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# Analyses and projections of economic conditions in WCPO fisheries

Twelfth Regular Session of the WCPFC Scientific Committee

SC12-ST-WP-04; Bali, Indonesia

3-11 August 2016

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## Economic conditions index

- Economic conditions impact on the financial viability of vessels and the returns generated in a fishery
- In the second half of 2015, FFA developed a series of indexes that aim to assess the *relative* Economic Conditions for the 3 key fisheries of the WCPO
- Components of the economic conditions index:
  - Ex-vessel fish prices
  - Fishing costs (excl. license and access fee payments)
  - Catch rates
- Here the indexes are updated and projected forward



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## Interpreting indexes

- Indexes are interpreted against their average in the reference period (1997-2015 average = 100)
- Values less than 100 suggest below average (1997-2015) performance while values above 100 suggest better than average conditions
- The economic conditions index illustrates the relative prevailing environment with regards to the generation of economic returns in the fishery. It does **not** address the absolute level of returns generated or how they are distributed



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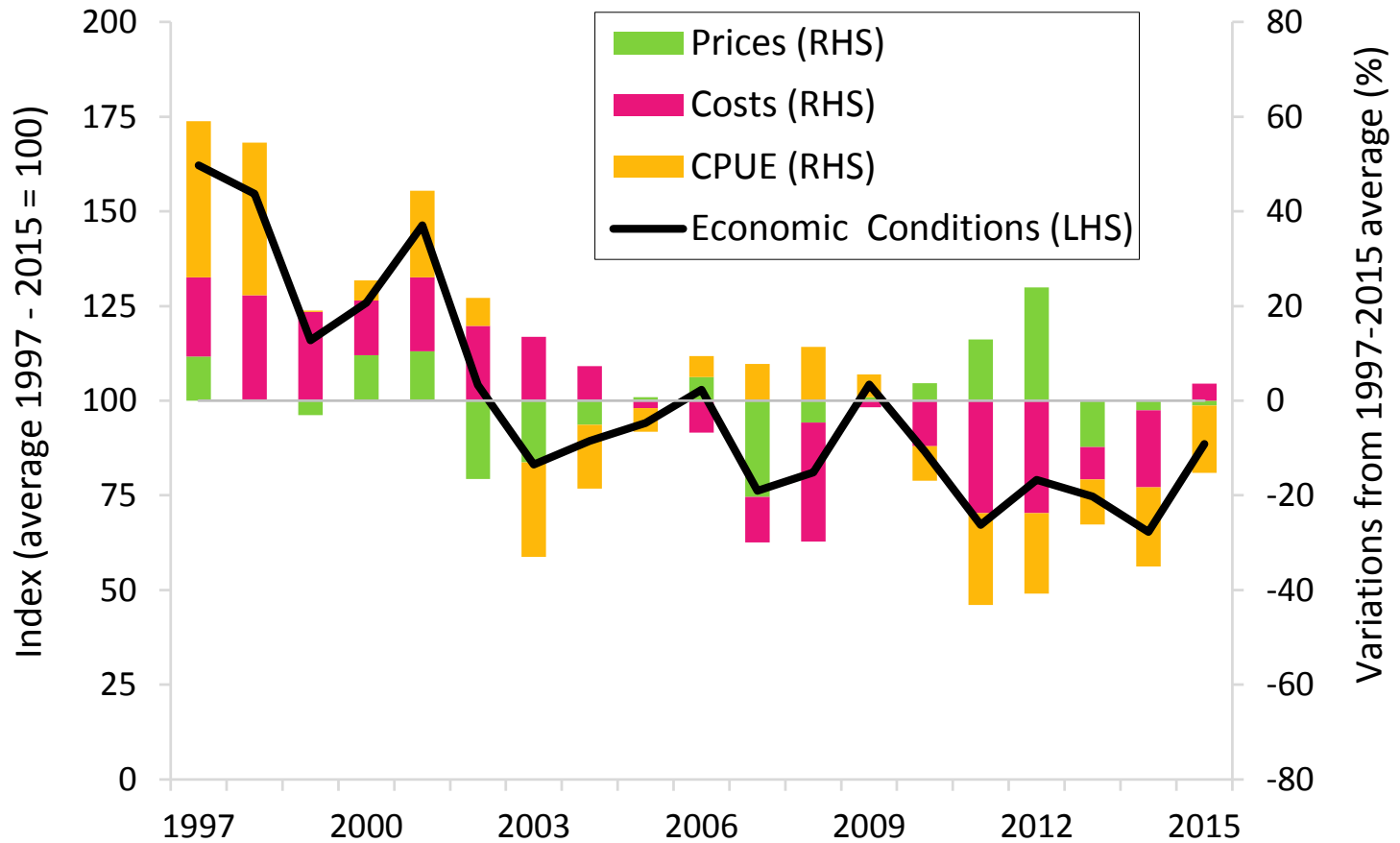
## Projection methodology

- ARIMA models: Autoregressive Integrated Moving Average models
- Simple and parsimonious method of projecting future values based on relationship a data series has with its past values and forecast errors
- To account for uncertainties, projections of each data series are bound by 95% confidence intervals
- The objective is to provide a rough indication of the likely trends in prices, costs and catch rates to 2025, assuming past trends are to continue into the future



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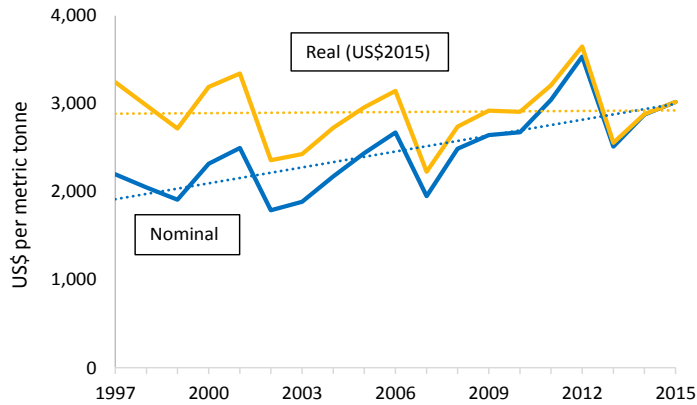
# The southern longline fishery



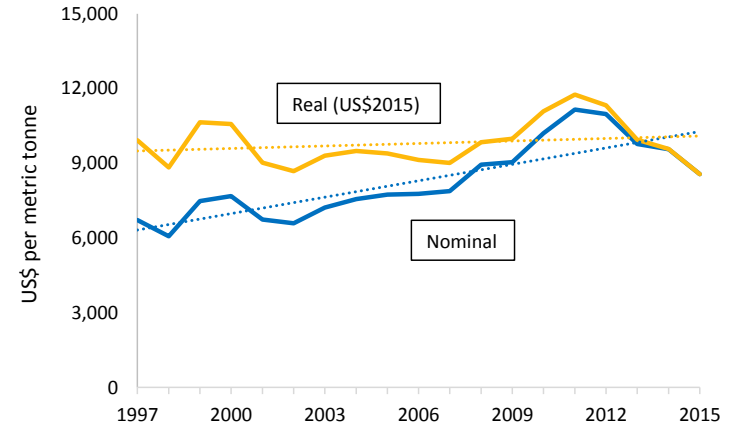


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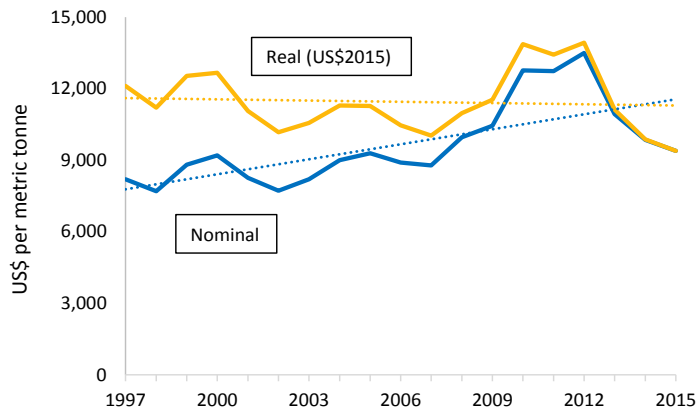
# The southern longline fishery



