

2019/20 Preliminary Rock Lobster Assessment Summary

The southern rock lobster commercial TAC has been 1050.7t for the last six years preceded by three years at 1103.24t. Over the last nine years CPUE has risen substantially with a small decline in the last two years due to a period of low recruitment.

Stock assessment modelling indicates that statewide egg production is well above the 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.

An interim biomass target reference point has been set at 25% of the unfished biomass. The target reference point is reflective of the stock state to which stakeholders aspire for maximising economic rent and recreational amenity. 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. Once reached it is expected that a new and higher TRP that continues the rebuilding pathway will be established. Stock assessment modelling indicates that the TRP will only be achieved with a 67% probability with the current TACC (a probability of 70% is required). To achieve the required 70% probability a minimal 1kg/unit TACC reduction would be needed. Given the impacts of COVID-19 this correction may be addressed anyway through an under-catch in the 2020/21 season.

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. 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 limited to approximately 120t. 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), just two 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. Area 5 is the only area falling below this level, a regional size limit was put in place to address this in late 2019 and the effect of this will be evaluated in the next 2020/21 assessment.

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 174 in 2019/20 and consequently employment. Some management changes such as a 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. This assessment pertains to the period up to the end of February 2020, hence the impacts of COVID-19 are only partially reflected in this.

