



Ministry of
Fisheries
Te Tautiaki i nga tini a Tangaroa

Fishery Management in NZ

Statutory Framework and Theory behind Maximum Sustainable Resource Use





Statutory Framework

- Our fishery management framework is provided by the Fisheries Act 1996 and Regulations

A 'use' statute – must provide for the use of resources

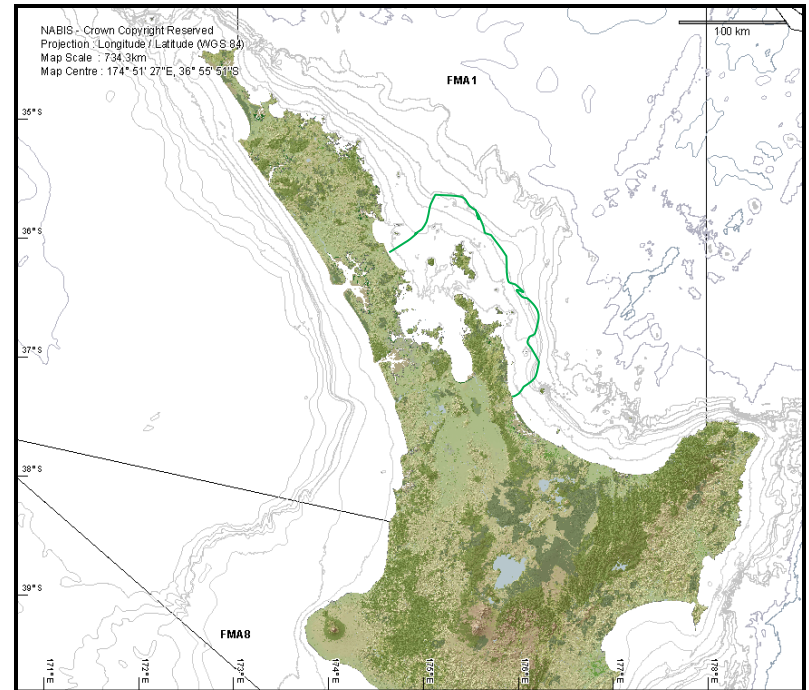
Use must be sustainable

- Ensure stock sustainability
- Address adverse effects of fishing on environment



Sustainability Keystones

- Main tool is limiting catch
- Management is at 'stock' level – fish population & area
- 'Baseline' for ensuring sustainability is to maintain biomass at or above the level that can produce the MSY
- Consistent with government objectives to get the greatest benefits from primary resources (sustainably)





MSY concept . (1)

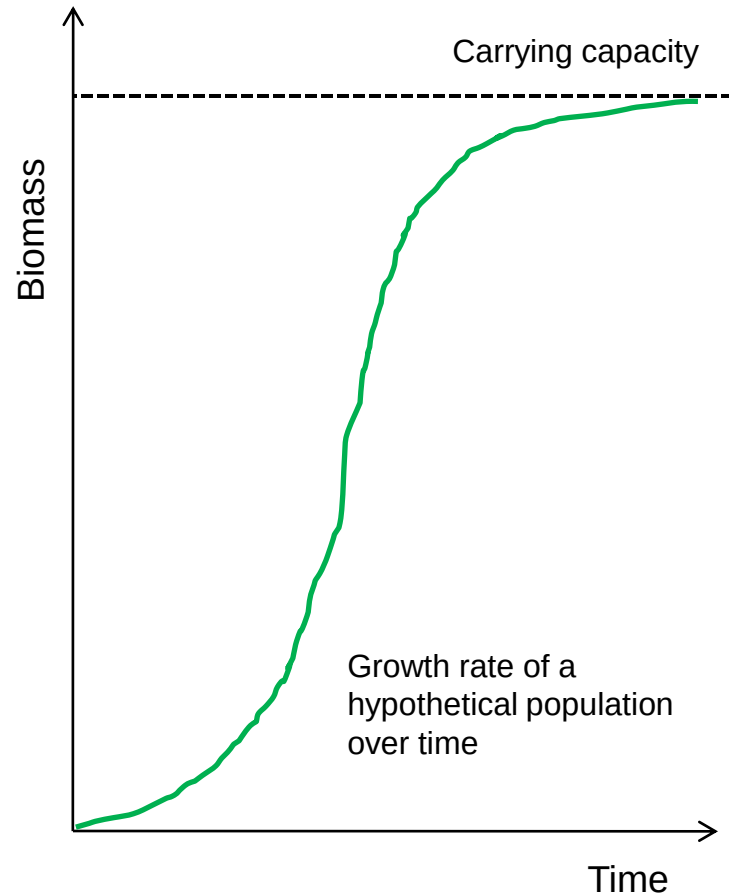
- based on biological principles and the responses of populations to harvesting
- Without fishing –
 - Unfished populations are at equilibrium or carrying capacity of environment/ecosystem
 - Births and deaths are in dynamic balance and the population is at equilibrium level (births add and deaths remove numbers, growth of individuals adds...)
 - Unfished population size will vary with environmental factors