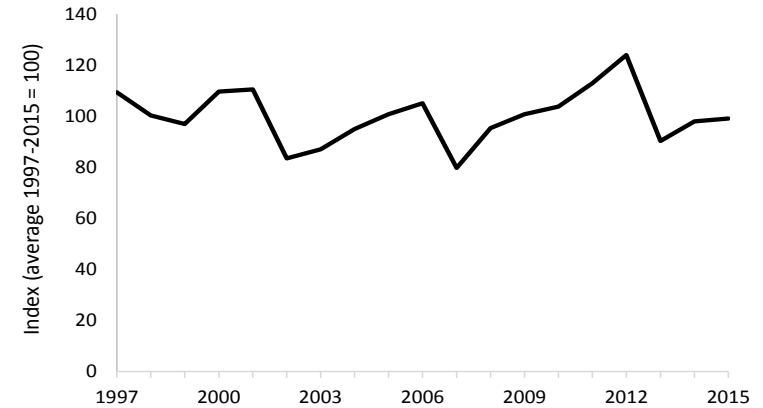
USD real and nominal prices for imports of albacore into Thailand



USD real and nominal prices for Japanese yellowfin imports from Oceania



USD real and nominal prices for Japanese bigeye imports from Oceania

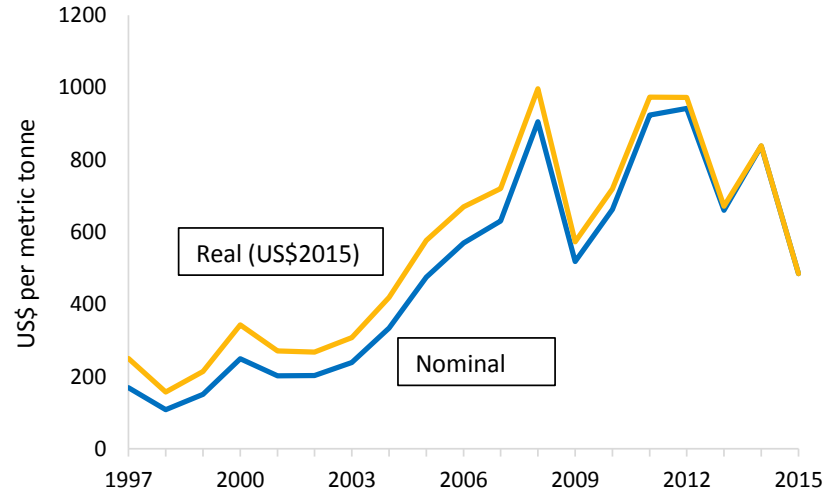


Composite price index for the southern longline fishery

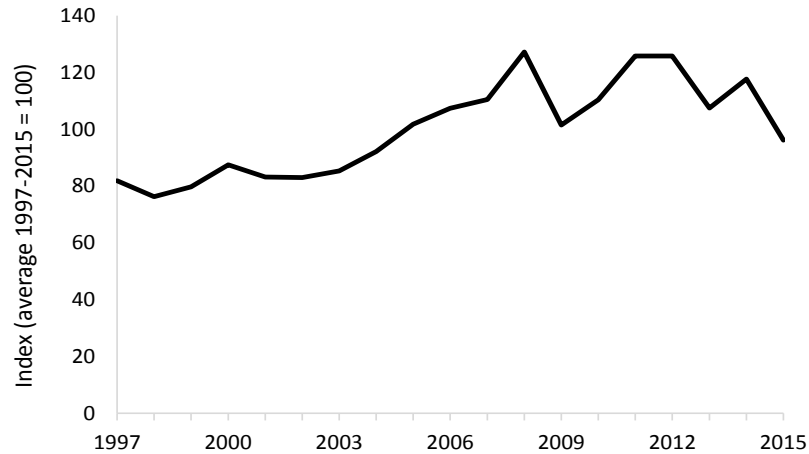


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# The southern longline fishery



Singapore marine diesel oil (MDO) nominal and real price series



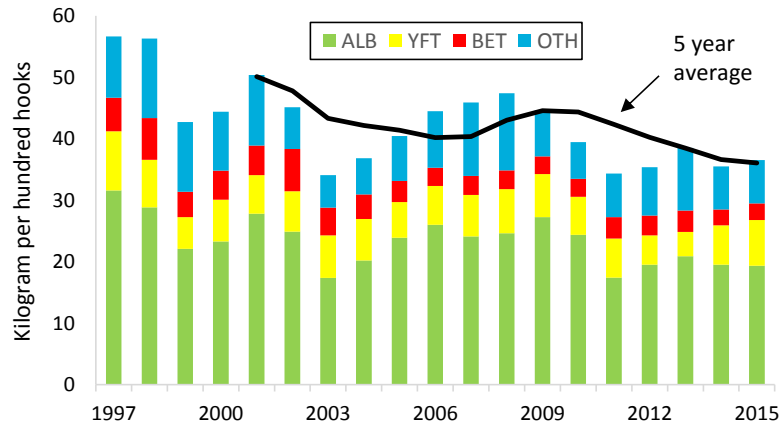
Fishing cost index for WCPO fisheries



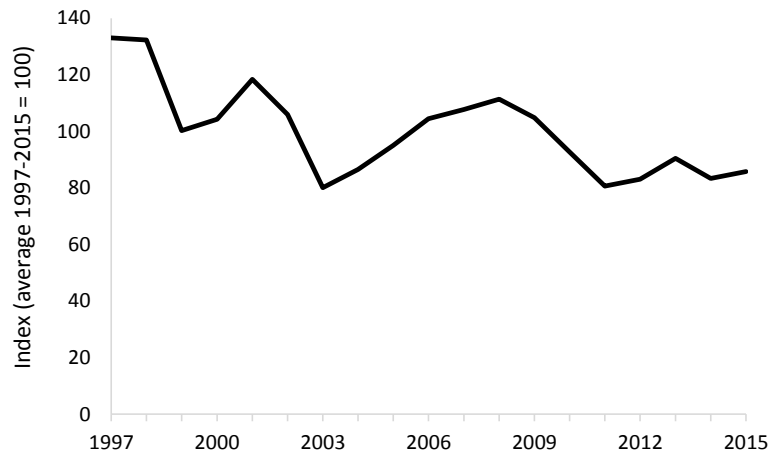


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# The southern longline fishery