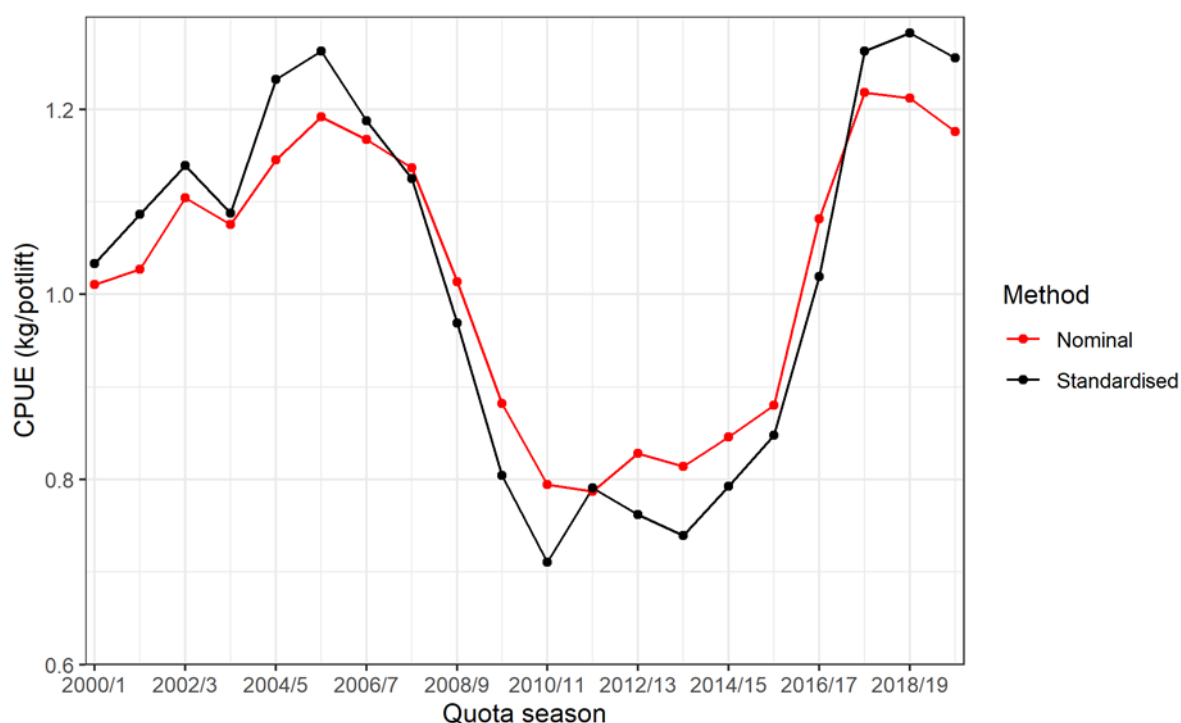


Figure 1: Nominal and standardised annual CPUE

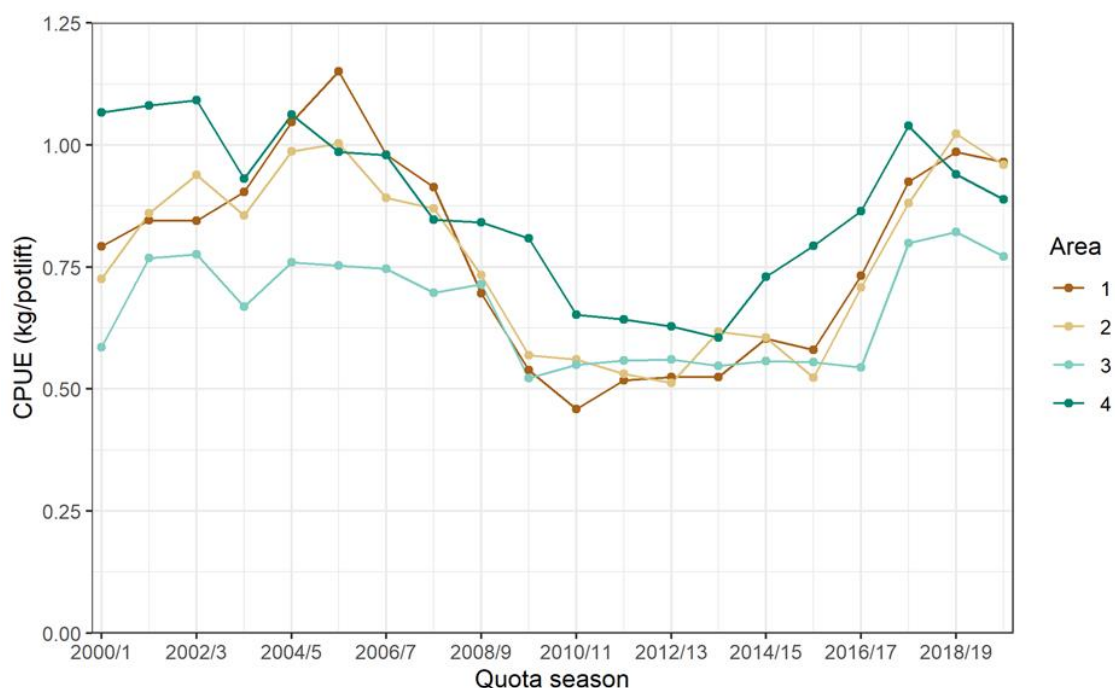


Figure 2: Standardised CPUE in the Eastern stock assessment areas

