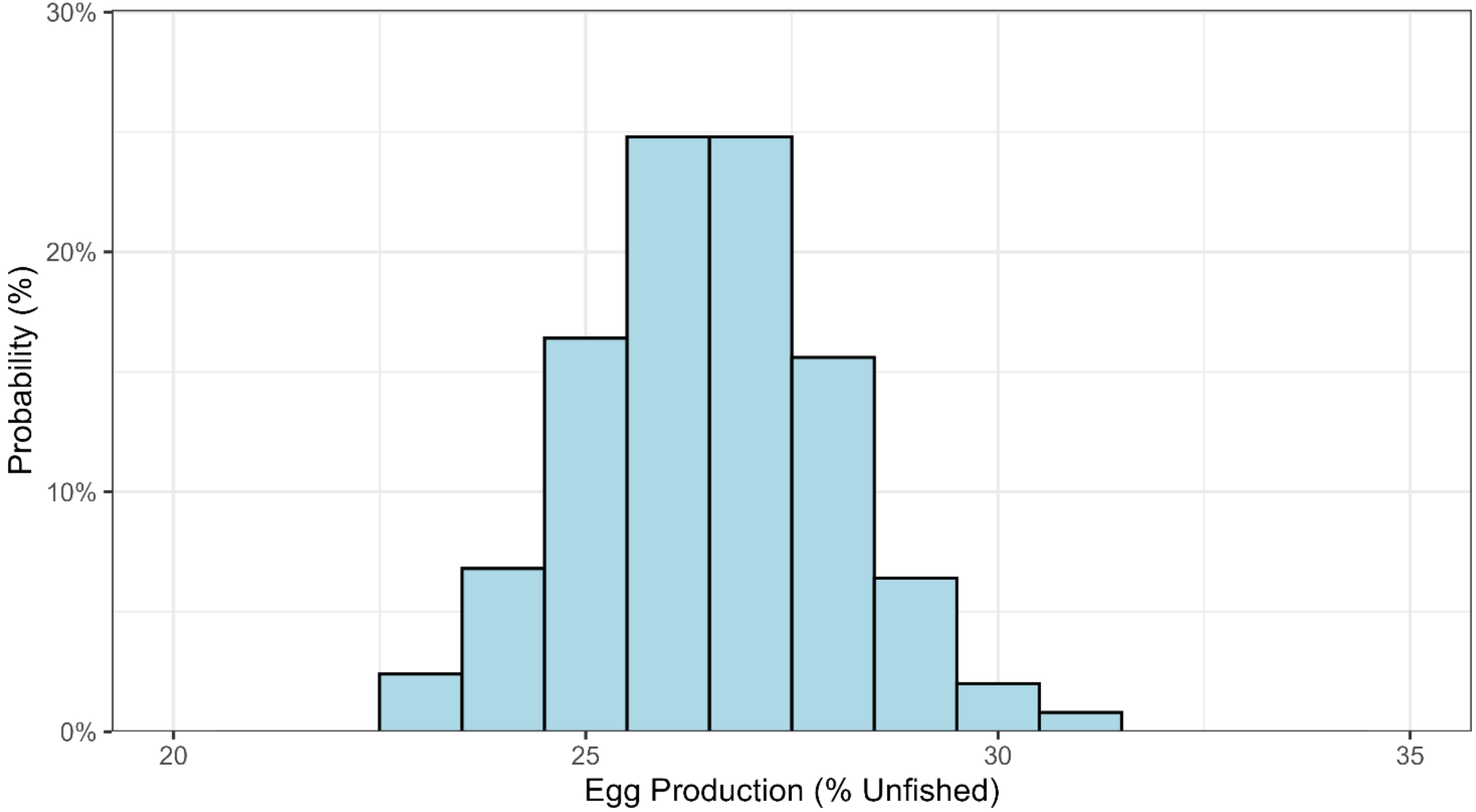
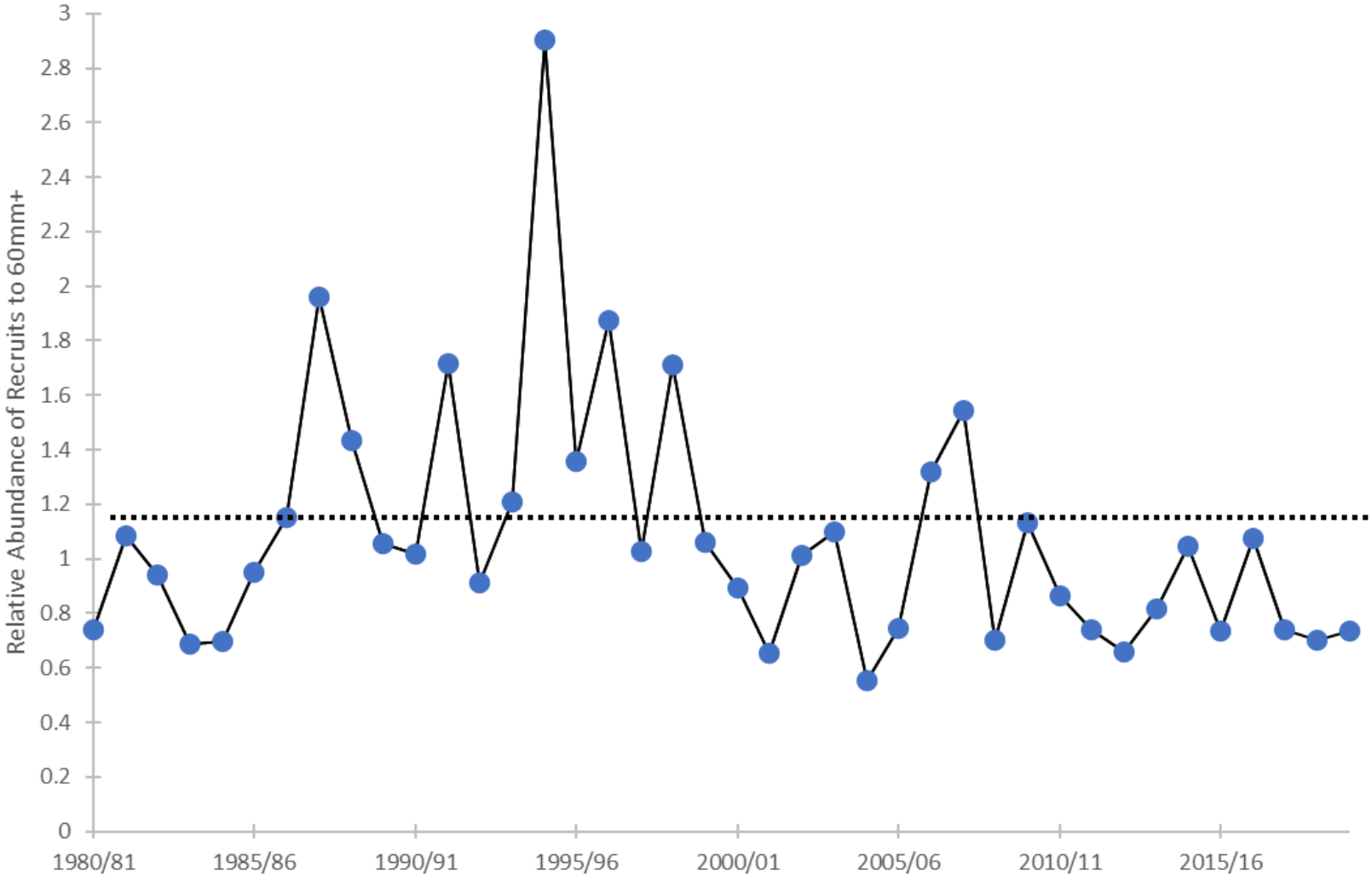
Western Zone Egg Production



Egg production estimate from assessment model



Recruitment to 60mm+ size class



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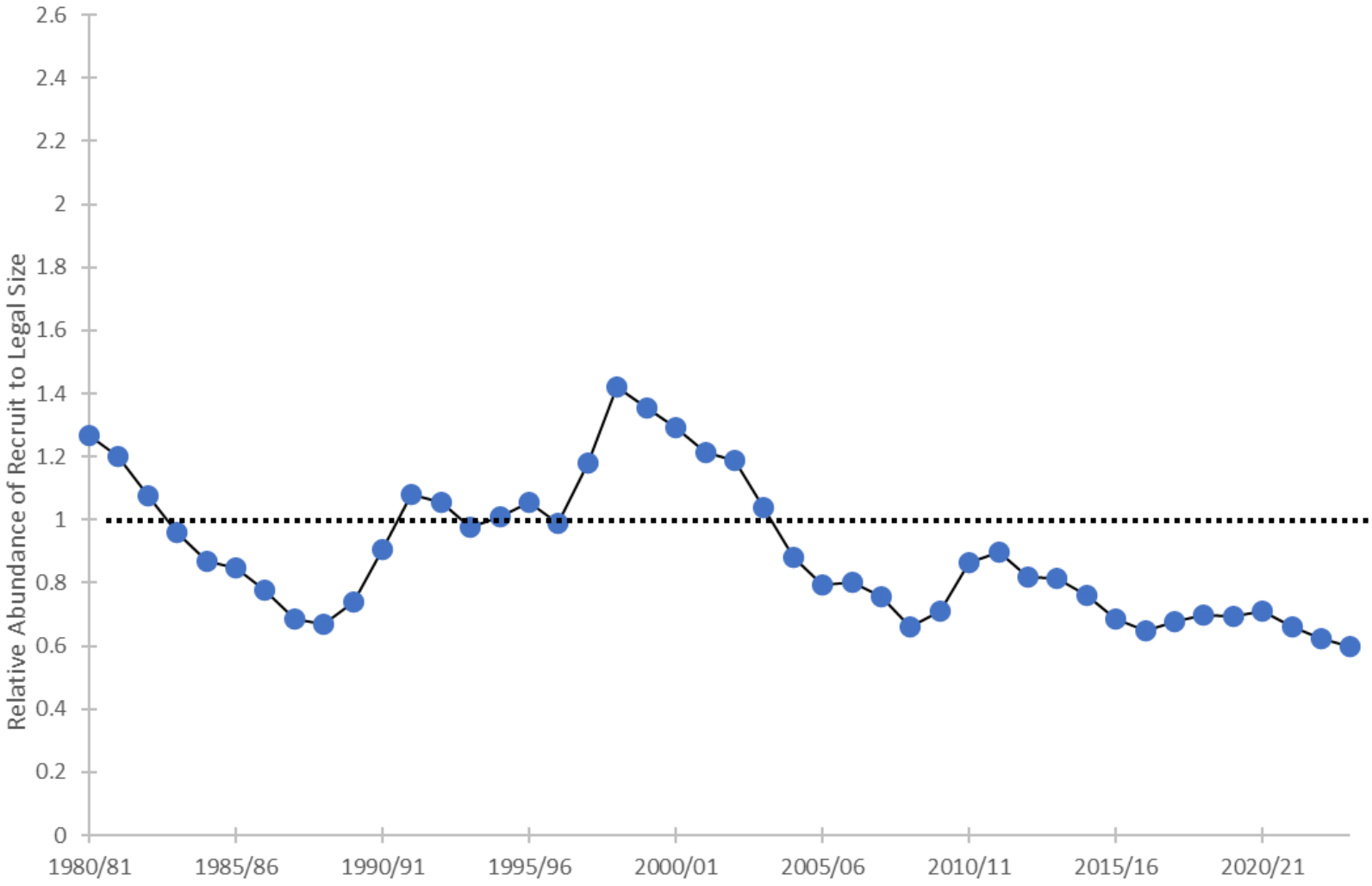
Recruitment to legal size



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Harvest Strategy Application

Harvest Control Rule Part 1: Ensuring Egg Production LRP is met

Model estimated egg production must be above the limit reference point of 20 percent of the virgin level with a 90 percent probability. This decision rule must be satisfied before the CPUE-based harvest strategy can be used to set the TACC. In circumstances where a model-based estimate of egg production is unavailable, a CPUE based proxy may be used to evaluate the fishery against the limit reference point identified in Section 7.2.2.

If this decision rule is not met, the TACC will be determined using the rock lobster fishery model to ensure that the TACC returns the egg production to above the limit reference point within two years with a 90 percent probability.

Harvest Strategy Application

2023/24 CPUE decreased from 0.79 to 0.78 kg / pot-lift

PRI was above the threshold

Remain at Step 2.

Harvest Control Rule Part 2: TACC Determination

When Decision Rule #1 has been met, the TACC is set using the standardised CPUE-TACC Table 11 and 12 for the Western Zone and Eastern Zone, respectively. Note that the HCR initially, at the time of its adoption, commences in Step 1.

1. The fishery will move to the next CPUE band (and possibly a higher TACC unless the cap has been reached) if:
   - i) the standardised CPUE is in a band higher than in the previous season;

   AND
   - ii) the PRI (rounded to two decimal places) is at or above the threshold level of 1.67 undersize per pot lift for the Western Zone or 0.25 undersize per pot lift for the Eastern Zone.