CPUE in the southern longline fishery by species



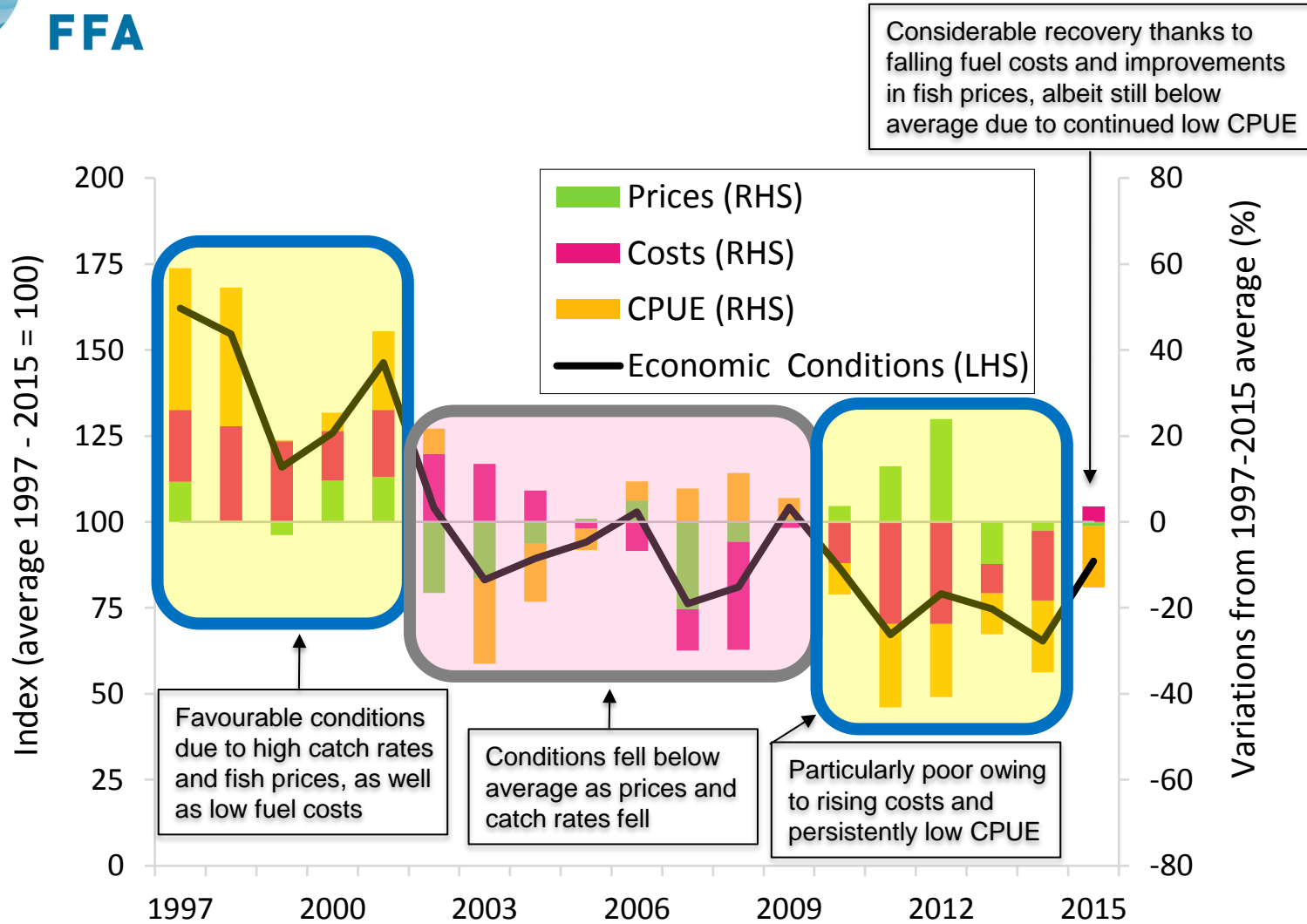
Catch rate index in the southern longline fishery





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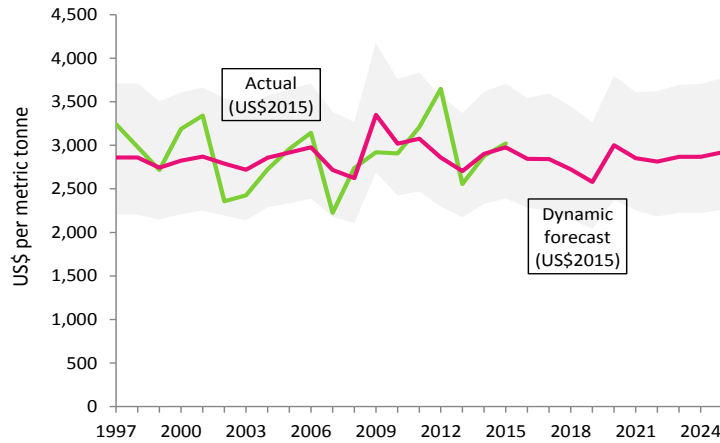
# The southern longline fishery



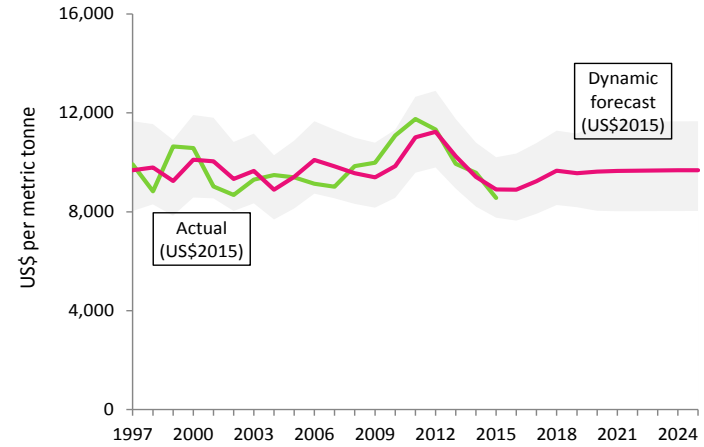


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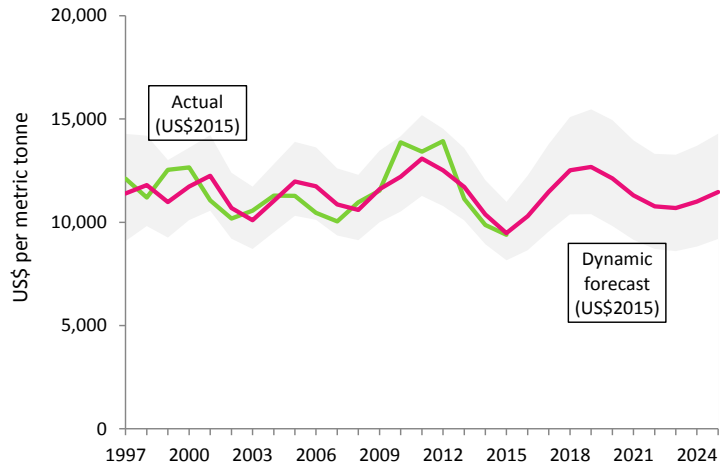
# The southern longline fishery



