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2023/24 Preliminary Rock Lobster Assessment Summary

The southern rock lobster commercial TAC has been 1050.7t since the 2014/15 season, preceded by three years at 1103.24t. Overall over the last decade CPUE has risen substantially to multi-decadal highs. This is primarily due to two good recruitment events in 2016-2018 and 2021-23. Outside of these high recruitment years the current TACC has enabled the stock to remain at a relatively steady state (e.g. 2018/19 to 2020/21).

Stock assessment modelling indicates that statewide egg production is at 42% which is well above the 30% limit reference point. This reference point has been set at a level below which subsequent recruitment may be impacted, hence is a critical limit reference point for ensuring sustainability.

The role of a target reference points is to be reflective of the stock state to which stakeholders aspire to maximise aspects such as economic rent, recreational amenity and ecosystem services. An interim biomass target reference point (TRP) for has been set for this fishery at 25% of the unfished biomass. This TRP is an extremely low value for a target relative to those used in most fisheries so has been proposed as an interim target along a rebuild pathway. This TRP was achieved in 2022/23 and new target(s) are being developed through the harvest strategy review which is currently underway.

Improvement in CPUE has been distributed across all stock assessment areas. Areas in the East Coast Stock Rebuilding Zone (SRZ) initially showed limited CPUE increase despite dramatic catch reductions. Then after a period of rapid CPUE increase, CPUE fell again in 2019/20 and 2020/21. Consequently area 2 and 3 remain well below the interim rebuild target of 20% virgin biomass stock and a further catch reduction is required to keep Area 2 on track for meeting this target by 2023. To achieve this the total catch in areas 1, 2 and 3 (combined over both sectors) would need to be substantially reduced. There are a number of factors contributing to this including recreational over-catch. However, the primary factors are a record low abundance of undersize lobsters coupled with the limited time remaining before the 2023 target year. It should be noted that the target is still expected to be achieved (i.e. rebuilding is expected to continue), but 2-4 years behind schedule.

Due to the long pelagic larval period (up to two years), egg production in different areas of the fishery is not closely linked to future recruitment in that region. Recruitment is affected by patterns in larval dispersal and it's known that the most important regions for larval sources tend to vary from year to year. The appropriate management response to this is to ensure that healthy egg production of at least 20% of the unfished level is maintained in all areas. This is currently satisfied in all areas.

Increasing CPUE has reduced the effort required to catch the TAC and hence the gap between lease price and beach price has narrowed. Consequently, competition for leased quota by fishers has become increasingly intense leading to a steady ongoing reduction in vessel numbers, down to 164 in 2020/21 and consequently employment. Some management changes such as a

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relaxation of input controls (e.g. allowing the use of 60 pots) can increase the price of lease quota and accelerate the process of fleet and employment reduction.