MSY concept continued..(2)

With fishing -

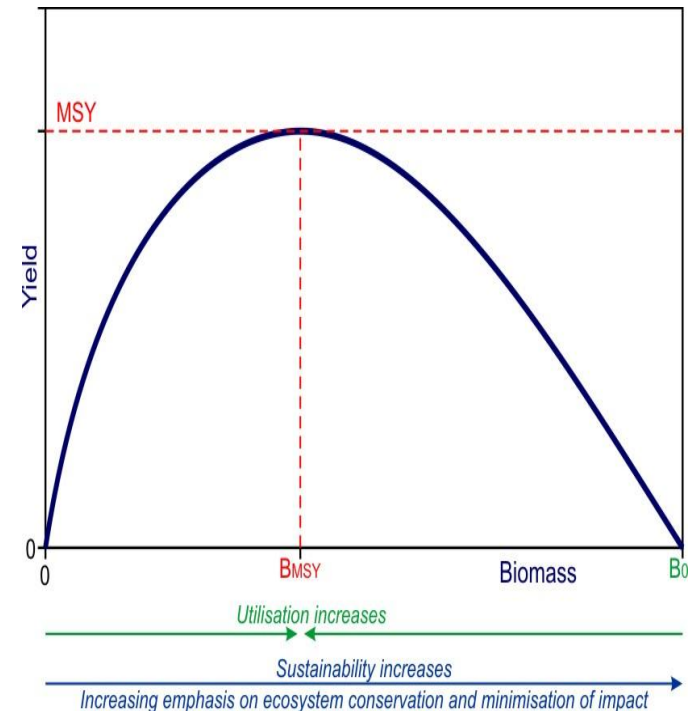
- Biomass removed reduces competition for space, food
- Fewer older, slow-growing fish & more young, faster-growing fish
- Although the population growth rate (as a %) is highest at low population size, the highest absolute production is at some intermediate population size
- Production by fish in a depleted population tends to grow the population back towards the unfished level or carrying capacity
- Creates what is called 'surplus production' that is available as sustainable yield





MSY concept continued..(3)

- Fishing can be sustainable at different levels of catch and stock biomass
- MSY is the greatest catch that can be taken on average over time
- High biomass can only be maintained by relatively low catch, but supports higher CPUE and bigger fish
- Very low biomass tends to be more risky (stocks can collapse if reproduction affected) and supports only low catch and low CPUE
- The risk of affecting reproductive processes increases as biomass decreases below B_{MSY}





Determining target biomass

- Starting point or default target is B_{MSY} which maximises sustainable production
- The Act allows for higher target biomass, taking into account -
 - Ecosystem factors
 - Economic factors
 - Social, cultural factors
- Achieving and maintaining higher biomass requires reduced catch, so consider 'costs and benefits' –
 - Available catch level overall – less catch to be shared
 - Social and economic – jobs in commercial sector, market supply, quota rights
 - Ecosystem benefits – less risk, better buffering against unexpected change
- Stakeholders' input is important
- Minister makes final decision on target



Conclusions

- Default target = B_{MSY}
- Other targets are options
- Target for each stock should consider these factors:
 - Ecosystem
 - Social and cultural
 - Economic
- Minister chooses the target