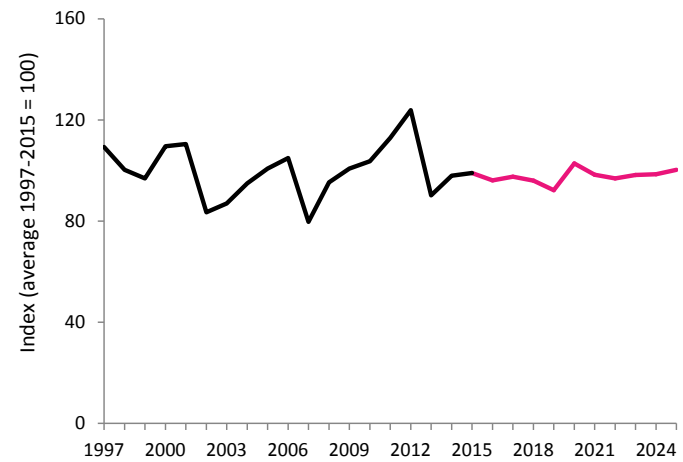
Projections of USD real prices for imports of albacore into Thailand



Projections of USD real prices for Japanese yellowfin imports from Oceania



Projections of USD real prices for Japanese bigeye imports from Oceania

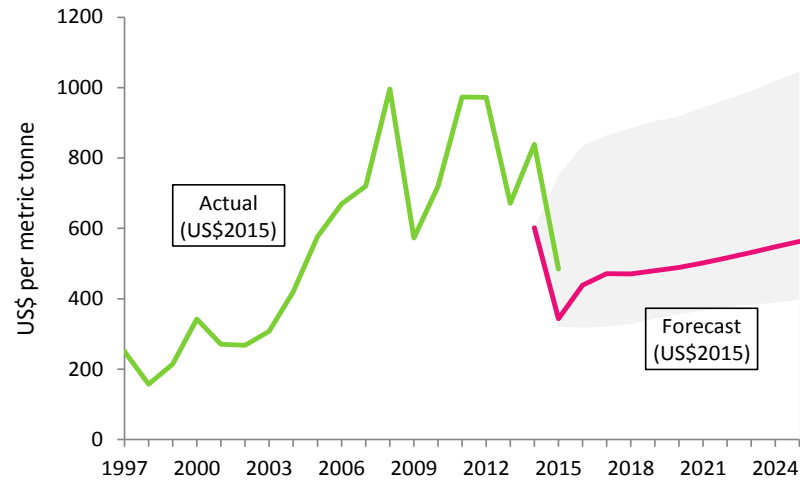


Composite price index for the southern longline fishery

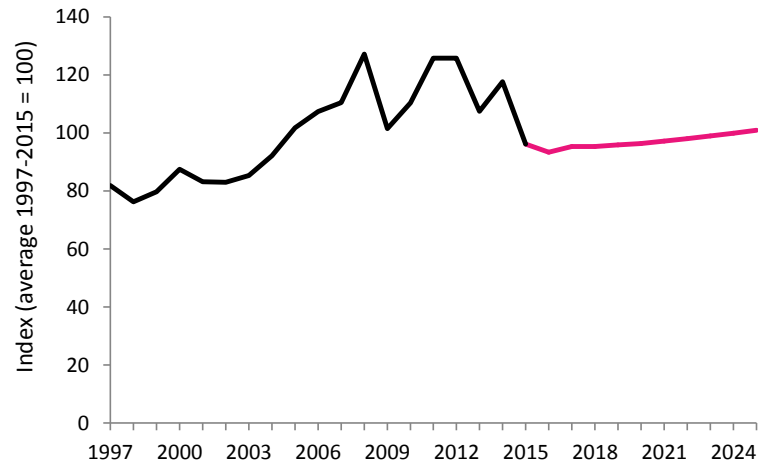


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# The southern longline fishery



Projections of Singapore marine diesel oil (MDO) in real prices

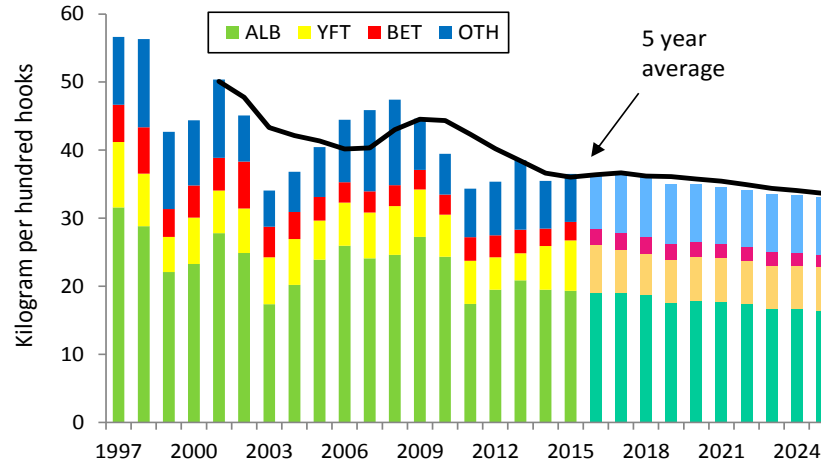


Fishing cost index for WCPO fisheries

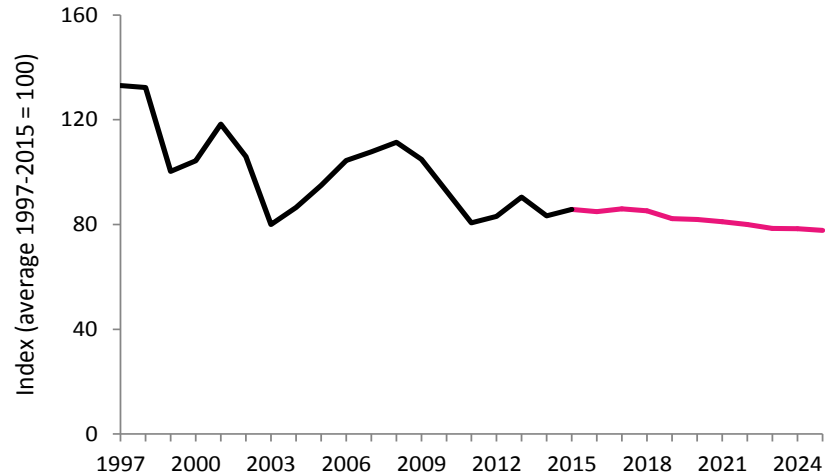


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# The southern longline fishery