CPUE	Step 1	Step 2	Step 3	Step 4	Step 5
<0.25	0	0	0	0	0
0.250 - <0.275	0	0	0	0	0
0.275 - <0.300	0	0	0	0	0
0.300 - <0.325	5	4	4	3	3
0.325 - <0.350	15	13	12	10	9
0.350 - <0.375	27	24	21	18	16
0.375 - <0.40	40	36	32	28	24
0.40 - <0.425	55	49	43	38	32
0.425-<0.45	71	64	56	49	42
0.45 - <0.475	89	79	70	61	53
0.475<-0.50	108	97	85	75	64
0.50 - <0.525	129	115	102	89	76
0.525<-0.55	151	135	119	104	89
0.55 - <0.575	175	156	138	120	103
0.575<-0.60	200	178	157	138	118
0.60 - <0.625	227	202	178	156	134
0.625<-0.65	236	227	201	176	150
0.65 - <0.675	245	236	224	196	168
0.675<-0.70	245	245	232	217	186
0.70 - <0.75	245	245	245	229	215
0.75 - <0.80	→	245	245	245	230
0.80 - <0.85		→	245	245	245
0.85 - < 0.90			→	245	245
>= 0.90				→	245

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Decision Rule	2023/24 Stock Indicator Level	Outcome
Part 1: Egg Production		
Is the model estimated egg production above the limit reference point of 20% of unfished levels?	The 2023/24 egg production level is estimated at 22.4% of unfished levels.	Decision rule has been met. Go to Part 2
Part 2: TACC Determination		
a. Is standardised CPUE in a higher band than the previous season?	CPUE decreased from 0.79kg/pot-lift in 2022/23 to 0.78kg/pot-lift in 2023/24. This remains in the same 0.75-0.80 CPUE band	The CPUE band has remained the same.
b. Is the 2022/23 PRI at or above the threshold level of 1.67 undersize/pot-lift?	The combined PRI was 1.82 in 2023/24. This was a slight reduction from the previous three years but remains above the threshold level.	The combined PRI is above the threshold level.
	RESULT	**The Western Zone remains in the CPUE band 0.75-<0.80. This gives a TACC of 245t in 2025/26.**

Eastern Zone Assessment

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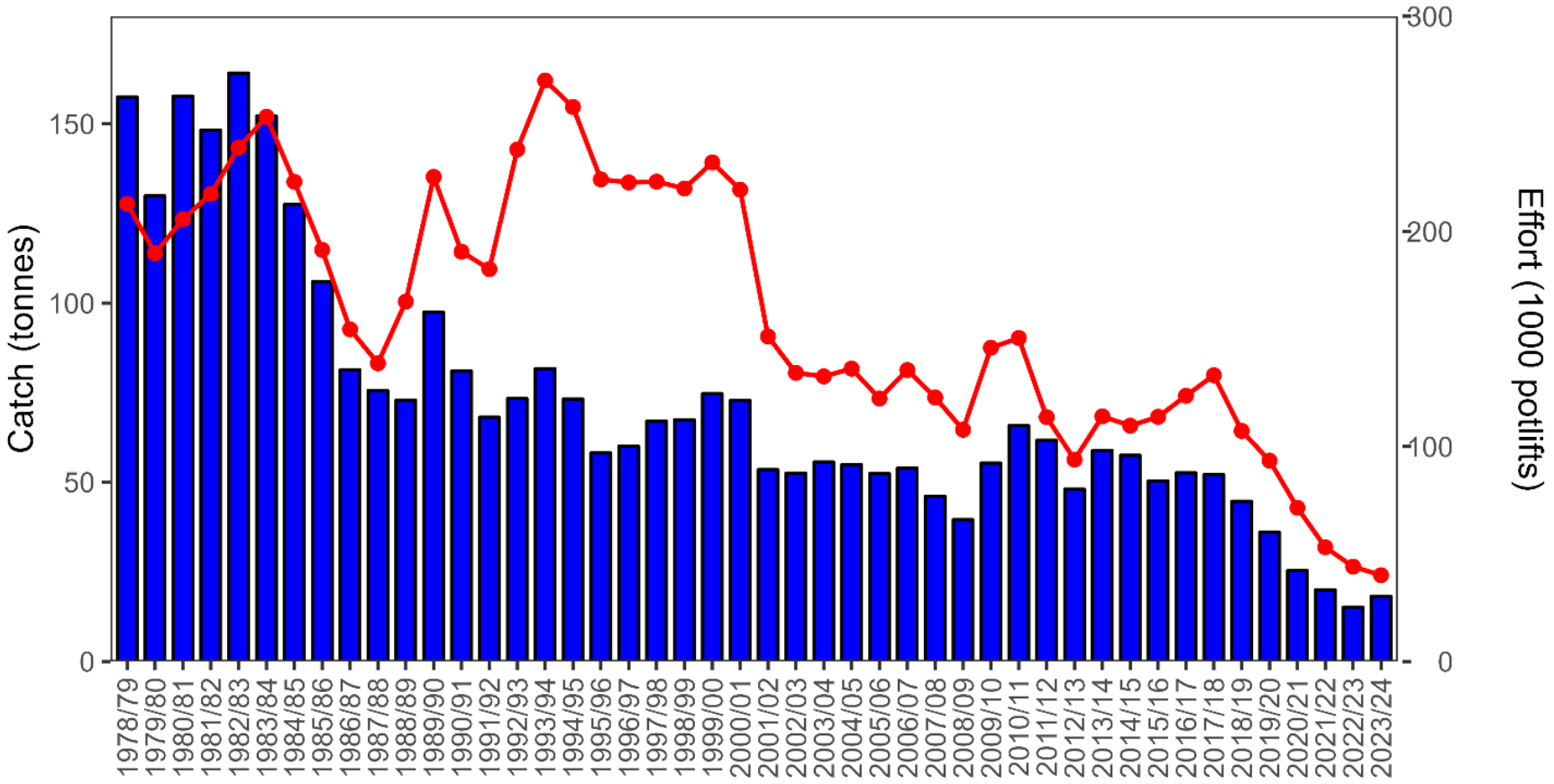
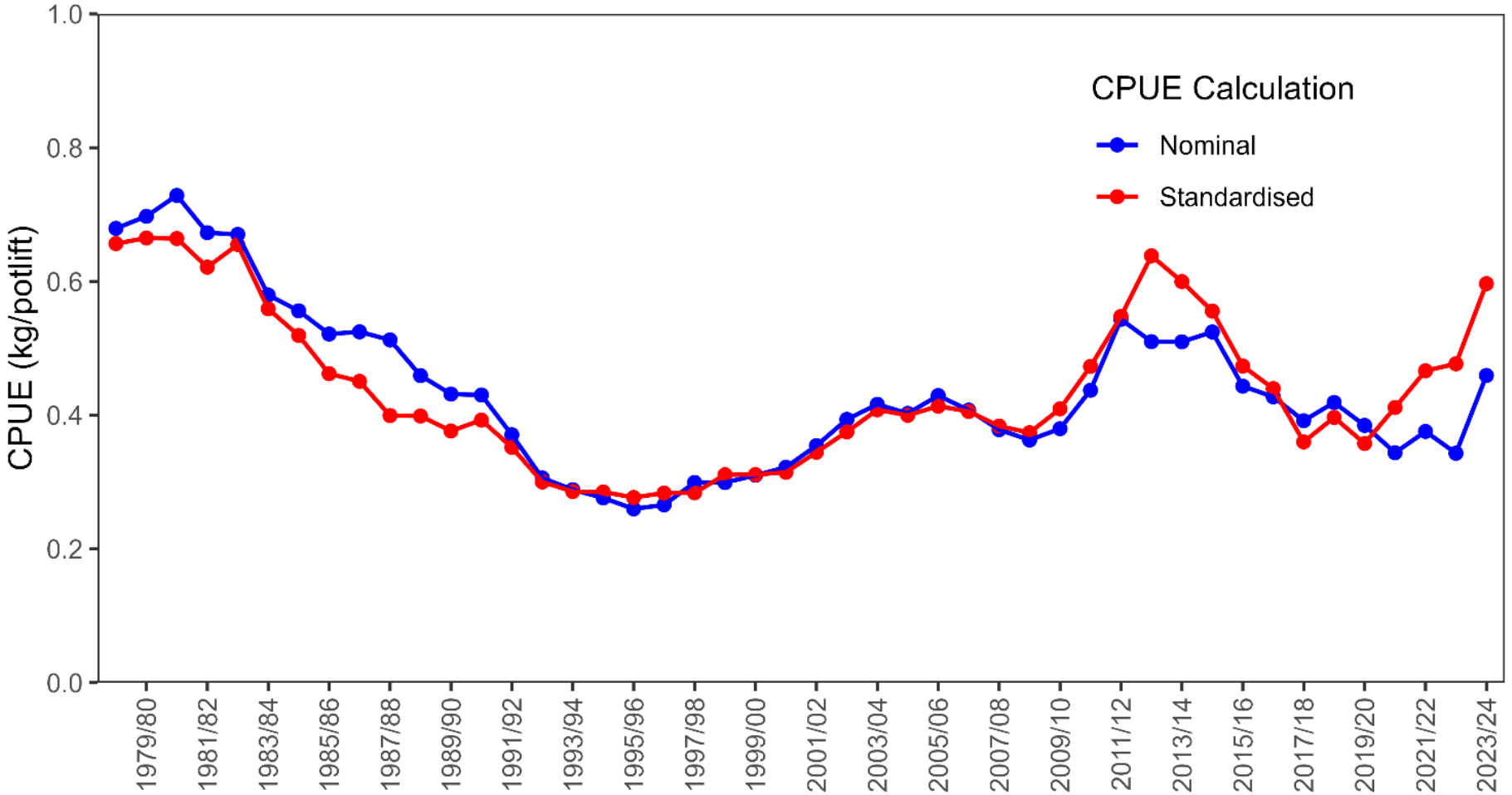
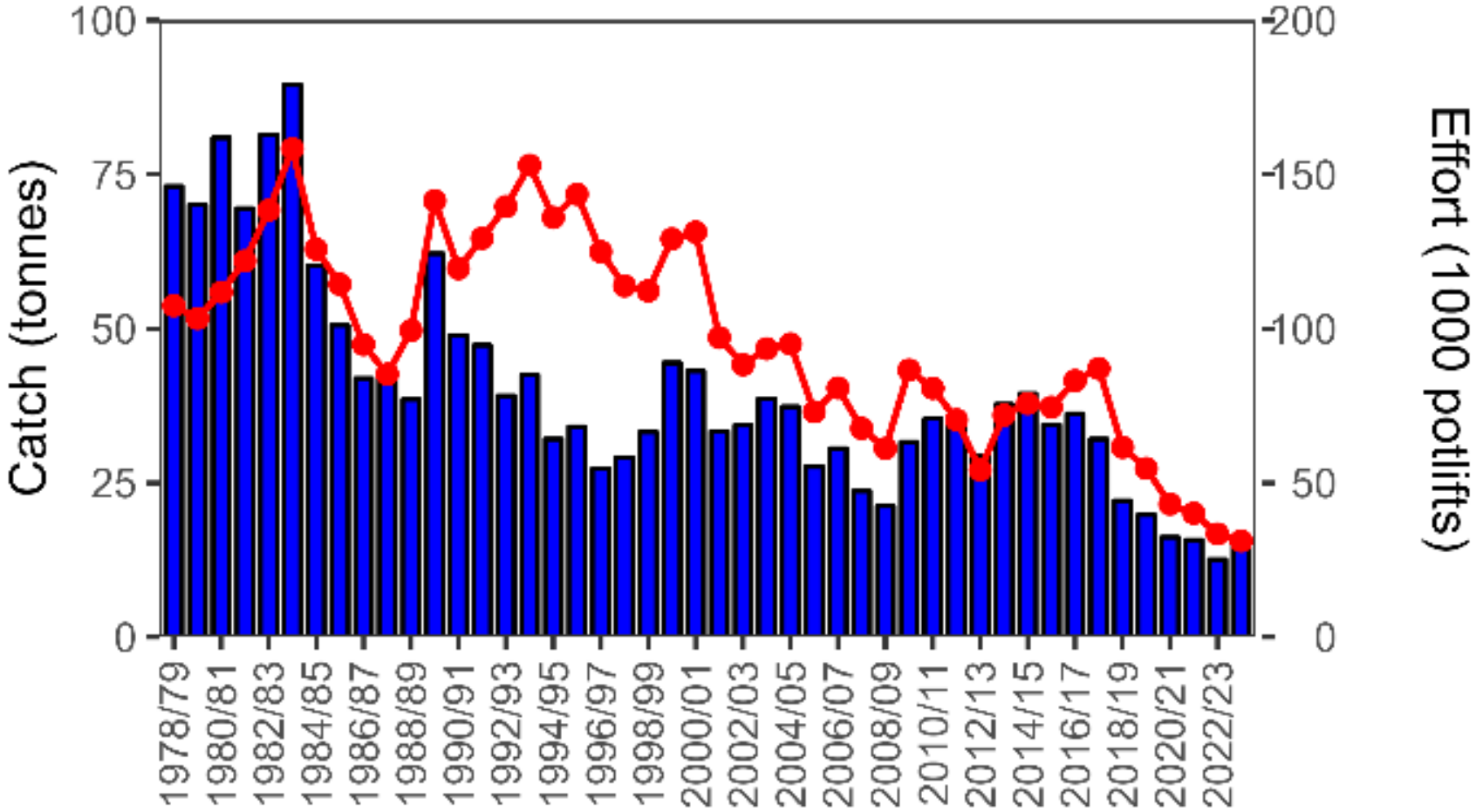
Eastern Zone Catch and Effort