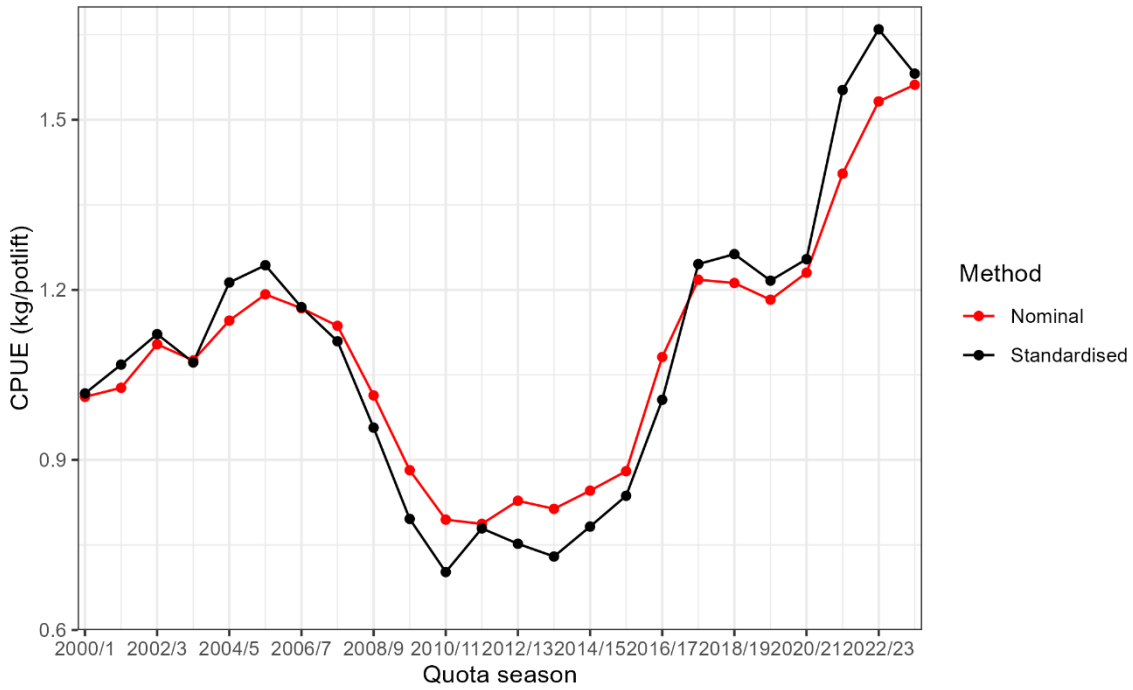

Figure 1: Nominal and standardised annual CPUE

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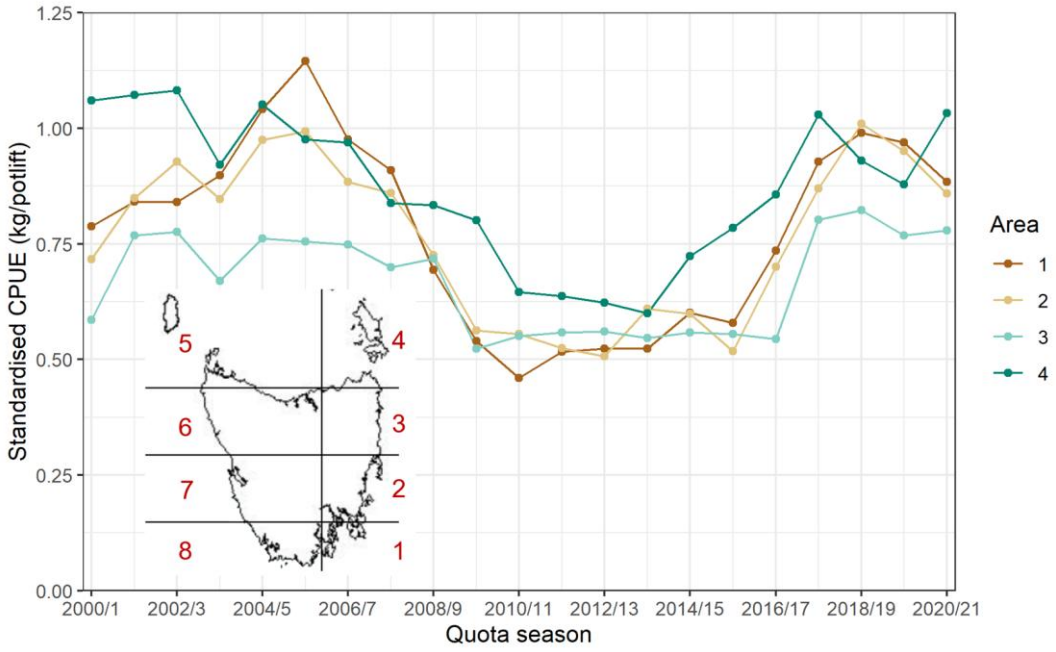