Projections of CPUE in the southern longline fishery by species

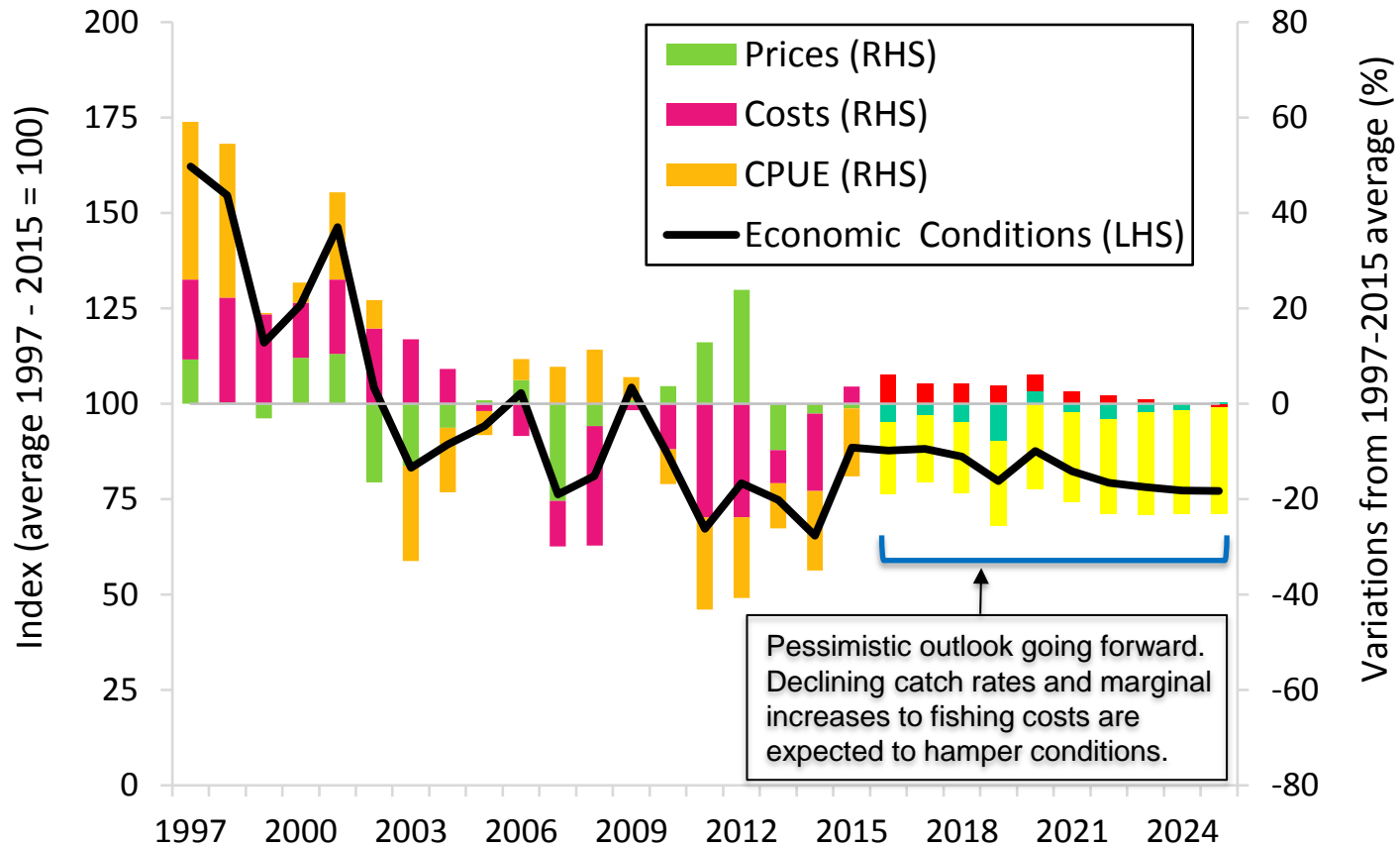


Catch rate index in the southern longline fishery



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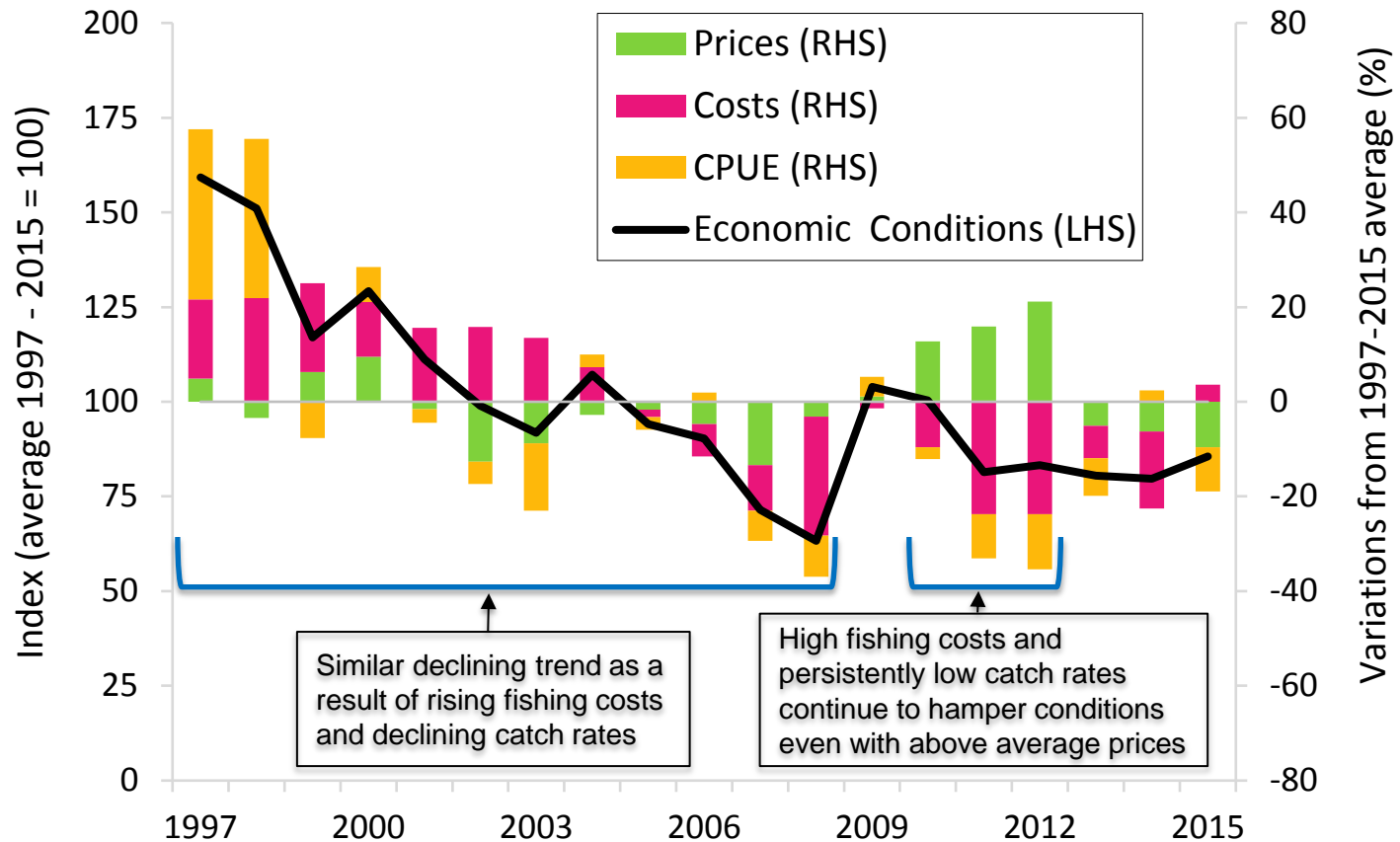
# The southern longline fishery





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# The tropical longline fishery





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# The tropical longline fishery