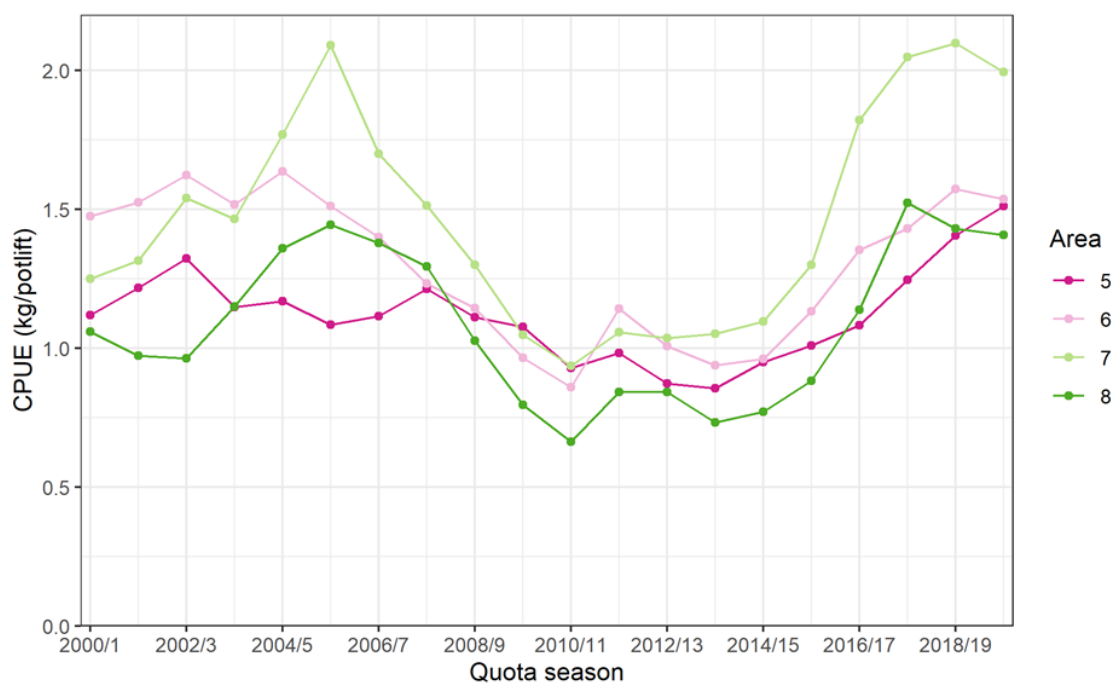


Figure 3: Standardised CPUE in the Western stock assessment areas

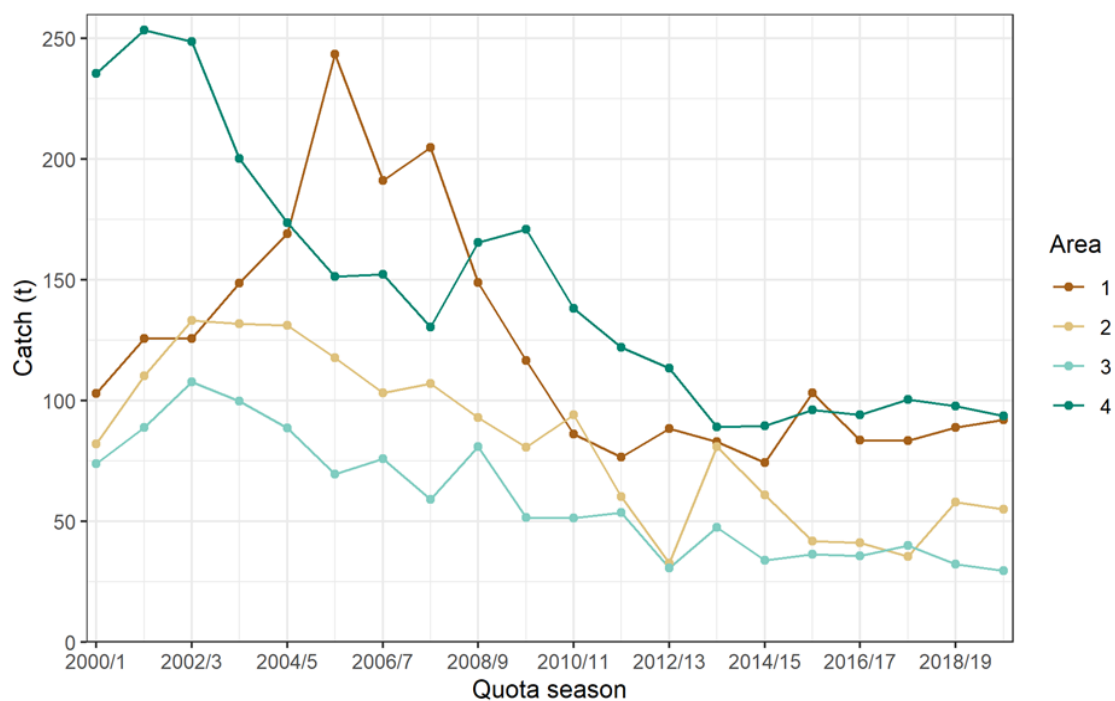


Figure 4: Commercial catch in the Eastern stock assessment areas

