- Developing mixed fisheries management in the CS
  - Observing state of resource
    - Data Rich assessments
    - Data poor approaches
      - Robin hood approach
      - Indicators
      - Risk based framework
    - Know your data - LFI
      - Weighting different data sets
      - Condensing multiple indices into a robust indicator
    - Operating model of community
    - 2 tier assessment & management approach
      - Tactical short term management of pressures
      - Periodic assessment of ecosystem state
    - Strong spatial structuring of the resource and fisheries
      - Observable in
        - Surveys
        - Landings
        - Catch in discard trips
      - Heterogeneous ecosystem
        - Could improve sustainability
        - Increases complexity
      - Pressure footprint can be detected in community/populations
    - Linking demersal resources to wider ecosystem & environment
  - Decision support tools
    - Modelling behaviour
      - Is this retrospective?
      - How good will the predictive power be?
      - Discrete choice RUM
      - Markov transition model
        - Whack-a-mole
    - Assessing trade offs
    - Several tools
      - ISIS-Fish
      - FLR- MSEs
    - LOT project
      - Fisheries tradeoffs
        - 3 dimensions
          - Technical
          - Temporal
          - Spatial
      - Objective tradeoffs
    - Reconciling multiple objectives
  - Stakeholder engagement
    - Engage but avoid conflict
      - Wheelhouse engagement
    - Industry
      - Structured
        - Cognitive mapping
          - Reality = perception
          - Should evolve through time as perceptions and priorities change
          - Useful tool to summarise sometimes diverse views
        - Focus groups
          - New tools & approaches to optimise exchanges
      - Unstructured
      - Narrow perception gaps
    - Tired model
      - Move from consultative to collaborative
      - synthesising
        - Present a integrated view of scientiic work
        - Trend to brand different projects
      - Scientist fatigue
      - Funders should be aware of the risks
    - Managers???
    - Environmental orginastions
    - Critical to have all of the above involved - group ownership
      - Share knowledge
    - Improving communication between scientists
      - Mind map of projects
      - Share presentations
      - Exchange contacts
  - Celtic Sea mixed demersal management plan
    - Biological, social and economic objectives
      - Already defined
    - GEPETO
      - Fleshing out detail of objectives
      - Celtic sea case study
      - Assembling background informantion
  - Management units
    - Tracible units
    - Technical solutions should be optimised
      - Important to assess short term cost & long term benefits
      - Some individual fishermen are QUITELY already implementing very effective solutions
      - Carrot and stick to ensure uptake & effectiveness
    - What us the coarsest level of spatial management
      - Management may not need to be at the same scale as information/data
    - Regionalisation
      - US style management council
    - Is a metier the right management unit?
    - Managing humans not the resource
  - Managing pressures
    - We need to get the incentives right
    - Choke species
      - Catch limits and fully documented fisheries
      - F cube approach highlights imbalances
    - Effort controls
    - Real time incentives
      - How would one weight tariff maps
      - What spatial scale is needed?
        - Depends on objectives
    - New pressures arising
    - Effective tools
      - Require stakeholder acceptance
      - Should be informed by research
      - Simpler the better
  - Policy drivers
    - CFP reform
      - Co-decision - strengthened consultative role
    - CFP
      - Regionalisation
      - Obligation to land all catches
      - MSY
      - Long term management plans
      - Mixed fisheries (technical interactions)
      - Multispecies (biological interactions)
    - MFSD
    - WFD
    - Habitat directive
      - UK policy for integrated network of MPAs
      - Closed areas
  - Changes to governance
    - Access
      - Rights based management key
        - But how does that fit with national policy & CFP?
      - Different national quota management