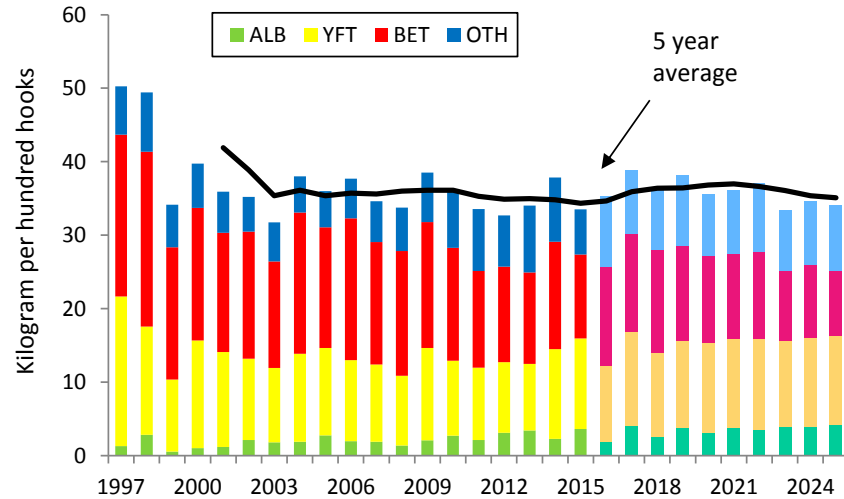
- Same fishing cost conditions as the southern longline fishery
- Prices for individual species caught also reflect those in the southern longline fishery but composition of catch is different. Therefore, the economic conditions index is impacted by a slightly different composite price index
- Key point of variation is the catch rate index



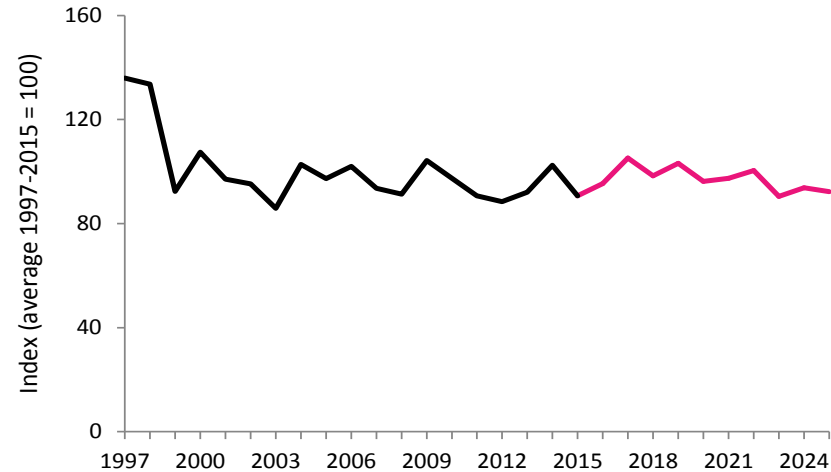


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# The tropical longline fishery



Projections of CPUE in the tropical longline fishery by species

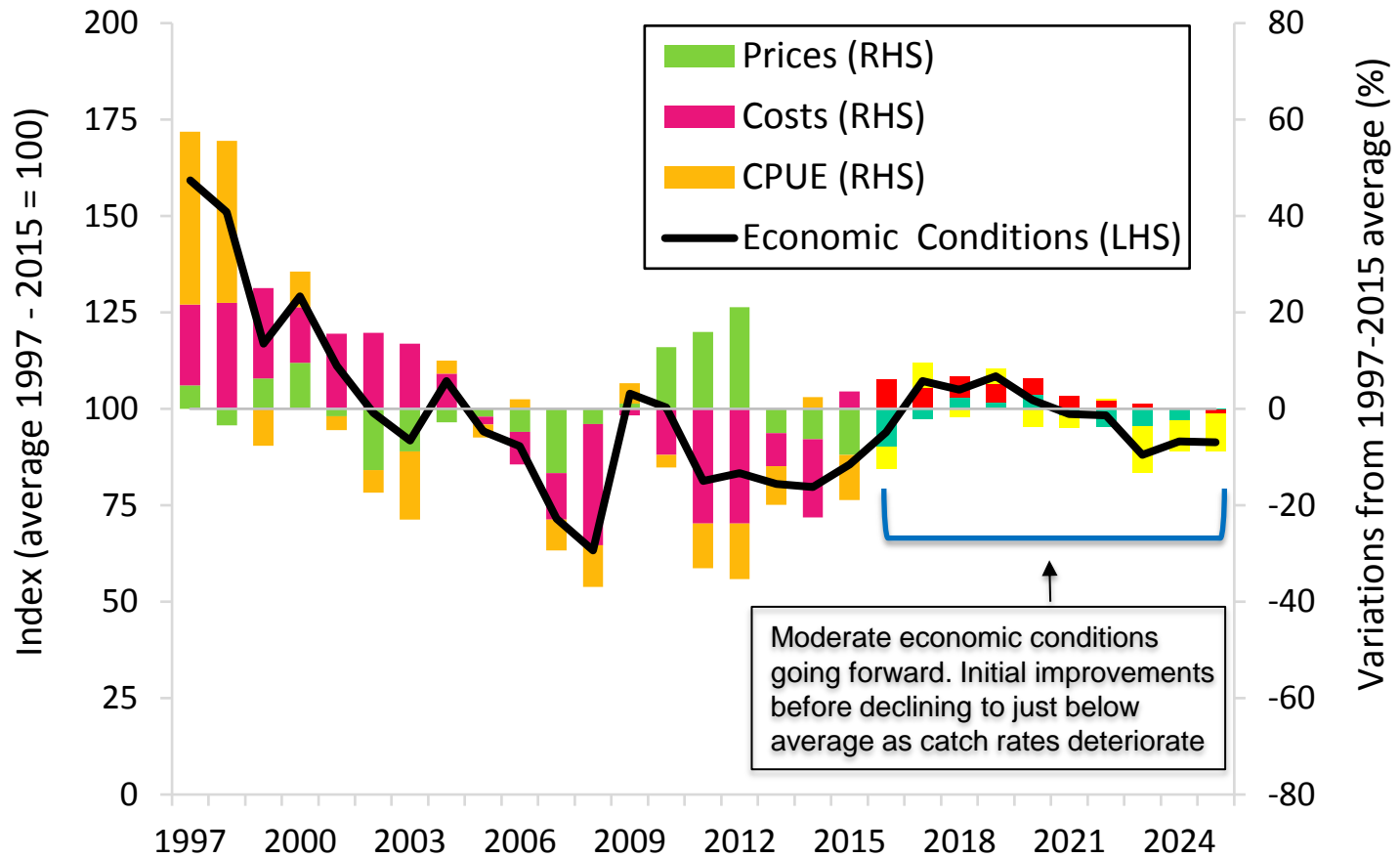


Catch rate index in the tropical longline fishery



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# The tropical longline fishery