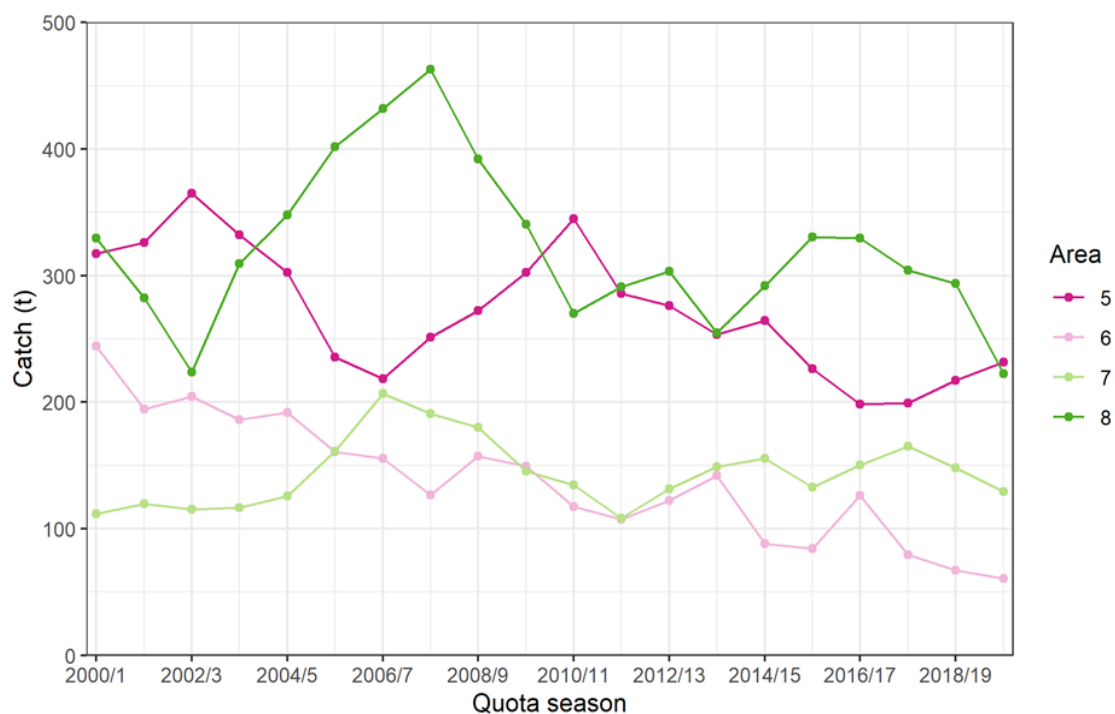


Figure 5: Commercial catch in the Western stock assessment areas

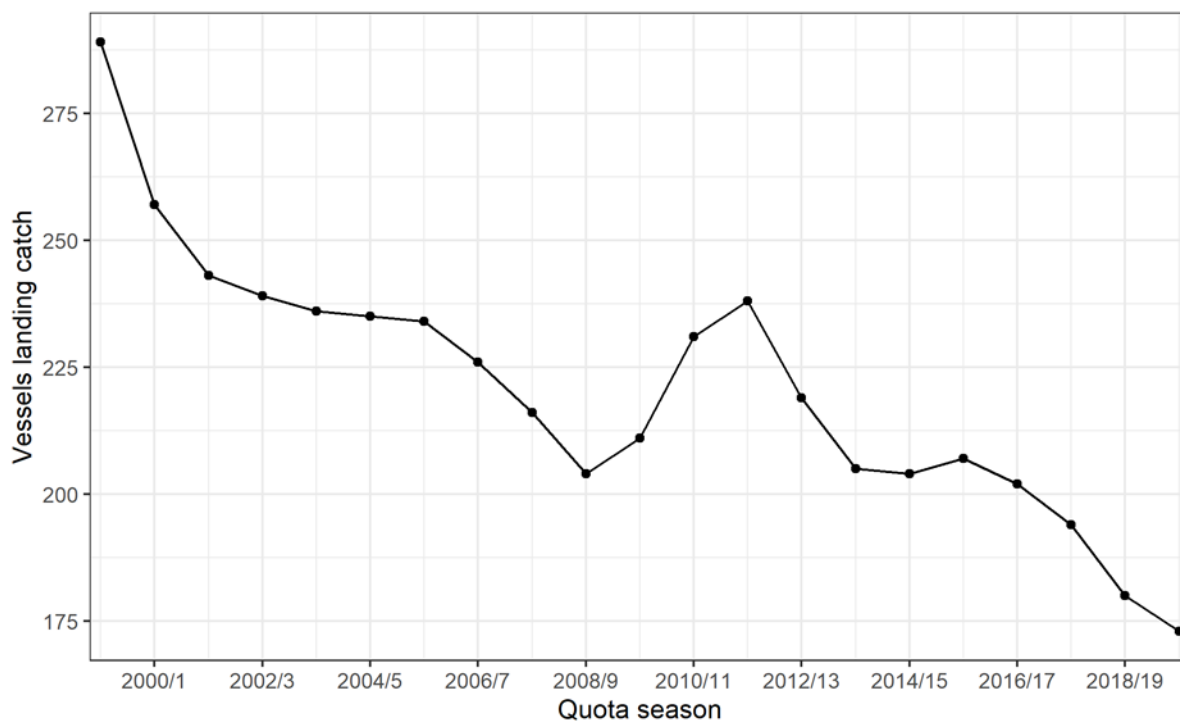


Figure 6: Number of vessels landing catch in each quota season.