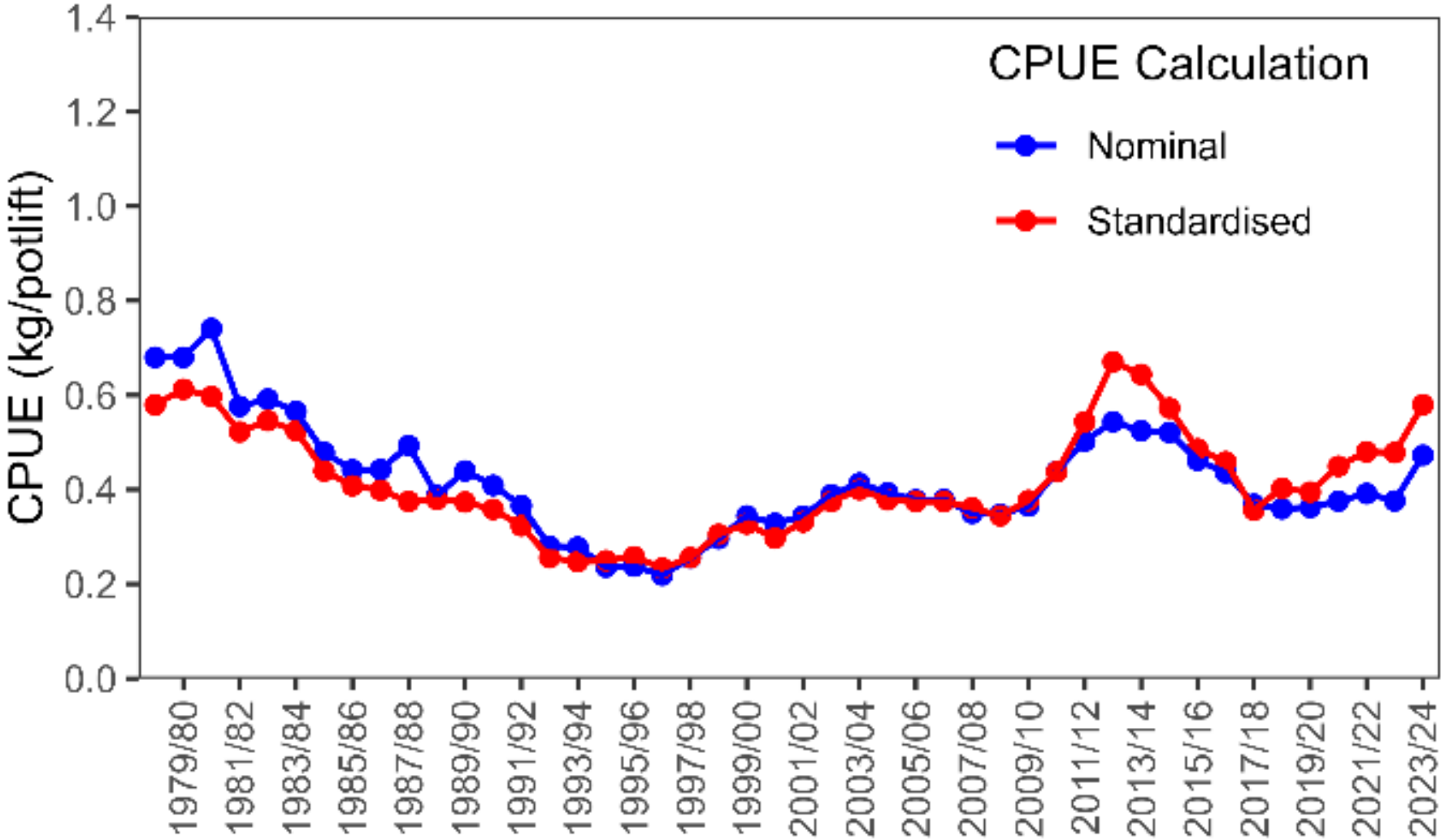
Eastern Zone CPUE



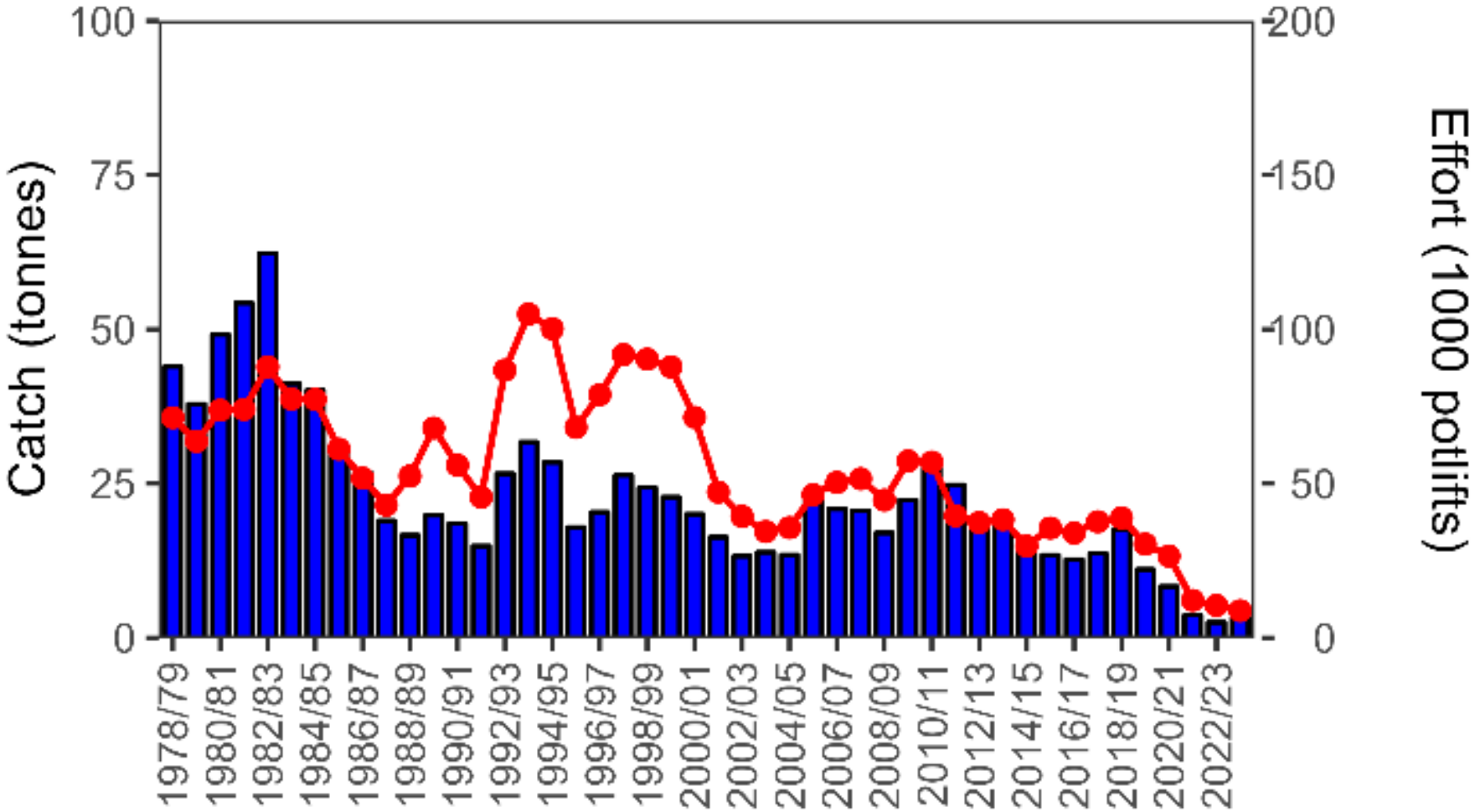
Queenscliff Catch and Effort



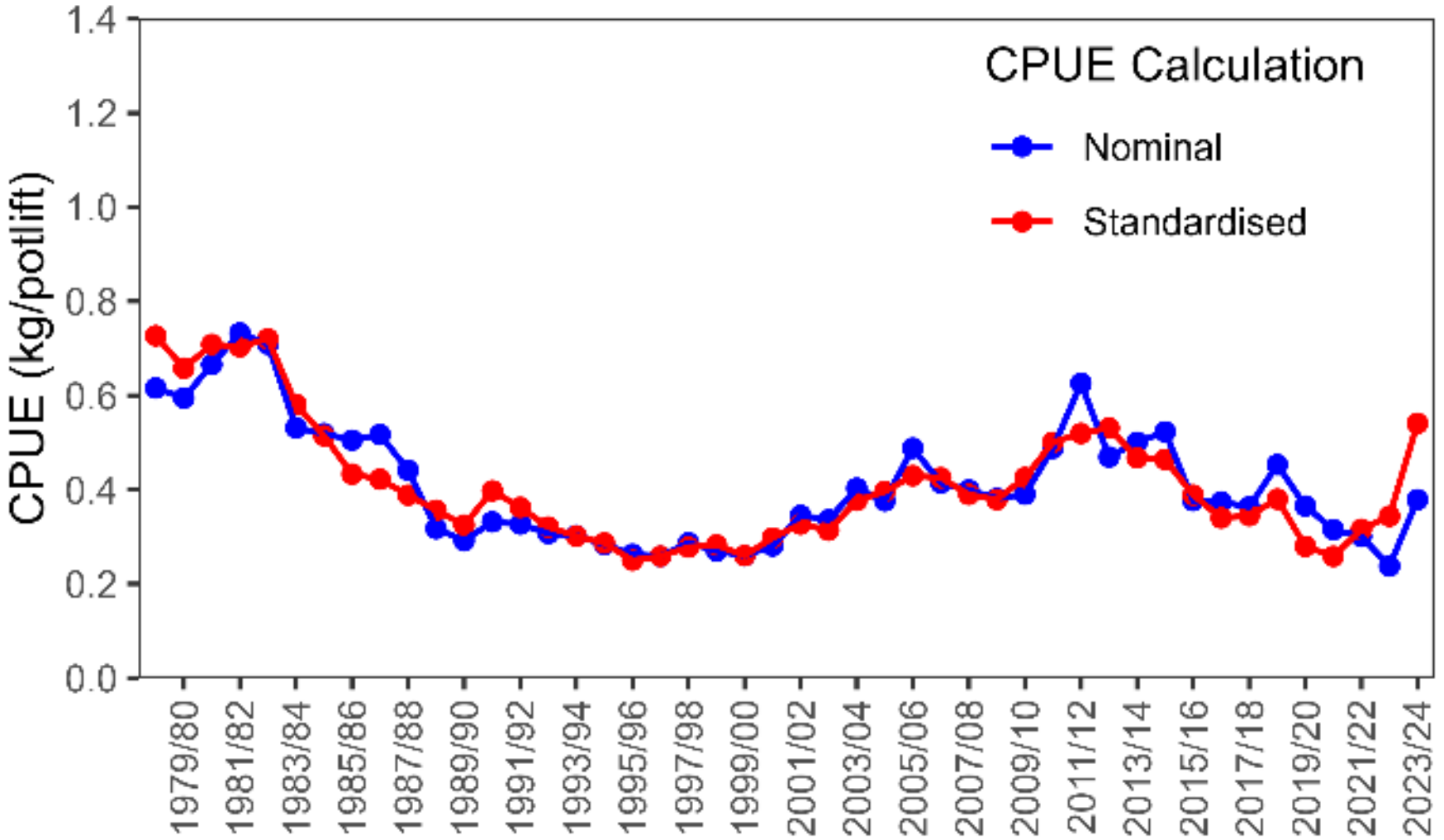
Queenscliff CPUE



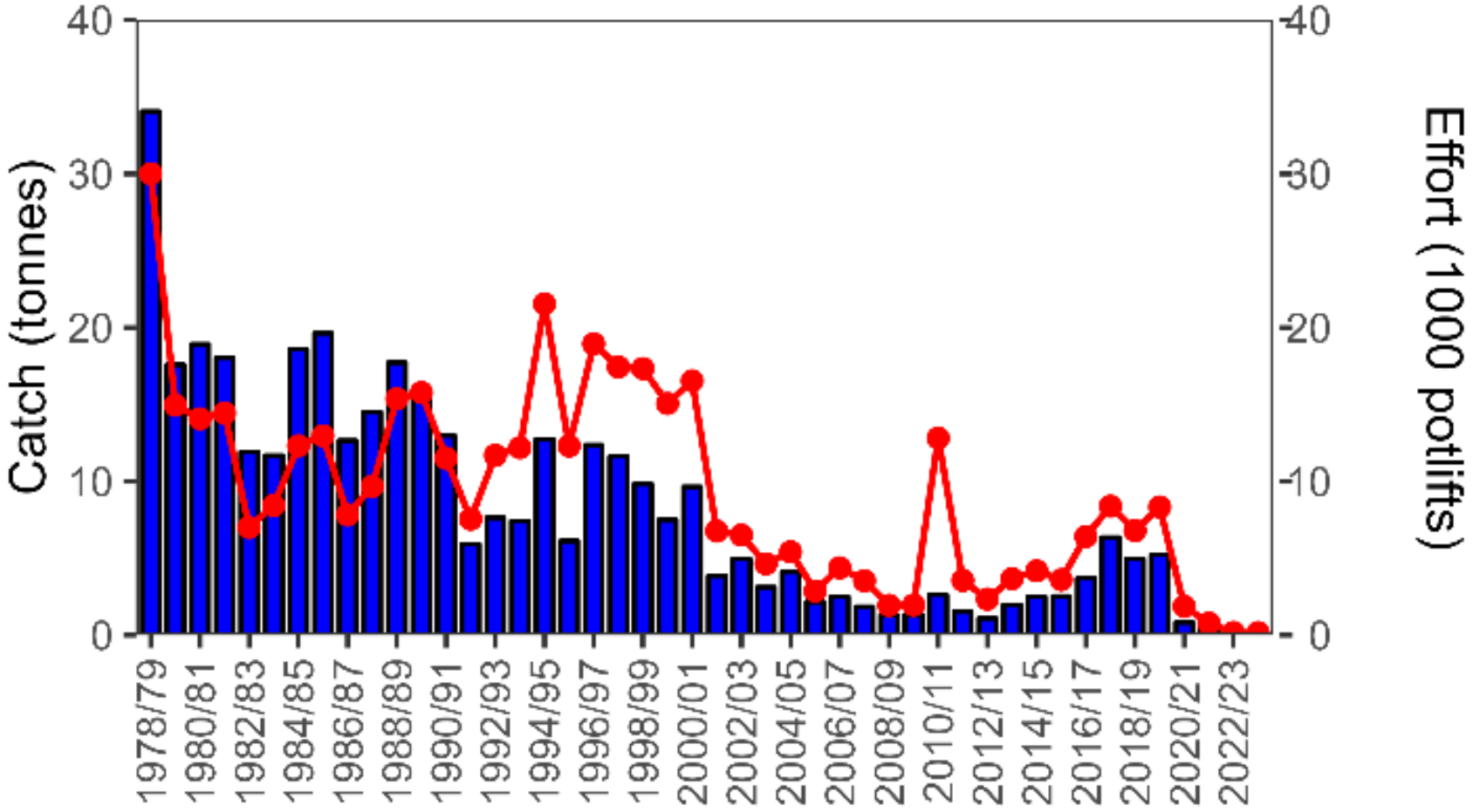
San Remo Catch and Effort



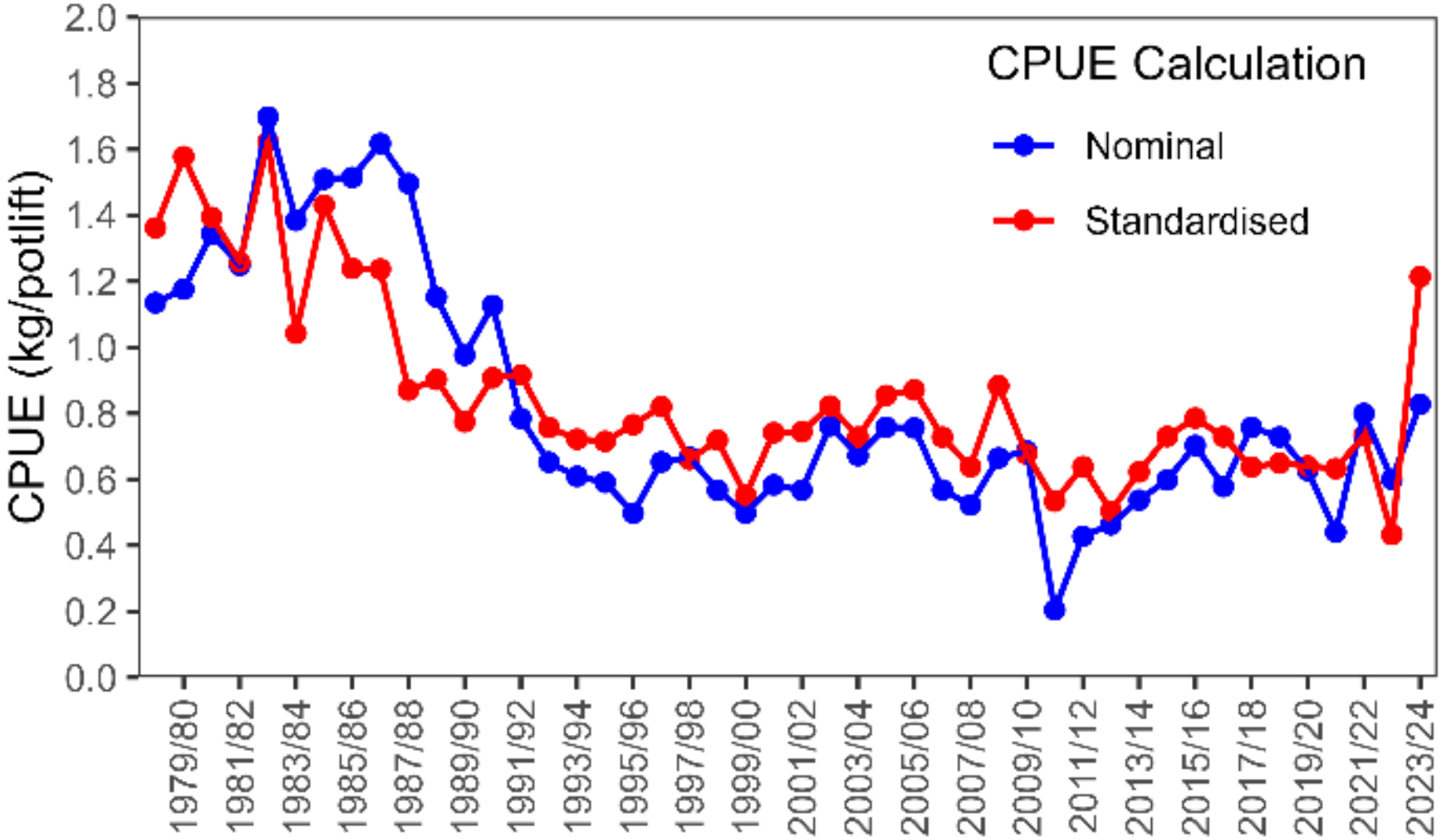
San Remo CPUE



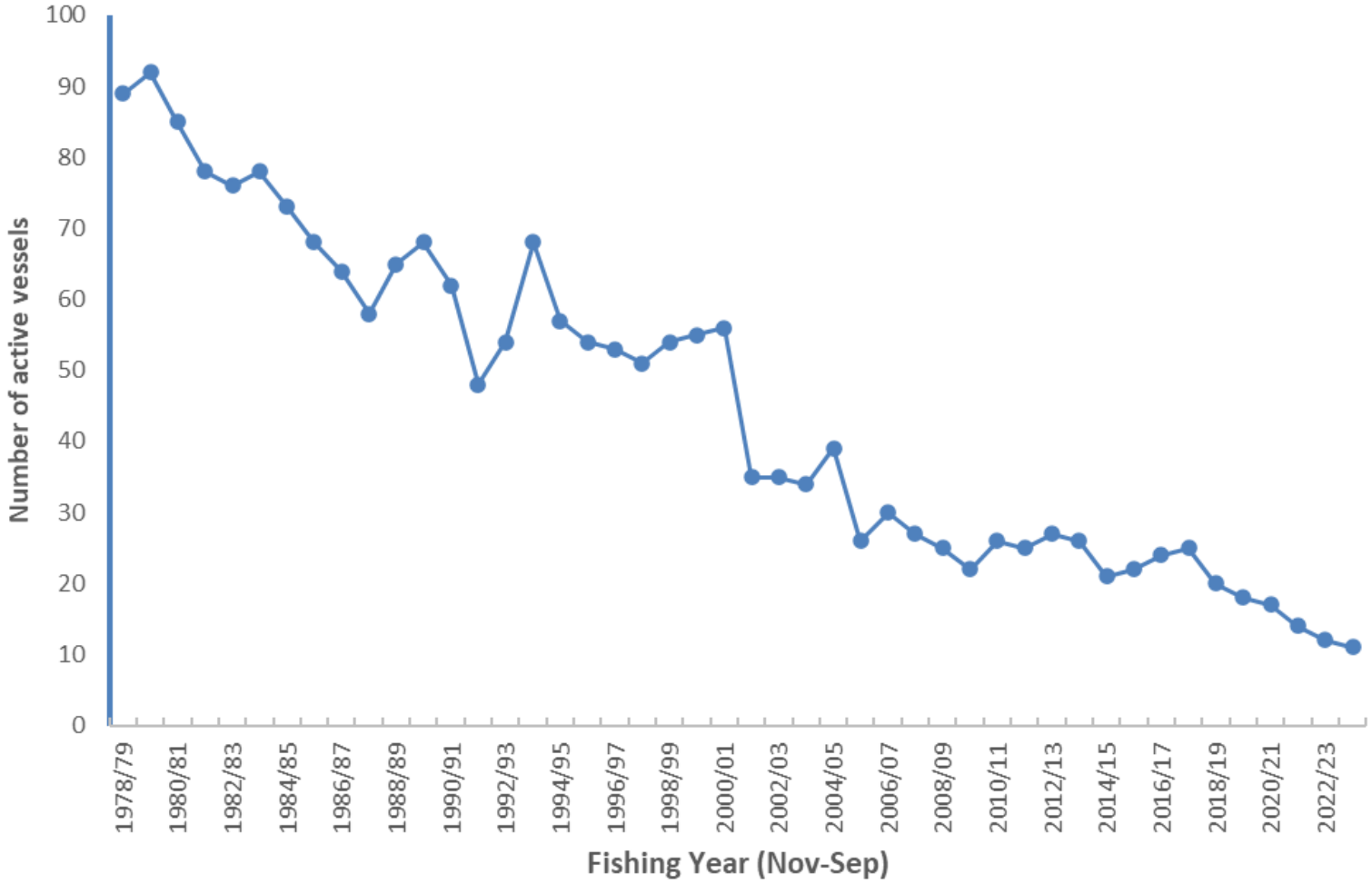
Lakes Entrance Catch and Effort



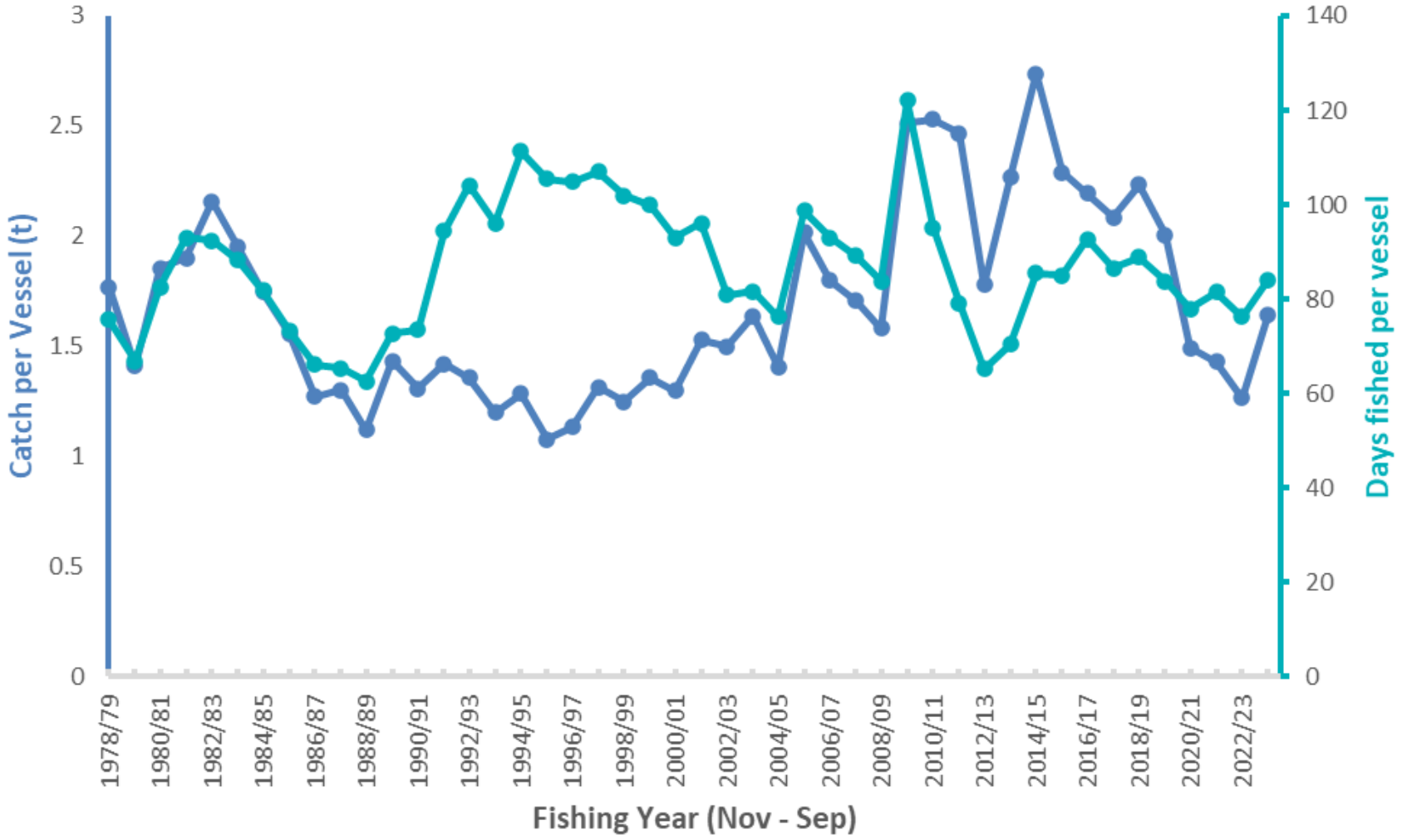
Lakes Entrance CPUE



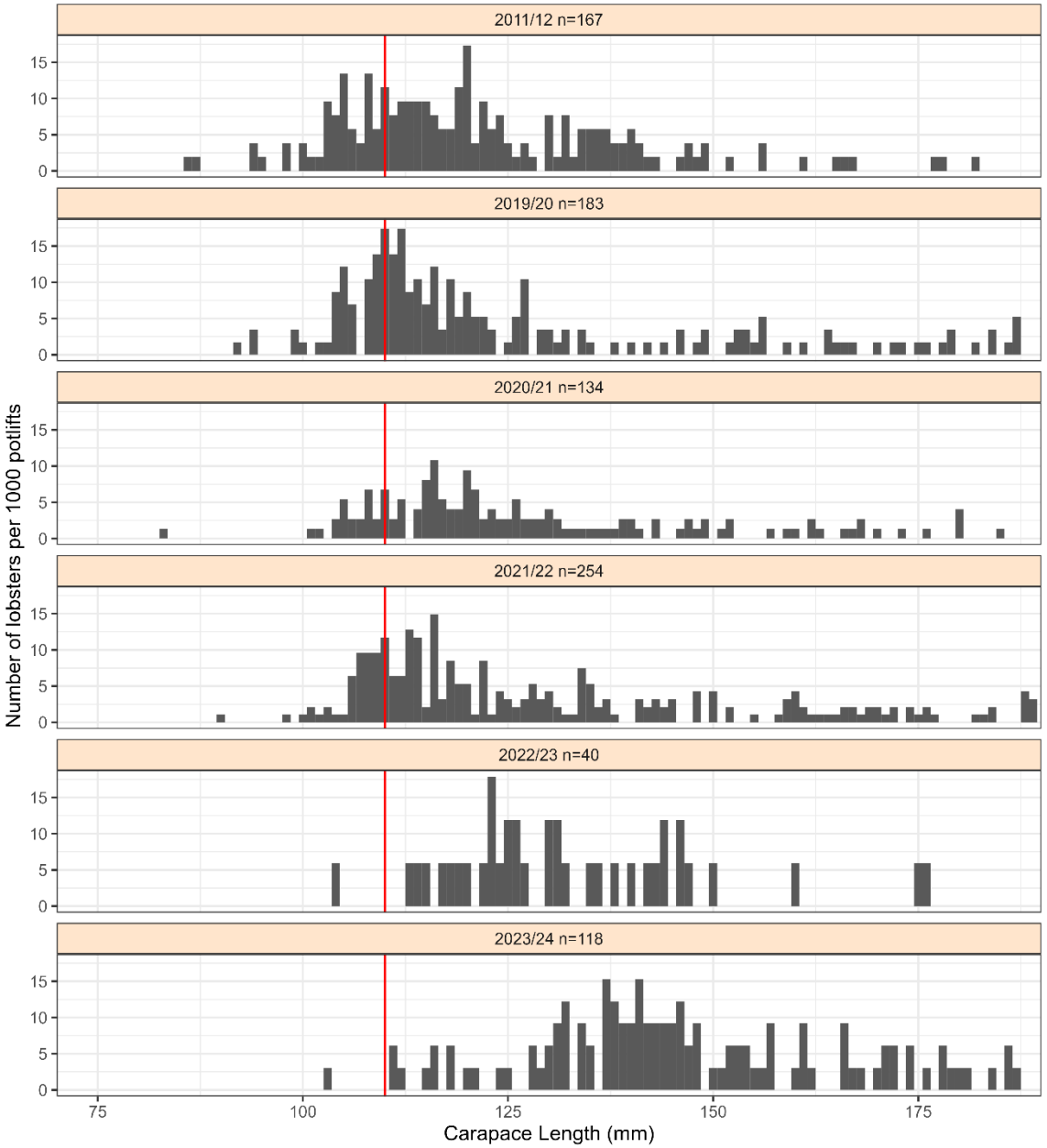
Vessel Numbers



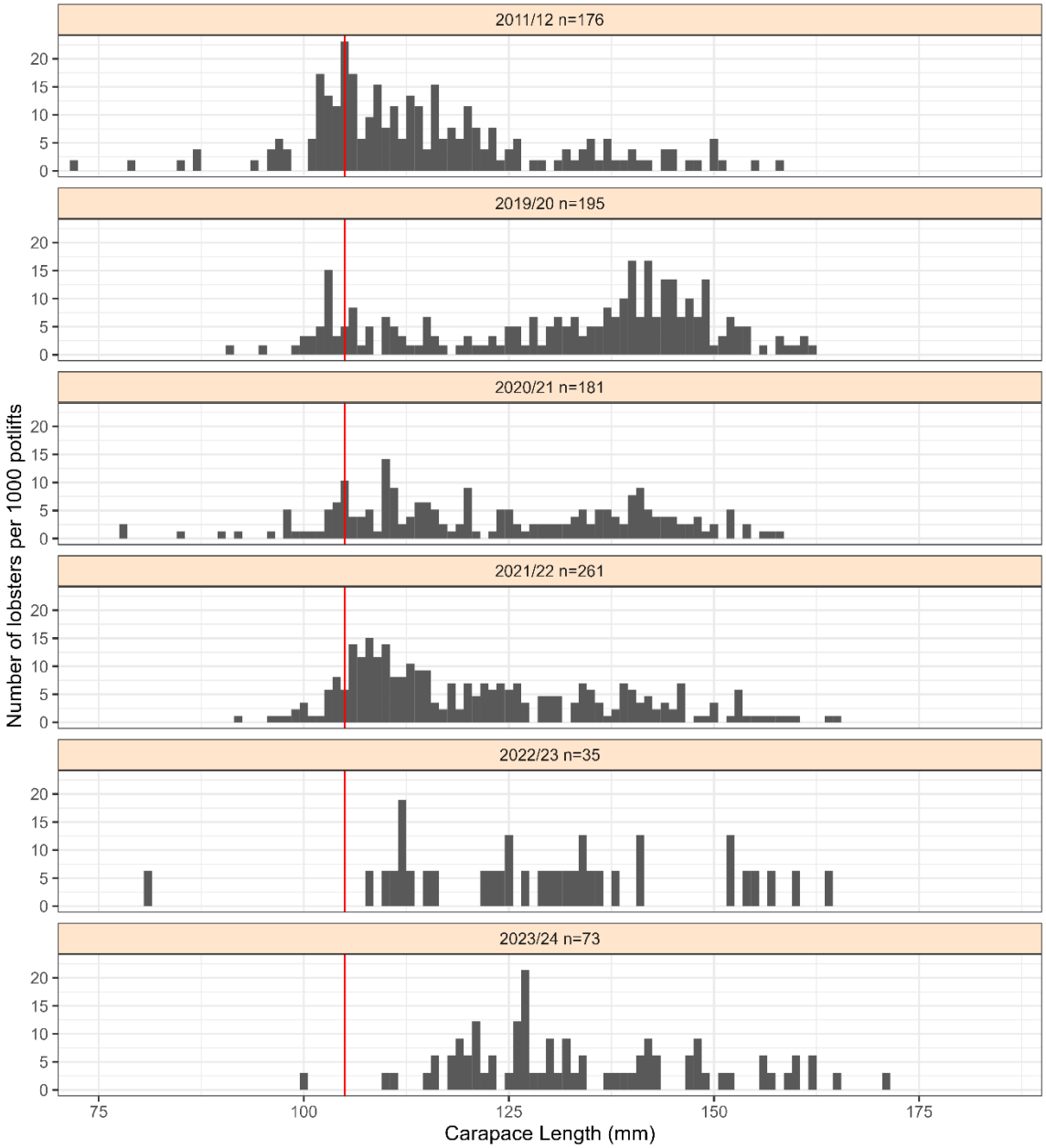
Per vessel catch and days fished



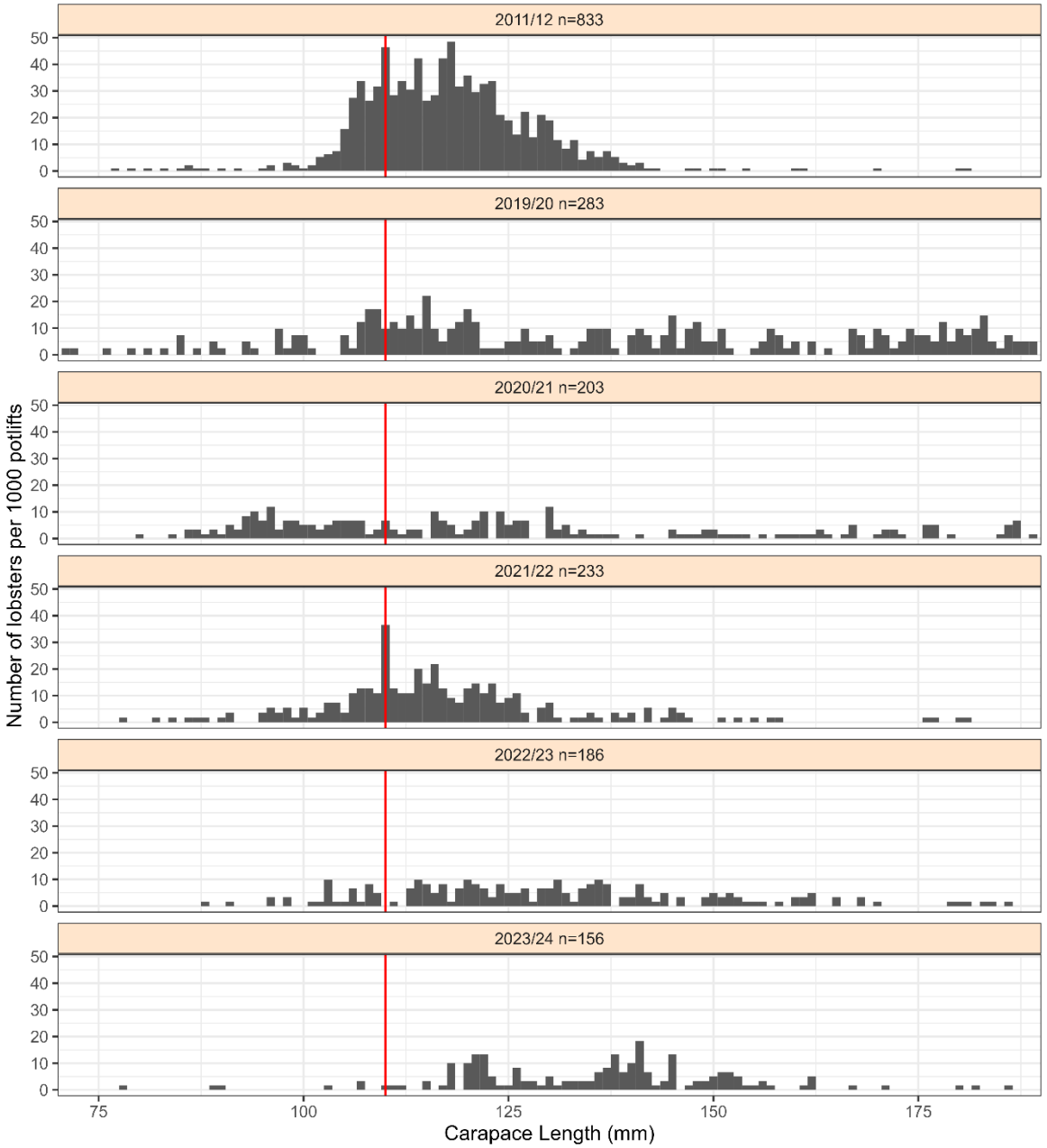
Eastern Zone LF, Male Observer Program



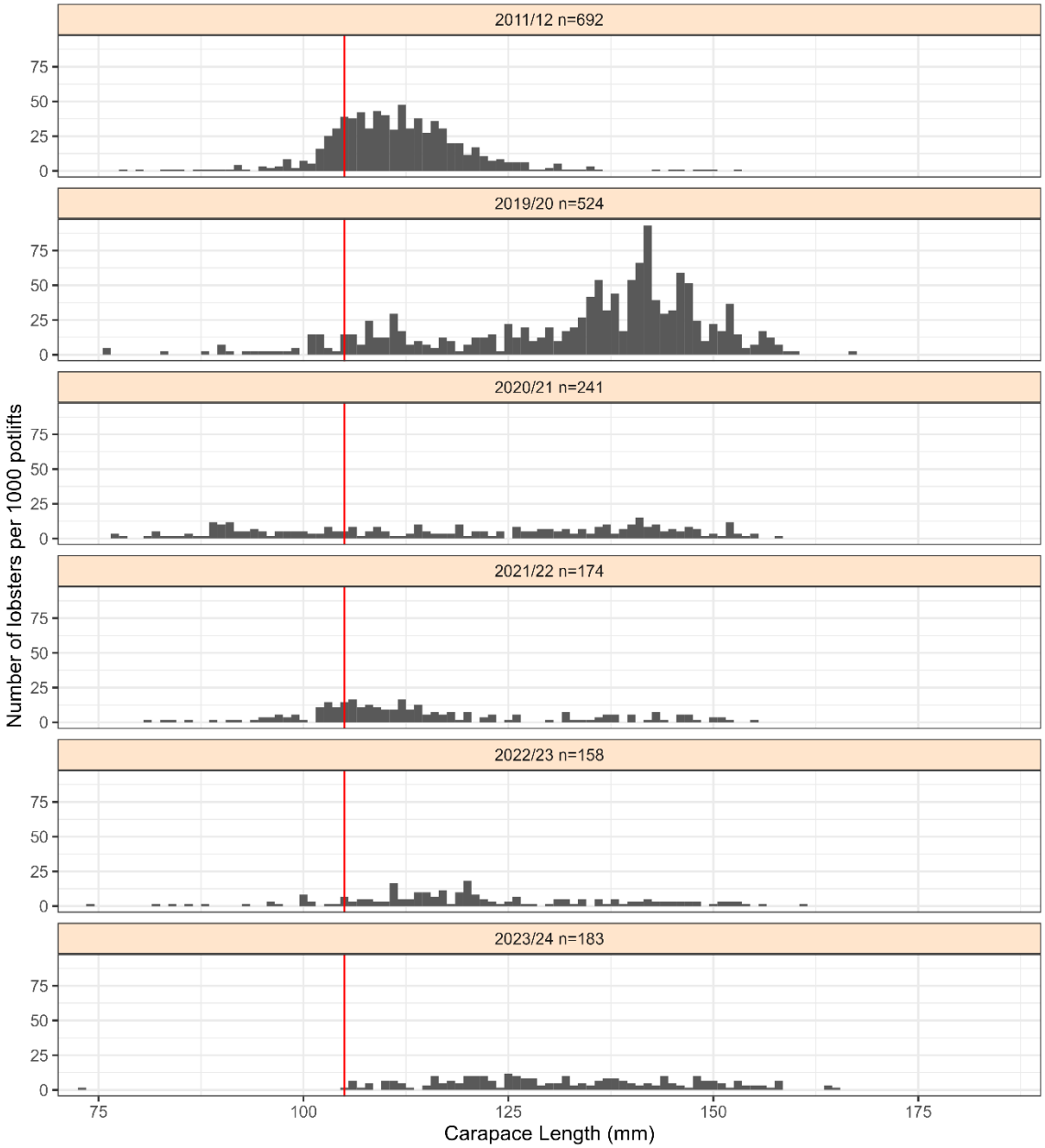
Eastern Zone LF, Female Observer Program



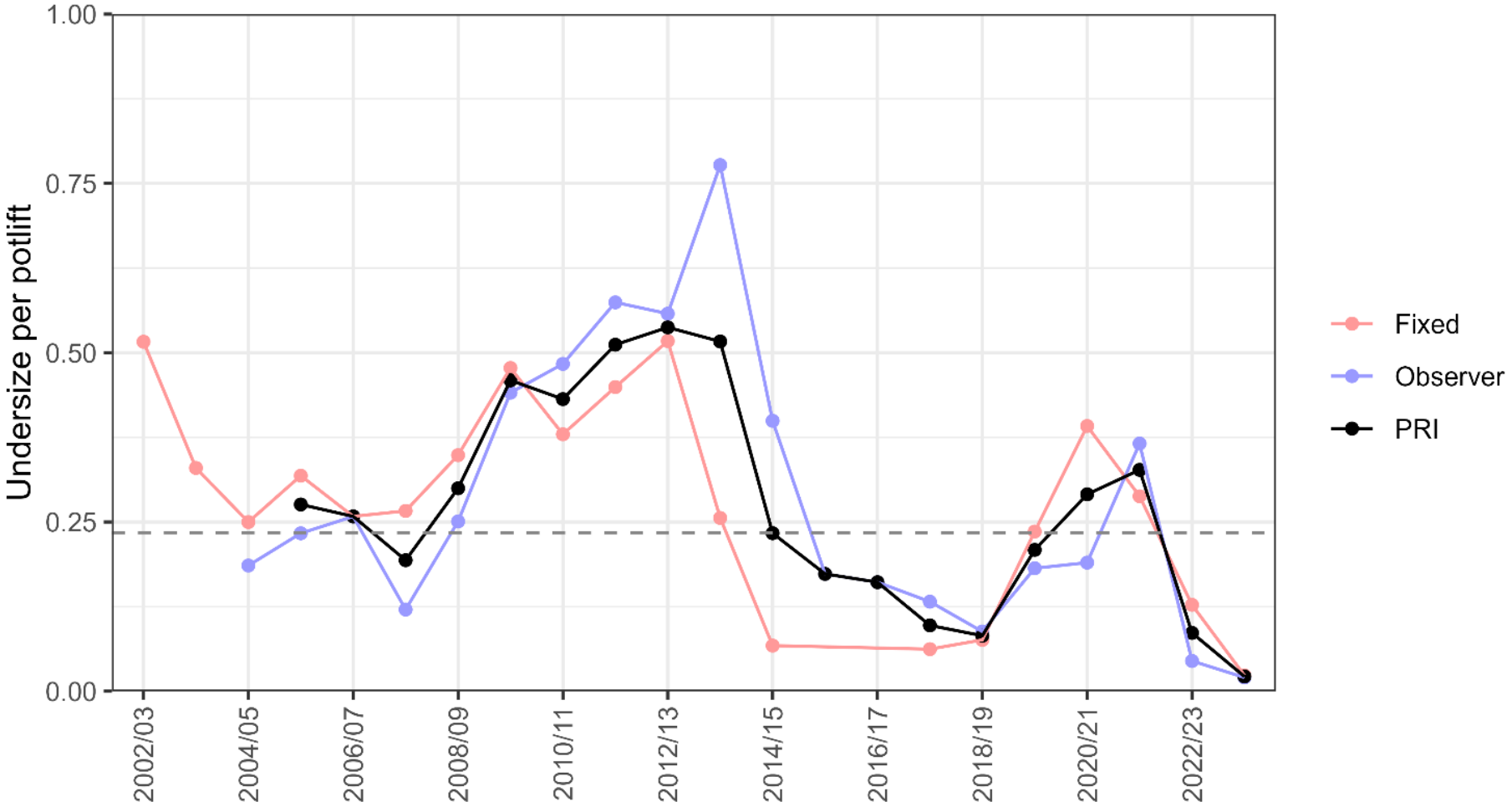
Eastern Zone LF, Male Fixed Sites



Eastern Zone LF, Female Fixed Site



Eastern Zone PRI



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HS Application

Harvest Control Rule Part 1: Ensuring Egg Production LRP is met