Figure 2: Standardised CPUE in the Eastern stock assessment areas

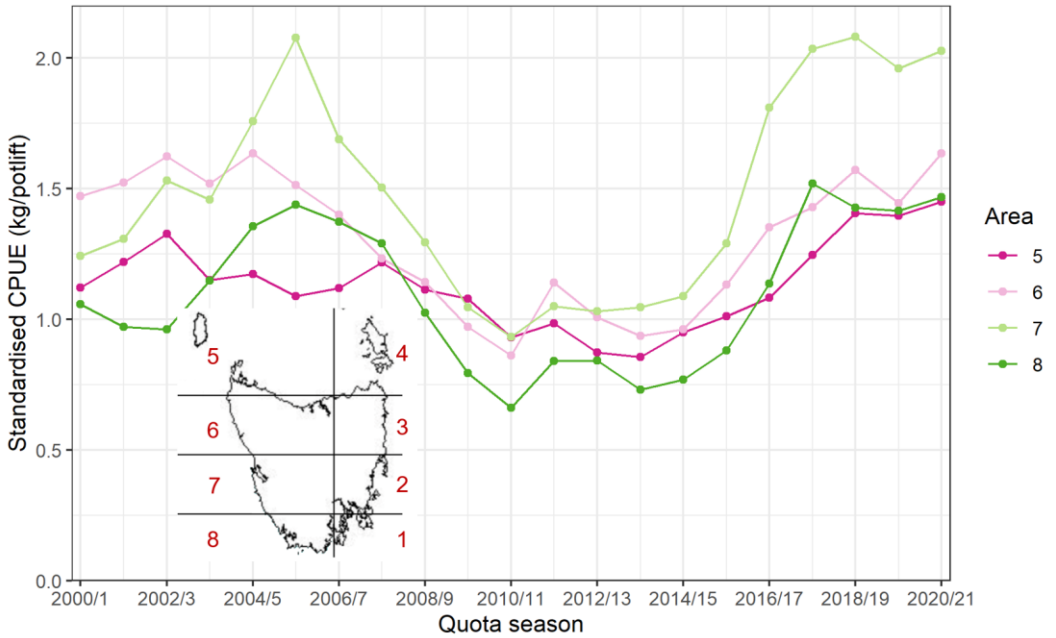

Figure 3: Standardised CPUE in the Western stock assessment areas

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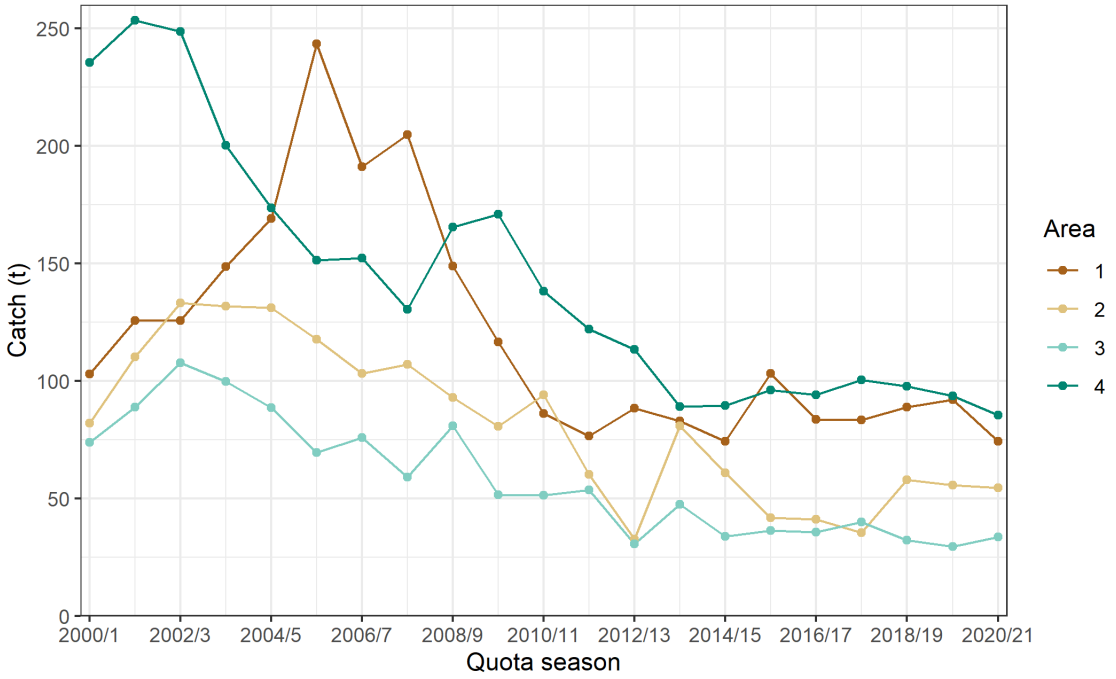