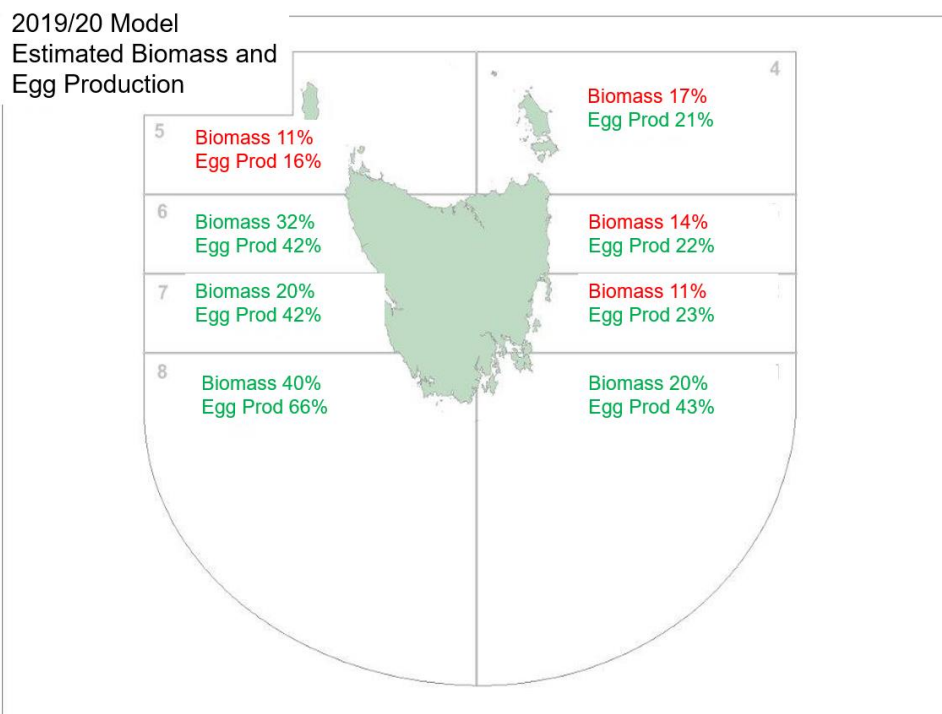


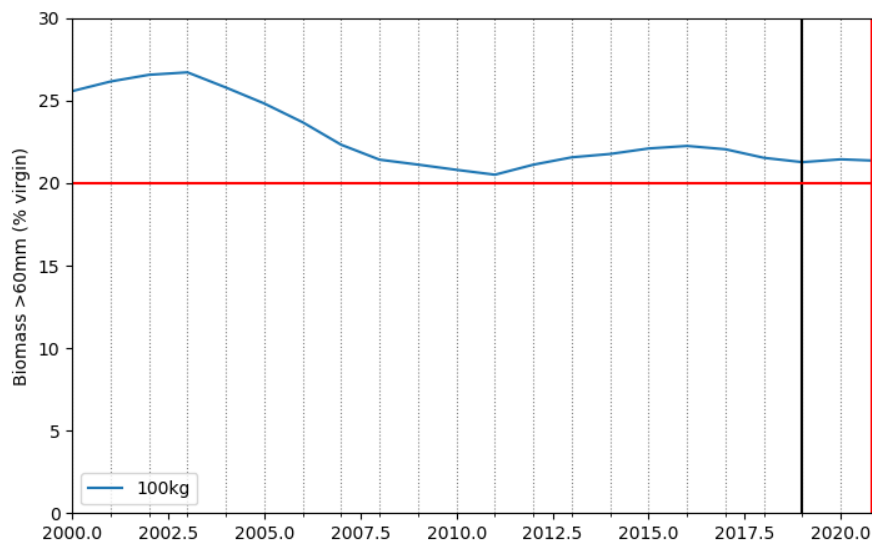
Figure 7: Egg production and biomass (>60mm) compared to the unfished levels by stock assessment area. Note that small fluctuations from year to year due to model uncertainty are expected and small changes from the 2018/19 assessment are not necessarily indicative of trends in the stock. For more detail the individual area trajectories need to be considered in full.

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.

Statewide Reference point	Level	Year	Probability	
			Required	Achieved
Egg Production Limit	30%	2021	90	100
Virgin Biomass Limit	20%	2021	90	100
Virgin Biomass Target	25%	2026	70	67

LRP: 20% Virgin Biomass 2021

Total Biomass (% Virgin)



TRP: 25% Virgin Biomass by 2026

Total Biomass (% Virgin)