Model estimated egg production must be above the limit reference point of 20 percent of the virgin level with a 90 percent probability. This decision rule must be satisfied before the CPUE-based harvest strategy can be used to set the TACC. In circumstances where a model-based estimate of egg production is unavailable, a CPUE based proxy may be used to evaluate the fishery against the limit reference point identified in Section 7.2.2.

If this decision rule is not met, the TACC will be determined using the rock lobster fishery model to ensure that the TACC returns the egg production to above the limit reference point within two years with a 90 percent probability.

- CPUE is above the egg production based LRP of 0.25kg/potlift
- 2021/22 egg production readily exceed 20%
  - Assume based on higher CPUE and number of large individuals that egg production is above LRP
  - PRI has substantially decreased
  - Net effect uncertain
- Higher uncertainty due to less data and longer period since the assessment model applied.

Harvest Strategy Application

2. The TACC will remain at the same level and the same band when:
   i) the standardised CPUE remains in the current band;

   OR

   ii) the standardised CPUE has increased to a higher band but the PRI is below the trigger point.
3. The TACC will be **decreased** when:
   i) the standardised CPUE has decreased into any lower band. In this circumstance the TACC will be set at the level that corresponds to the standardised CPUE band in the current step.

4. The harvest control rule will be reviewed when:
   i) The catch rate band decreases for two consecutive years; or
   ii) The PRI is below threshold for two consecutive years.

CPUE has increased from 0.49 kg/potlift to 0.60 kg / potlift.

PRI has remained below the proposed threshold level for a second year.

Remain in Step 1.

Decision Rule	2023/24 Stock Indicator Level	Outcome
Part 1: Egg Production		
Is the model estimated egg production above the limit reference point of 20% of unfished levels?	The 2023/24 egg production level is likely to be above the 20% level based on the CPUE proxy and weight of evidence argument.	Decision rule has been met. Go to Part 2
Part 2: TACC Determination		
a. Is standardised CPUE in a higher band than the previous season?	CPUE increased from 0.48kg/pot-lift in 2022/23 to 0.60kg/pot-lift in 2023/24. This corresponds to a higher 0.60 -< 0.65 band.	The CPUE band has increased.
b. Is the 2023/24 PRI at or above the threshold level of 0.25 undersize/pot-lift?	The combined PRI was 0.02 in 2023/24. This is a significant reduction that is well below the threshold level.	The combined PRI is below the threshold level.
	RESULT	**The Eastern Zone remains in the same CPUE band (0.45-<0.50) with a TACC of 21t.**

Harvest control rule review required

RLRAG 43 noted that:

While members agreed the data was concerning, the zone has employed a very conservative rebuilding strategy. While the higher number of legal-sized lobsters should continue to support egg production, recruitment remains the primary concern. As the levels of fishing are already very low, members agreed that this is likely due to environmental factors external to the fishery. For this reason, it was noted that changing the minimum legal length is unlikely to have an impact. In addition, very little data has been recorded providing some uncertainties in the results.