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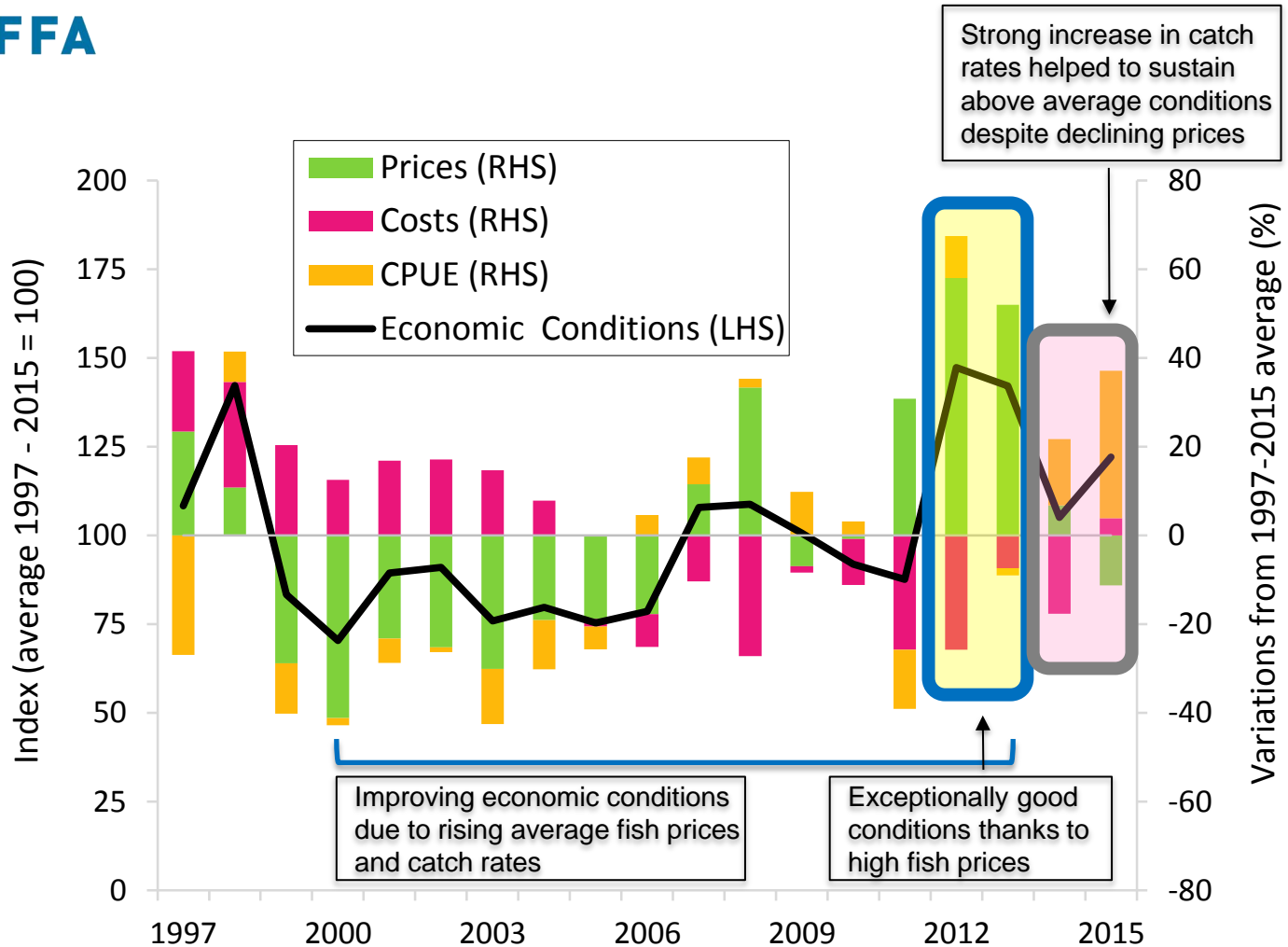
## The purse seine fishery

- While real non-fuel costs differ slightly, the overall fishing cost index for the purse seine fishery reflect that for the longline fisheries as they are driven by changes in fuel prices
- In contrast, the purse seine fishery price index differs significantly from that of the longline fisheries
- Catch rates index for purse seine landed species are also significantly different



# The purse seine fishery

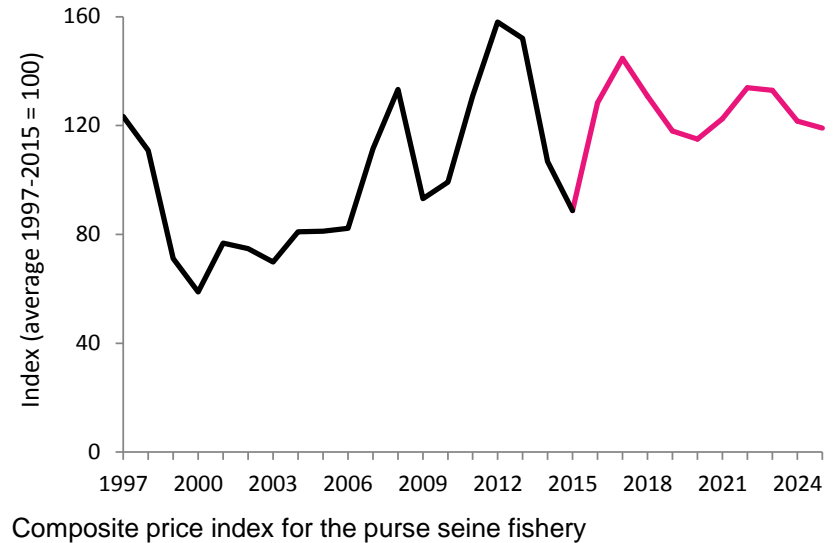
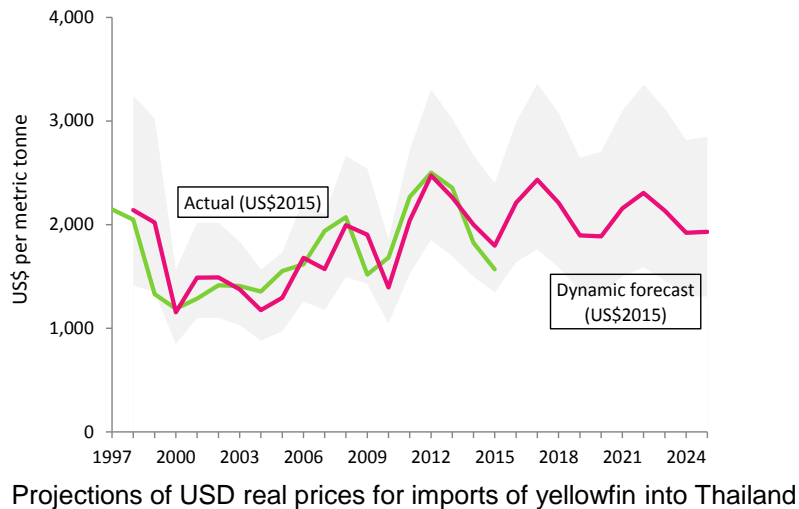
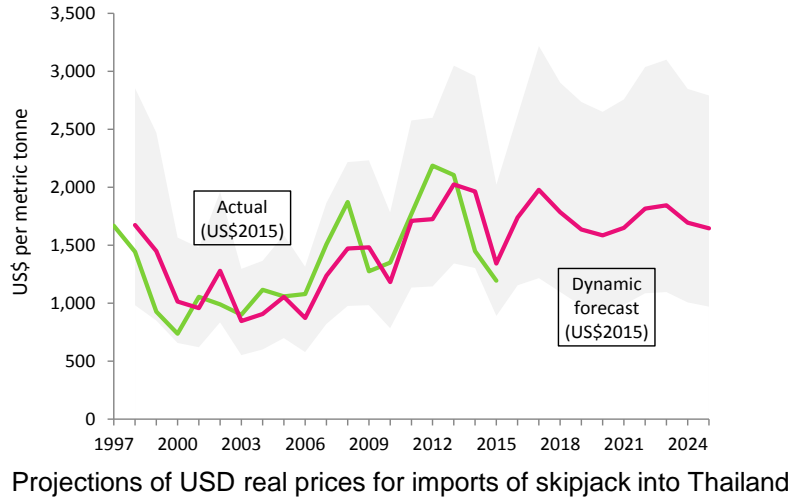
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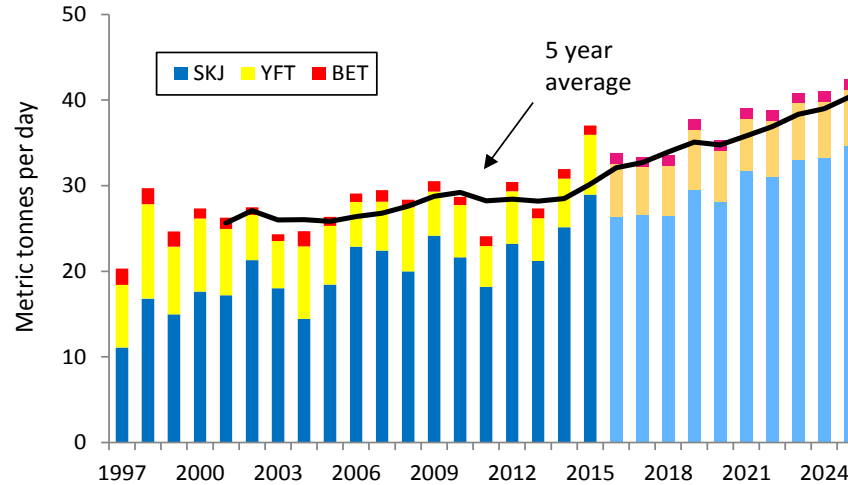
# The purse seine fishery