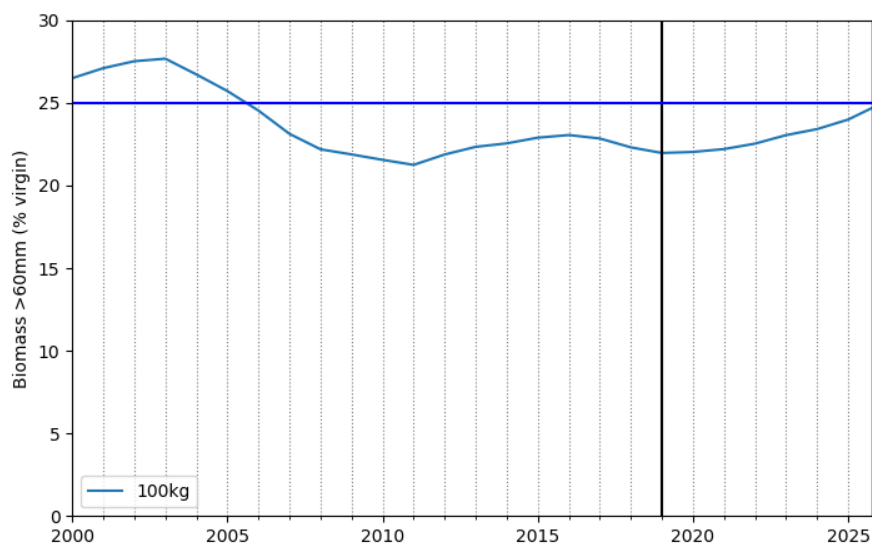
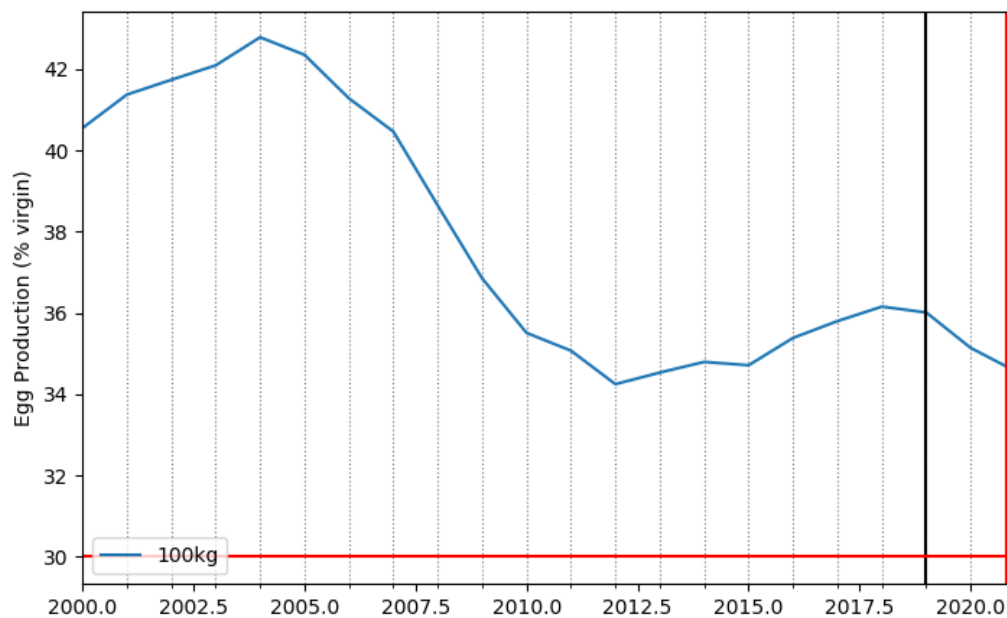


Figure 8. State-wide biomass projections showing the limit and target reference points (LRP and TRP respectively) with limit reference points with 90% probability (bottom); 70% probability projections (top). Horizontal lines – target (blue) and limit (red) reference points. Vertical black line – current year; vertical red and blue lines – timeline for limit and target (2021 and 2026 respectively).

LRP: 30% egg production by 2021

Egg Production (% Virgin)



Generated on 21/10/2020

Figure 9. State-wide egg production projection. Vertical black line – current year (2019); vertical red– timeline for limit reference point with 90% probability by 2021.

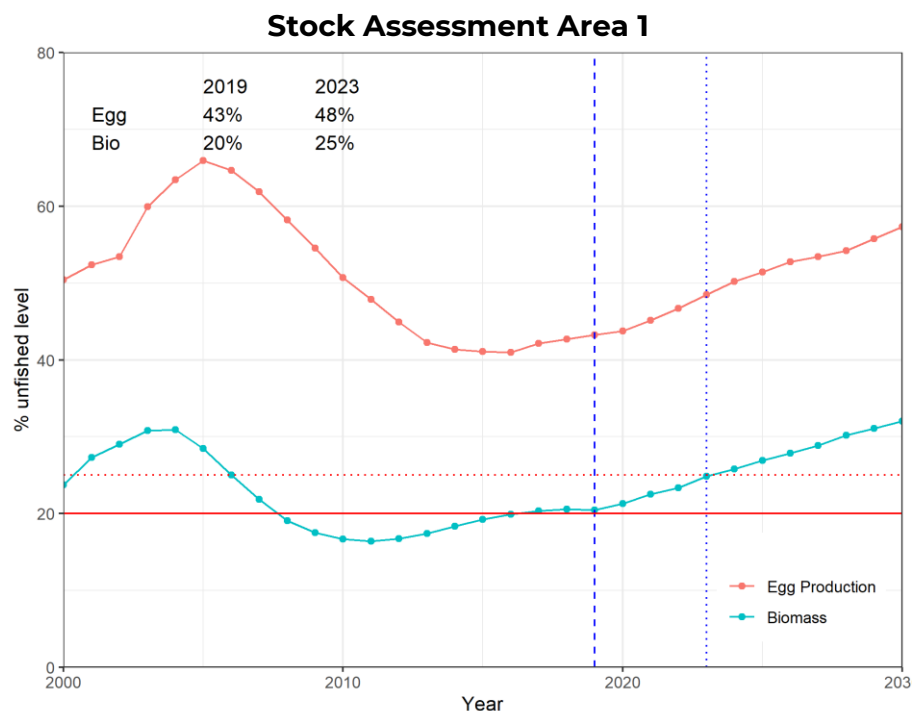


Figure 10: Biomass and egg production compared to unfished levels in area 1.