Figure 4: Commercial catch in the Eastern stock assessment areas

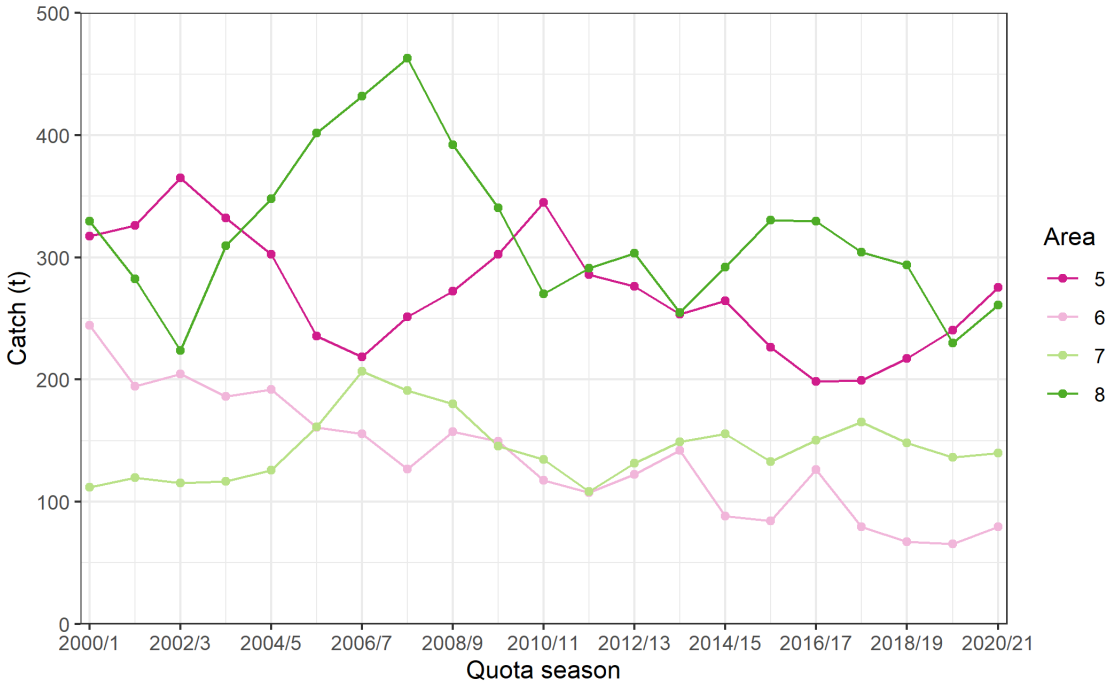

Figure 5: Commercial catch in the Western stock assessment areas

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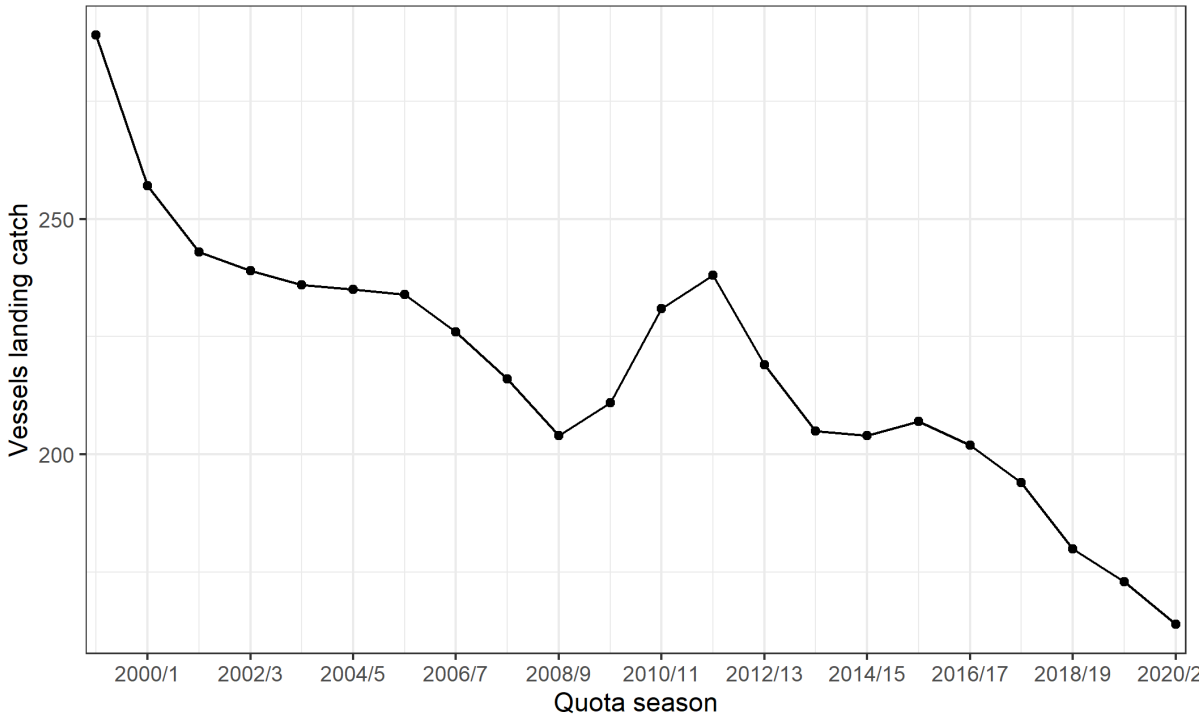

Figure 6: Number of vessels landing catch in each quota season.

Figure 7: Egg production and biomass (>60mm) compared to the unfished levels by stock assessment area. Note that small fluctuations from year to year due to model uncertainty are expected and small changes from the 2019/20 assessment are not necessarily indicative of trends in the stock. For more detail the individual area trajectories need to be considered in full.

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Table 1. Evaluation of biological reference points. The required levels are relative to the estimated unfished stock. For example, the egg production limit requires egg production to remain above 30% of the level estimated to have been produced prior to the commencement of fishing.

			Probability	
Statewide Reference point	Level	Year	Required	Achieved
Egg Production Limit	30%	2023	90	
Virgin Biomass Limit	20%	2023	90	
Virgin Biomass Target	25%	2026	70	

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Stock Assessment Area 1

Figure 8: Biomass and egg production compared to unfished levels in area 1.

Stock Assessment Area 2

Figure 9: Biomass and egg production compared to unfished levels in area 2.

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Stock Assessment Area 3

Figure 10: Biomass and egg production compared to unfished levels in area 3.

Stock Assessment Area 4

Figure 11: Biomass and egg production compared to unfished levels in area 4.

Stock Assessment Area 5

Figure 12: Biomass and egg production compared to unfished levels in area 5.

Stock Assessment Area 6

Figure 13: Biomass and egg production compared to unfished levels in area 6.

Stock Assessment Area 7

Figure 14: Biomass and egg production compared to unfished levels in area 7.

Stock Assessment Area 8

Figure 15: Biomass and egg production compared to unfished levels in area 8.