Agenda Item 6: Giant Crab Assessment

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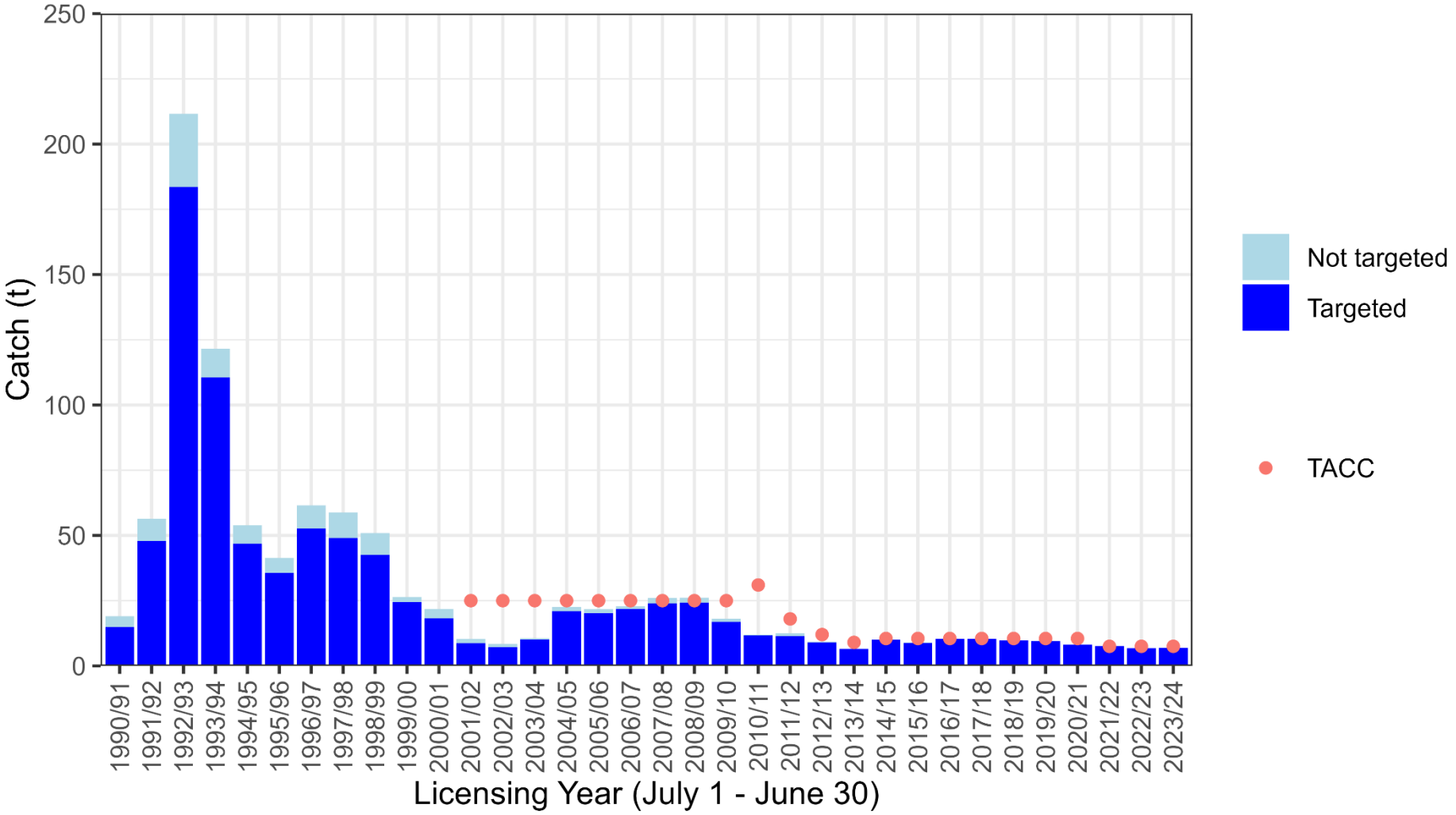
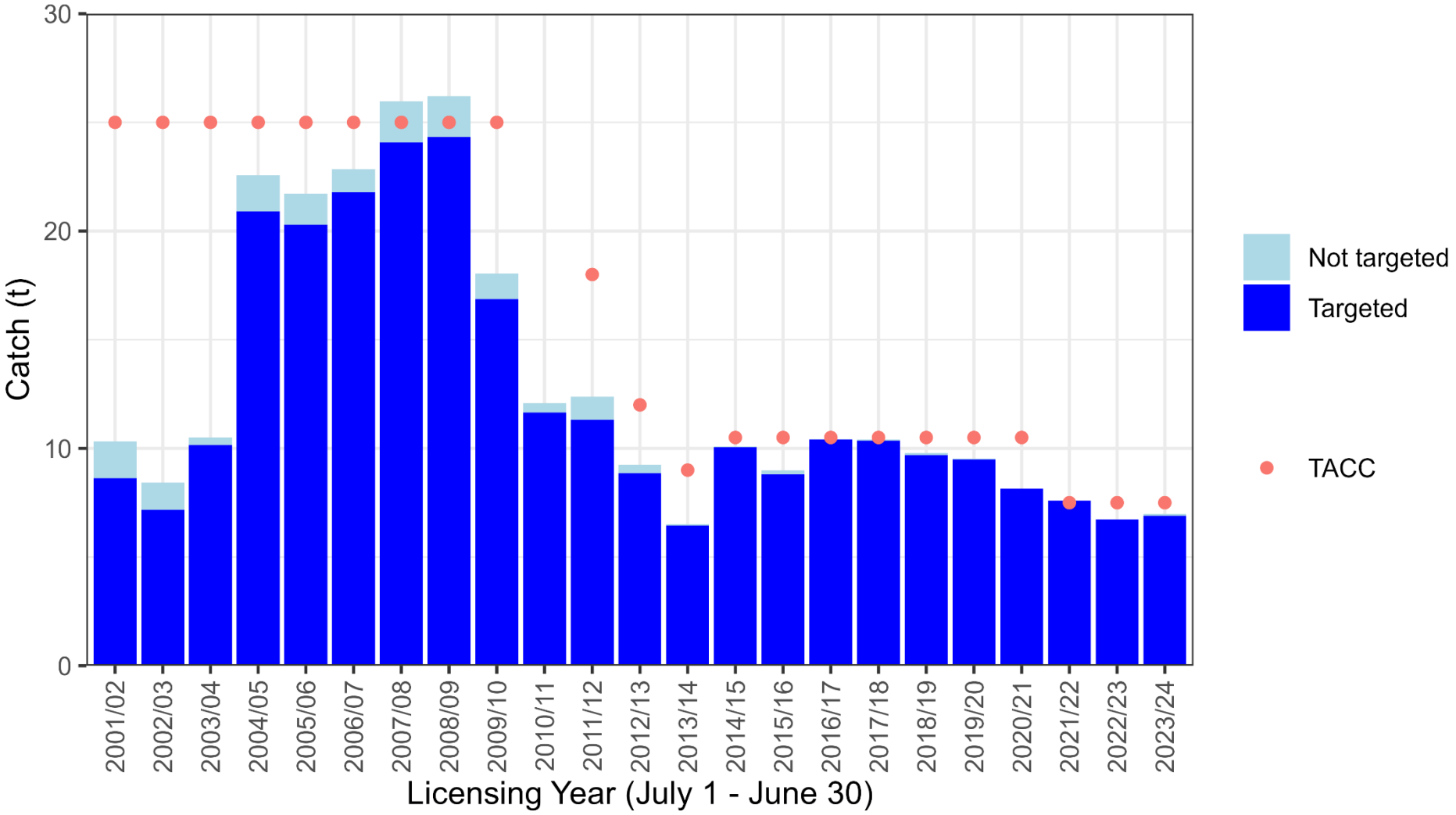
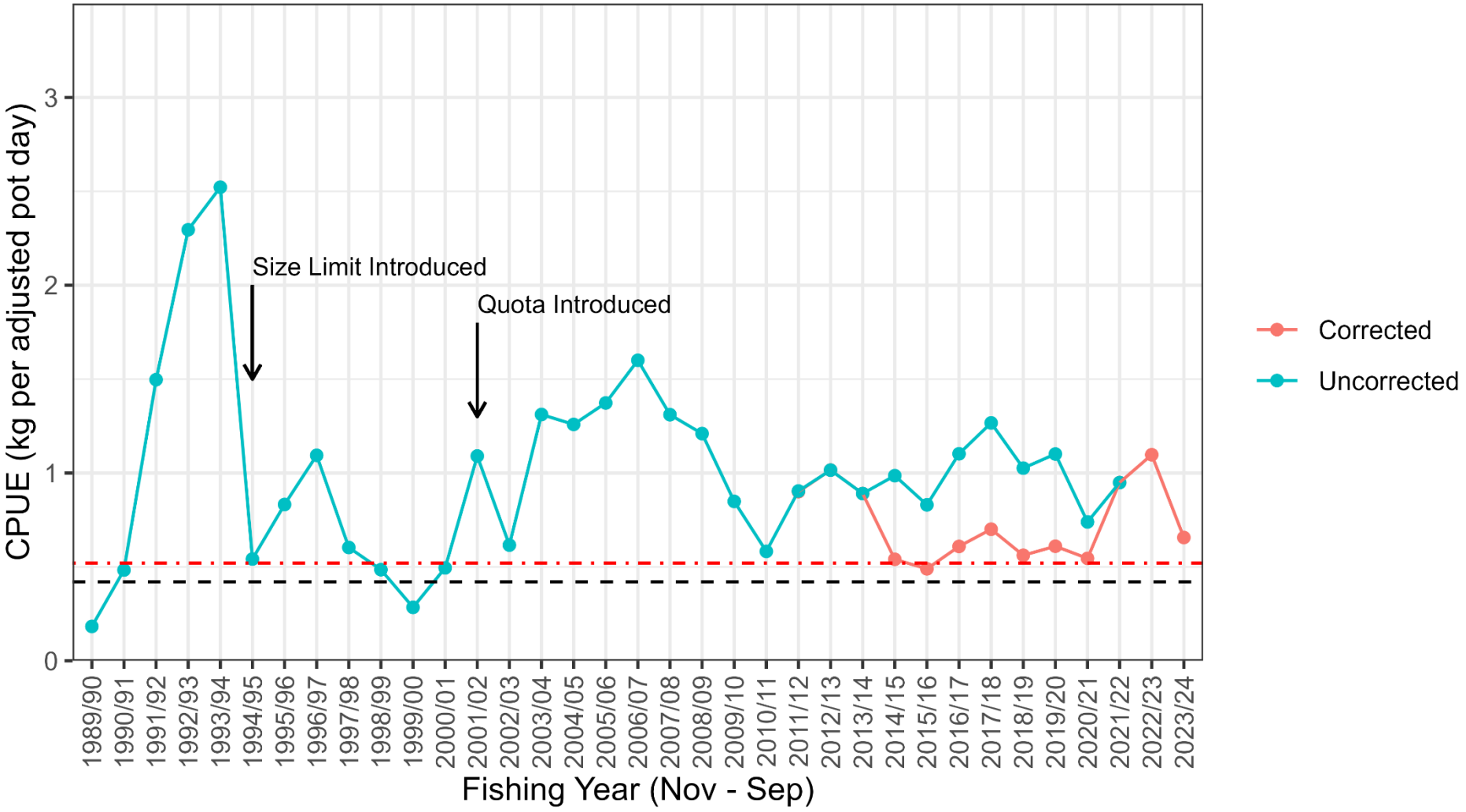
Catch history

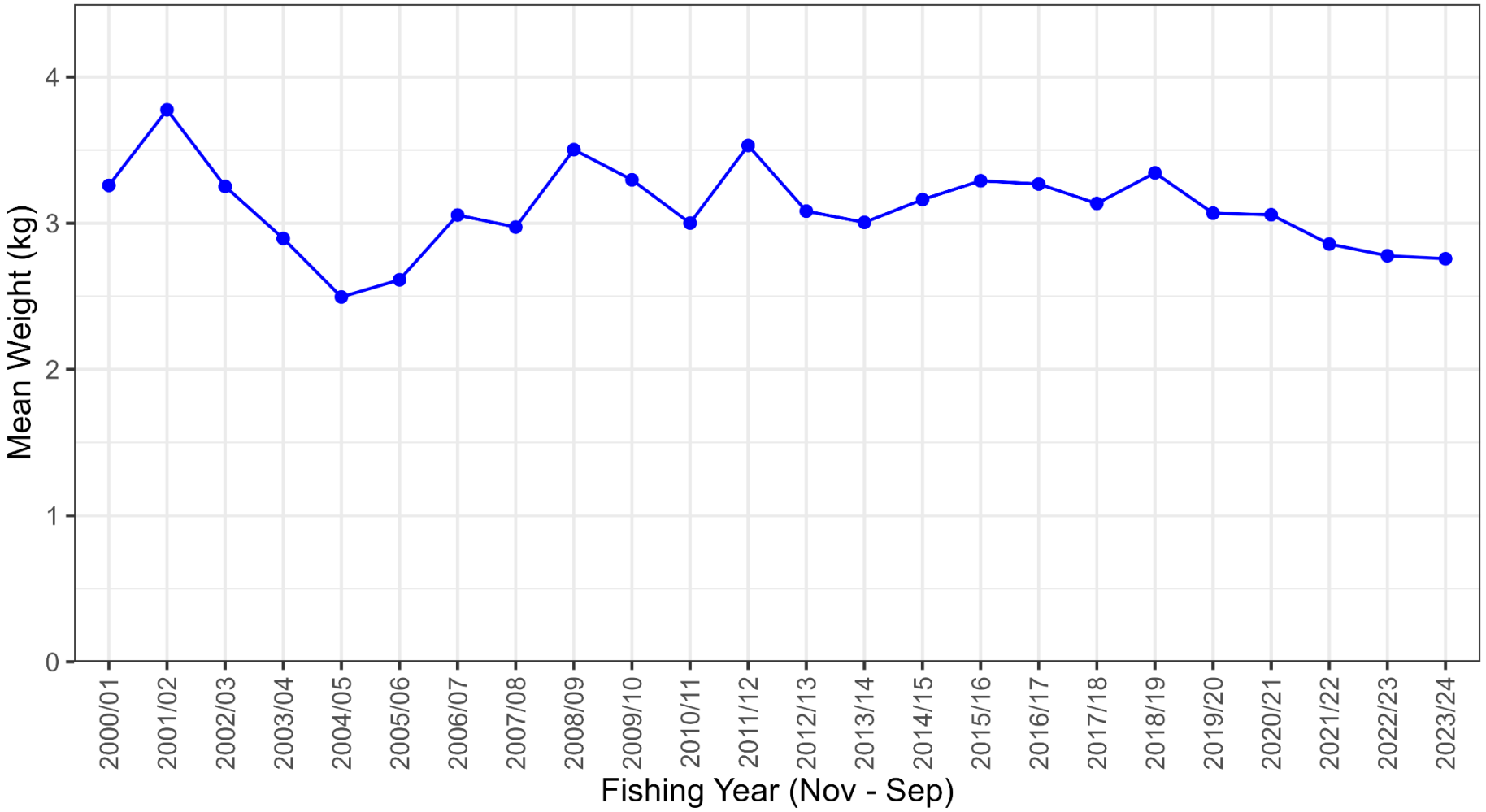



30
20
10
0
Catch (t)
2001/02
2002/03
2003/04
2004/05
2005/06
2006/07
2007/08
2008/09
2009/10
2010/11
2011/12
2012/13
2013/14
2014/15
2015/16
2016/17
2017/18
2018/19
2019/20
2020/21
2021/22
2022/23
2023/24
Licensing Year (July 1 - June 30)
Not targeted
Targeted
TACC

CPUE


CPUE (kg per adjusted pot day)
0
1
2
3
Size Limit Introduced
Quota Introduced
1989/90
1990/91
1991/92
1992/93
1993/94
1994/95
1995/96
1996/97
1997/98
1998/99
1999/00
2000/01
2001/02
2002/03
2003/04
2004/05
2005/06
2006/07
2007/08
2008/09
2009/10
2010/11
2011/12
2012/13
2013/14
2014/15
2015/16
2016/17
2017/18
2018/19
2019/20
2020/21
2021/22
2022/23
2023/24
Fishing Year (Nov - Sep)
Corrected
Uncorrected