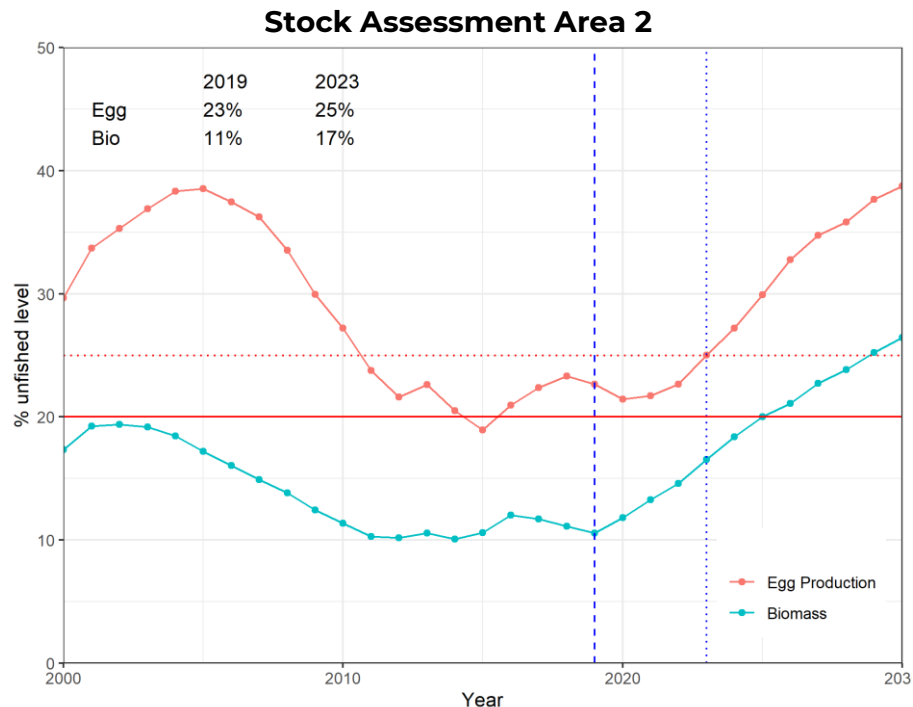


Figure 11: Biomass and egg production compared to unfished levels in area 2.

Stock Assessment Area 3

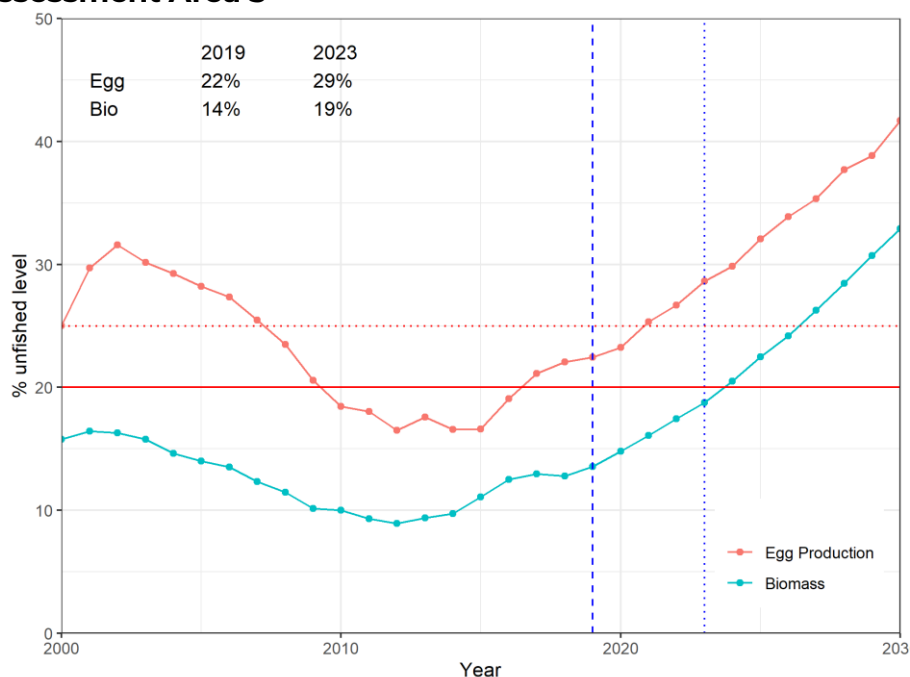


Figure 12: Biomass and egg production compared to unfished levels in area 3.

