

A summary of the pro's and con's of using 1870 as the starting year for west coast rock lobster population modelling

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Pro's

- Takes account of all known historic catches to give an appropriate baseline for stock status evaluation; i.e. addresses the shifting baselines concern.¹
- Pre-1970s catches are substantial – see Figure 1.
- Simplifies starting conditions for size-structured modeling; otherwise how is starting size-structure for, say, 1970 to be defined?

Con's

- Doubts about details of historic catches and their spatial distribution pre-1968.
- Confounded by the possibility of major regime shifts.
- Concerns about back extrapolation of biological parameter values from recent periods.
- Size-structured models estimate long periods of recruitment below replacement levels in earlier part of last century.
- Virtual absence of other than total annual catch estimates pre-1968.

References

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Rosenberg, A.A., Bolster, W.J. Alexander, K.E., Leavenworth, W.B., Cooper, A.B., McKenzie, M.G. 2005. This history of ocean resources: modeling cod biomass using historical records. *Front Ecol Evol* 3:84-90.

¹ “Most fishery management policy currently incorporates biomass-rebuilding targets based on observed biomass and population dynamics over the past few decades at best. In effect this means that the only reference points for management may be from already severely degraded systems, missing the range of services, including from much higher biomasses of highly values species, that may flow from a restored system. There is a need to look back in time, from an interdisciplinary perspective, to develop a complete picture of marine ecosystems and their services that reflects a broader range of potential states (Jackson *et al.* 2001, Pitcher 2001, Rosenberg *et al.* 2005).” – quotation from Rosenberg and Mcleod (2005)

Figure 1: Total west coast rock lobster historic catches (MT).

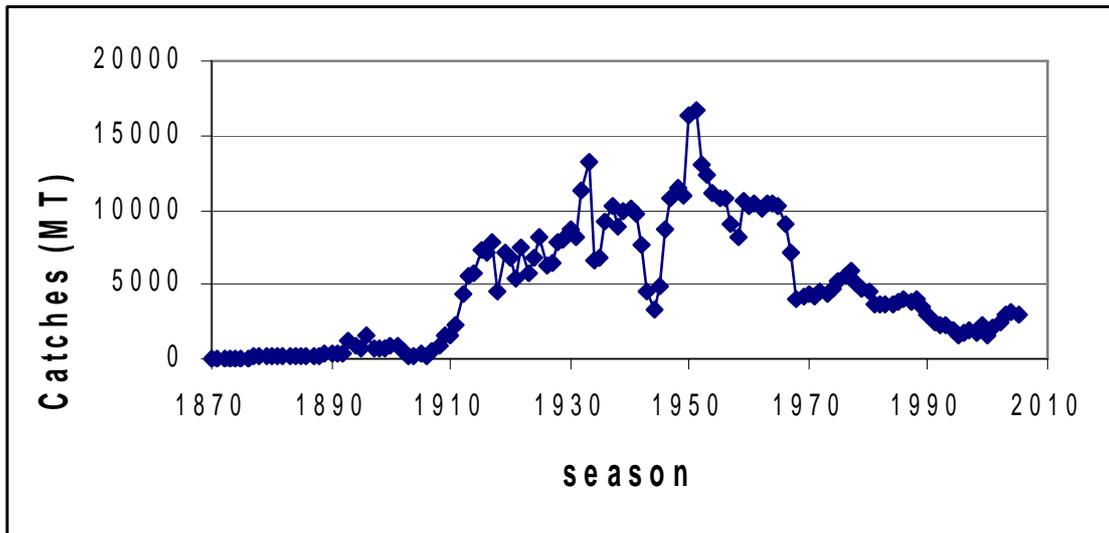


Figure 2: MCM records of super-area catches (available from 1968 only).