Mean Weight

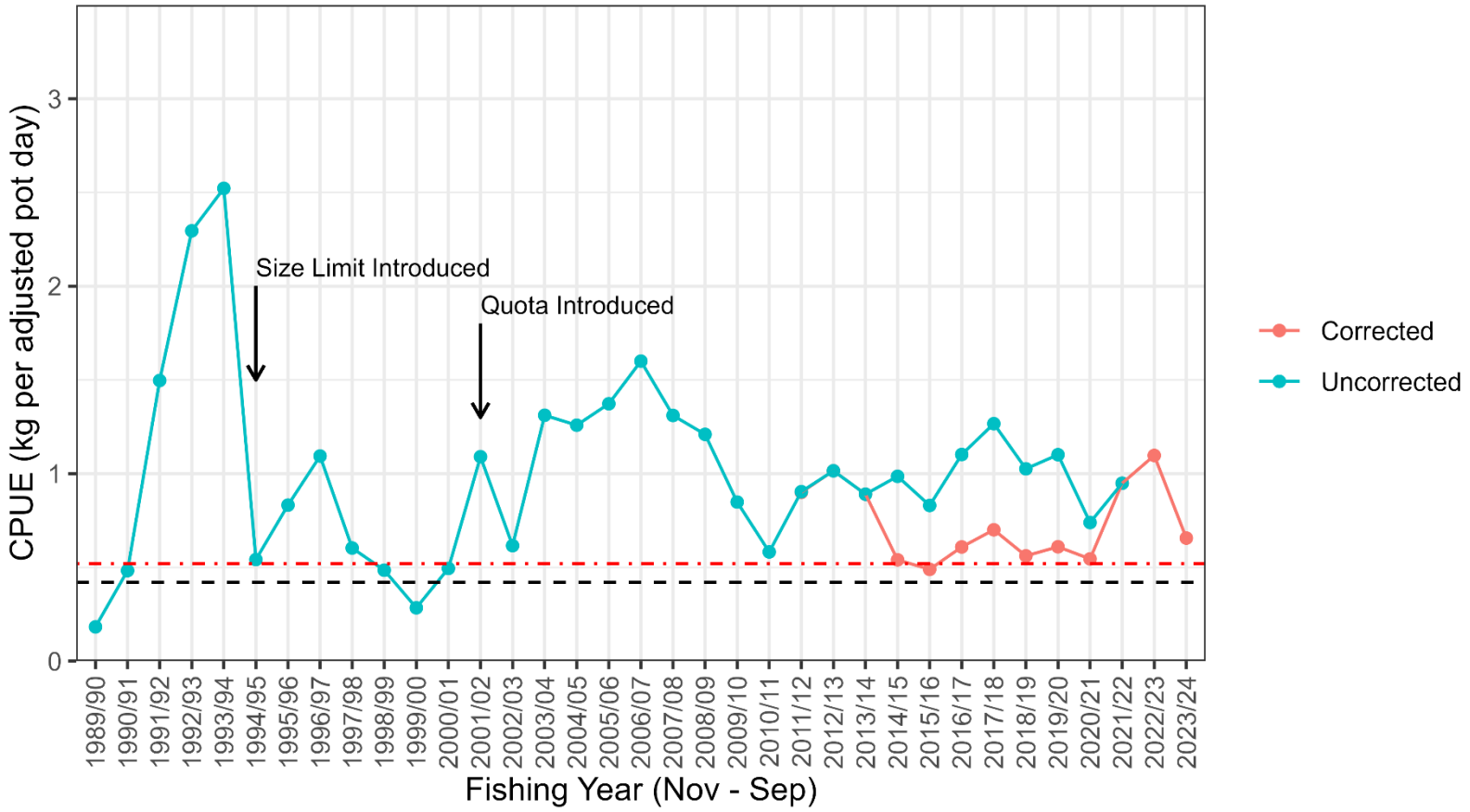

Mean Weight (kg)
0
1
2
3
4
2000/01
2001/02
2002/03
2003/04
2004/05
2005/06
2006/07
2007/08
2008/09
2009/10
2010/11
2011/12
2012/13
2013/14
2014/15
2015/16
2016/17
2017/18
2018/19
2019/20
2020/21
2021/22
2022/23
2023/24
Fishing Year (Nov - Sep)

Evaluation

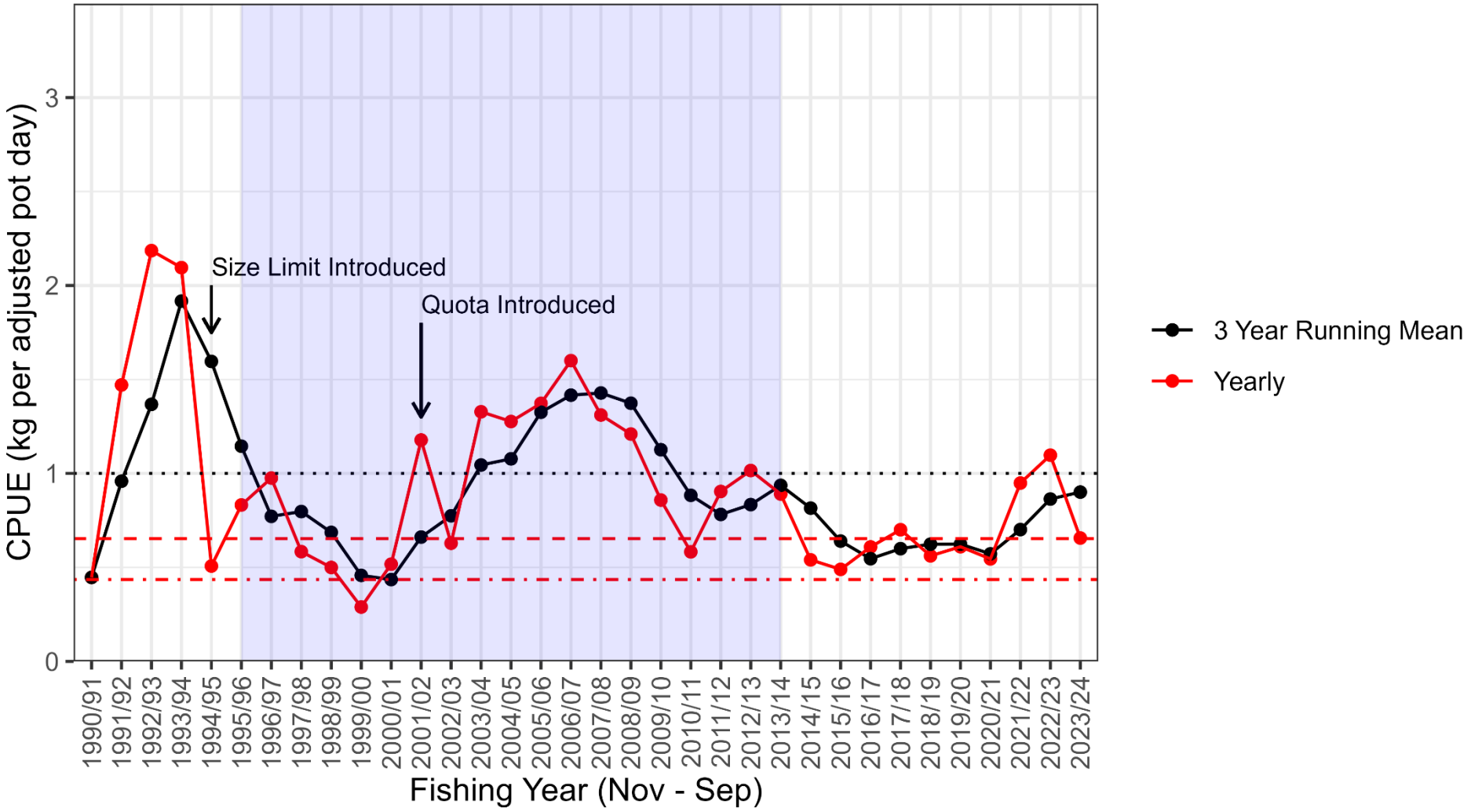
LRP of 0.52kg/potlift.day; TRP of 0.42kg/potlift.day

2022/23: 1.10kg/potlift.day

2023/24: 0.66kg/potlift.day

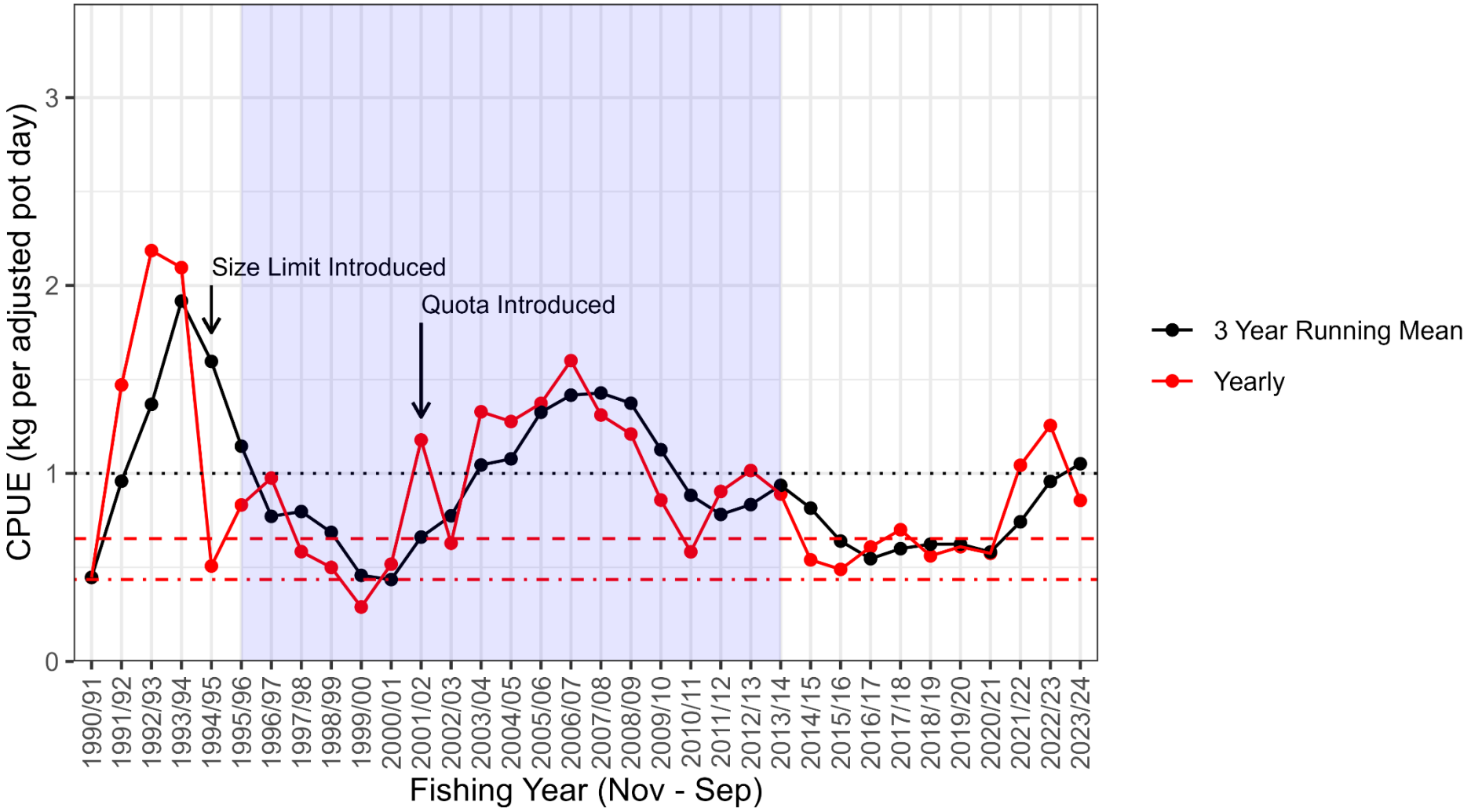


CPUE with proposed reference points



CPUE with proposed reference points

High-grading adjustment (using mean landed crab weight)



	Level 1	Level 2	Level 3
Data Type	Vic-eCatch	Level 1 plus mandatory L-F sampling* and verification of Vic-eCatch data (observer or camera)	Level 2 data for 3+ years and model-based assessment
Analysis and assessment	CPUE Trends	CPUE Trends	CPUE, stock assessment model
Key HCR elements	**Cap:** 10.5t **Increase:** Not Possible **Decrease:** Up to 50% if CPUE is below threshold RP 50-100% if CPUE is below the limit RP	**Cap:** 10.5t below target RP. No cap above target RP. **Increase:** Yes. Up to 20% every 3 years possible if CPUE is above the target RP. **Decrease:** As per level 1	**Cap:** 10.5t below target RP. No cap above target RP. **Increase and decrease:** TACCs will be set according to the model to ensure the fishery fluctuates around the target RP and remains above the limit RP with a 90% probability.
Potential cost to licence holder/operator	Low	Low-Moderate	Moderate
Summary	Low level of data collection informing stock assessment, no scope to increase TACC beyond 10.5t, following stock depletion TACC may remain reduced, minimal cost to fishers.	Verified data increases confidence in assessment and permits TACC beyond 10.5t	The assessment model will provide an understanding of the stock status and dynamics that allows input and output controls to be flexibly set to meet industry needs.

* Fishers catching >1t must measure a representative sample of their catch according to a protocol agreed with VFA.

Level 1

Due to the small nature of this fishery and the stochasticity in the CPUE time series, it is inappropriate to have a strictly defined harvest control rule. The following harvest control rule provides a guide to TACC setting at the tier 1 level which provides sufficient flexibility to allow management to take into account other information about the fishery which may be available on a sporadic basis:

1. If CPUE exceeds the threshold RP the TACC remains unchanged.
2. If CPUE falls below the threshold RP the TACC is reduced by up to 50%.
3. If CPUE falls below the limit reference point, a stock rebuilding strategy is developed and the TACC is reduced by 50-100%.
4. If the TACC exceeds the cap it is reduced to the cap. This can only occur if the fishery has been at a higher tier and had TACC increases before returning back to a tier 1.