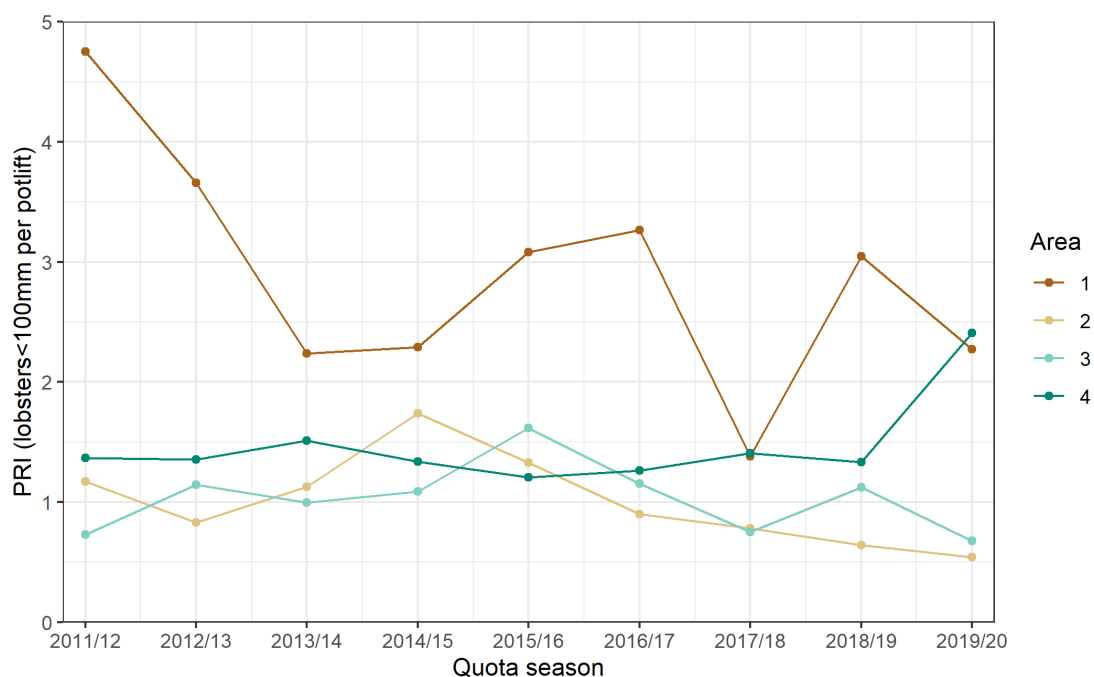


Figure 13: Number of lobsters <100mm per potlift from research pot data for the Eastern stock assessment reas.

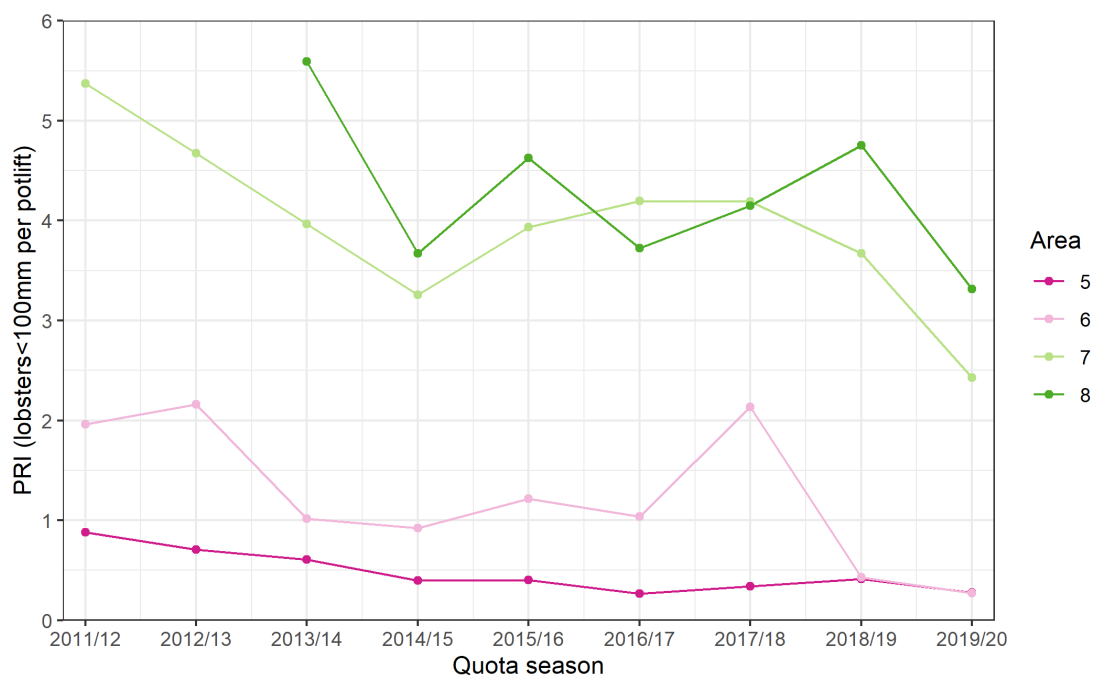


Figure 14: Number of lobsters <100mm per potlift from research pot data for the Western stock assessment areas.