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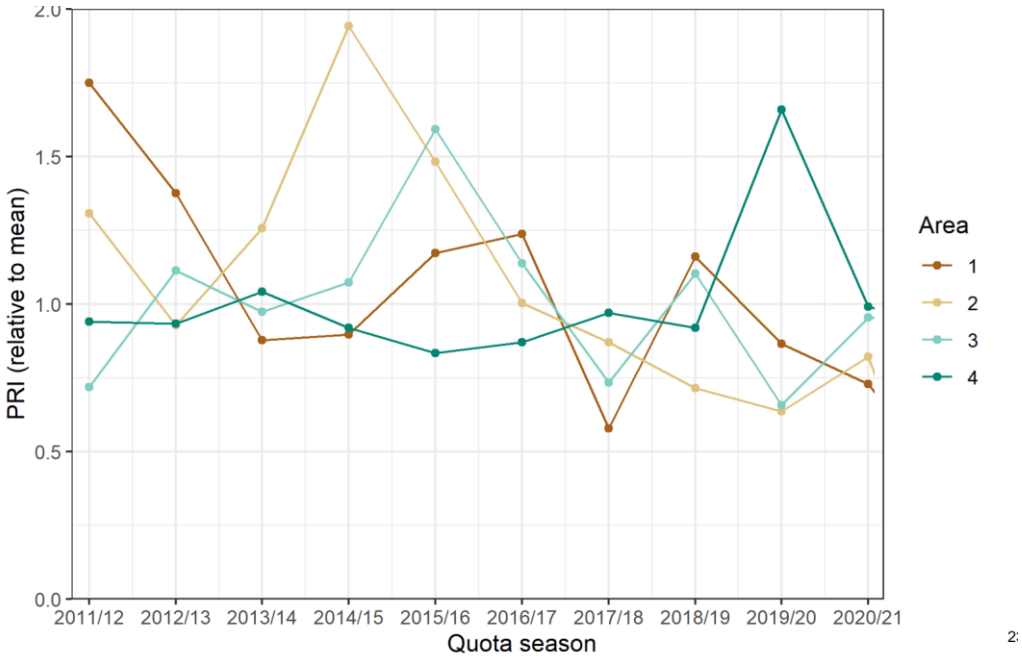

Figure 16: Index for number of lobsters <100mm per potlift from research pot data for the Eastern stock assessment areas. A value of 1 indicates the long term mean.

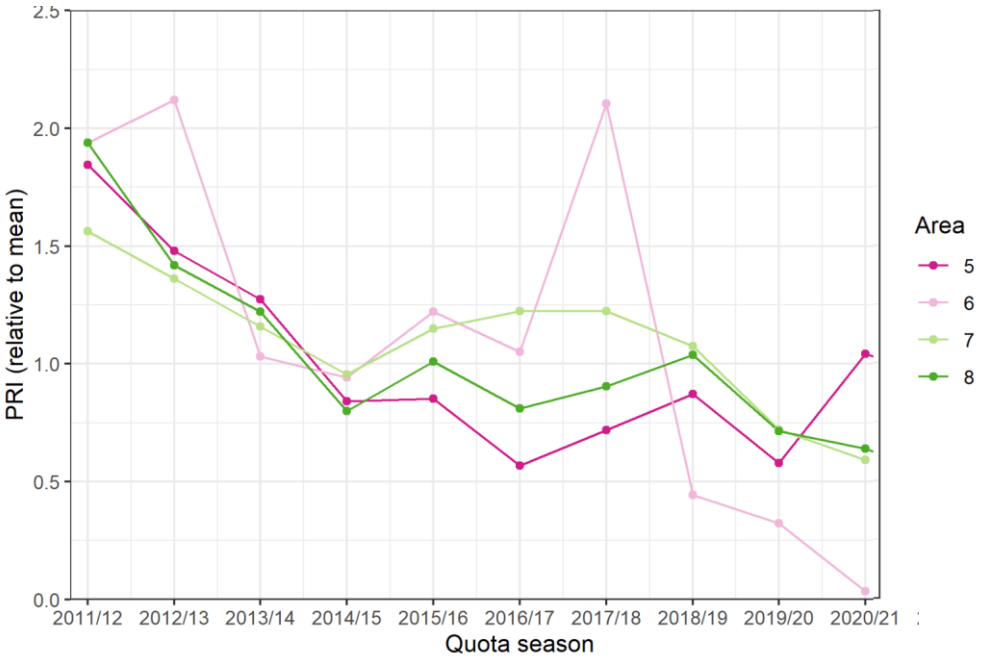

Figure 17: Index for number of lobsters <100mm per potlift from research pot data for the Western stock assessment areas. A value of 1 indicates the long term mean.

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