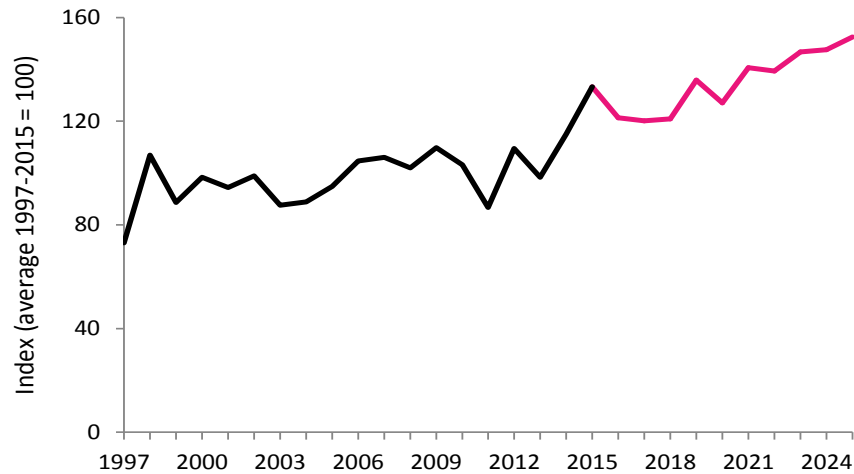


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# The purse seine fishery



Projections of CPUE in the purse seine fishery by species

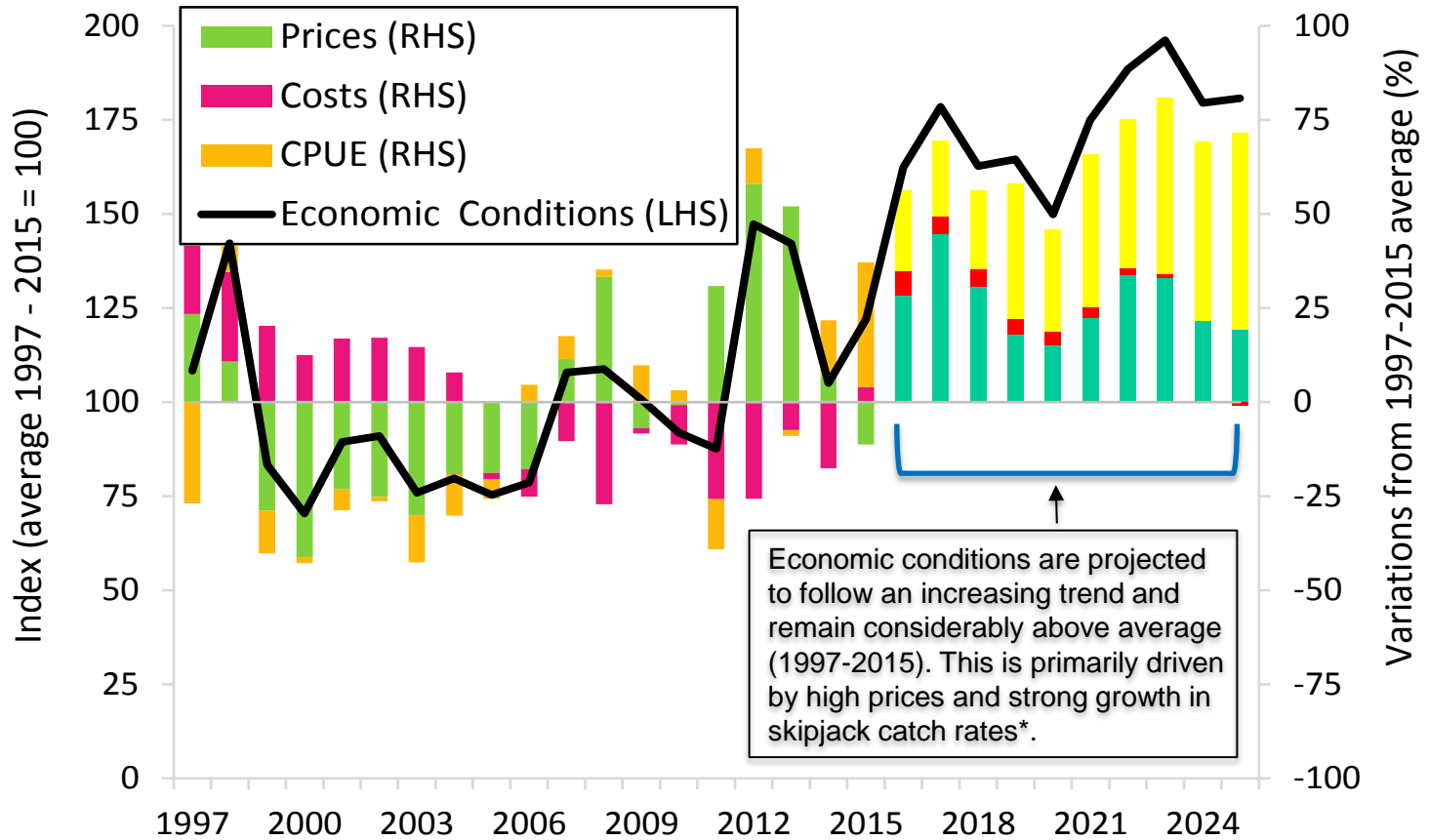


Catch rate index in the purse seine fishery



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# The purse seine fishery







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## Discussion

- Economic conditions in the longline fisheries are heavily impacted by catch rates and fishing cost
- Persistently low catch rates has and will continue to hamper profitability, especially for the southern longline fishery
- Fish price and *historical* improvements in catch rates for skipjack are key contributors to above average economic conditions in the purse seine fishery



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## Discussion

- The economic conditions index provides a relative measure of operating environment compared to the average of reference period. It does not reflect fleet specific conditions or absolute levels of profitability
- The information provided should be used in conjunction with scientific information on the biological health of fish stocks in formulating management advice