- a4a KOM
  - Background
    - The implementation of the 2009 revision of the DCF generated the obligation to collect a large amount of information for all stock being subject to fisheries exploitation. Most of these stocks will have in the future, ~2020, time series of exploitation data more then 10 years long, although the information about the biology will most likely be limited, due to the high requirements of man power and logistics to process all the samples collected. These stocks may not fit directly into the "data poor" stock definition, neither will they have enought information to run sophisticated modelling methodologies. As scientists it is important think ahead and start developing methods to deal with such a large number of stocks.
  - ToR
    - world wide needs of fisheries advice
    - available stock assessment methods
    - ways to make stock assessment in the context of management advise more robust
    - identify modules to build a MSE
    - discuss progress of the initiative
  - Agenda
  - Notes
    - MSE and a4a are on opposite sides ⚠
      - MSE as a mean to id the value of the information
      - MSE to test the limits of the methods
    - GFCM elasmobranchs
      - PSA
        - Very qualitative not suitable (easily) to quantitative frameworks
    - WKLIFE
      - Look at and discuss approaches that could come up with Frefpnts that could be used as Fmsy proxies
      - Proxies for MSY based on LH
        - Yes, YPR or %SPR
      - Where are we ?
        - No major progress.
      - How to get to the reference ?
      - Compile LH data into categories of the information available
    - US management
      - Information poor VS data poor
      - MS act
        - Science sets the thresholds
        - Managers can't go above it
      - Hard environment due to lawsuits
      - Managers set the risk level of overfishing
      - Methodologies to set the reference points and uncertainty has to be consistent across stocks
      - If mixed fisheries protect the most vulnerable of the complex
    - Model VS management
      - Management based on stock assessment model
        - Depending on the outcome there must be a different HCR, or a generic HCR
      - stock assessment model depends on management needs
    - Method to id which models require attention (more assessment)
    - Method to apply over a large range of stocks/situations
    - Catch dynamics model
      - At the scale of the fishing operation NOT at the scale of the population dynamics
      - perturbations showing new input of fish to the fishery
        - inserted manually or is there a statistical process ?
      - use biomass estimates to adjust a BioDyn replacing the CPUE index
      - High frequency data of catch and effort
      - Link with FLR
      - Works like a survey executed by the fleet ⚠
        - if a reference fleet is used the annual estimates can be compared because the area and selectivity will be constant
  - Industrial process instead of an art
    - Automatic stock assessment model
      - In the sense of adjusting the model during the MP
      - ⛔ Not including the moment of conditioning the OM, which requires the best adjustement
      - ⚠ The performance of the model is evaluated during the projections
    - Massive data
    - Model to be applied rapidly to a wide range of situations
  - Moderate data stock
    - 1 Exploitation
      - Nominal effort
      - Volume
        - D+L
        - L
      - Length frequencies
    - 2 biology
      - information based knife edge mat ogive
      - Indications for growth model
      - L-W
    - 3 Index of abundance
  - Biomass model/stock assessment model
    - Unscaled
    - ✓ Scaled
      - Model to be applied rapidly to a wide range of situations
      - Results must be used for advise on a quantitative basis
      - surplus to get biomass and feed to length structure
    - Referenced
  - How can MSE helps ?
    - not so much as a HCR decision algorithm
    - simulation framework for testing & co.
      - Tests
        - How the length of the time series impacts the results
        - How violation of assumptions or fixed parameters impact the results
        - What if we're exploring two pops with distinct biological characteristics
        - how robust if my HCR to breaking stock assessment assunmptions of closed population
        - Test model complexity, does a BioDyn model works better than a structured model
    - deal with biomass estimates
      - residuals = om bio - mp bio
    - As a framework for management advise
  - Assessment/advise methodology
    - ⚠ Conditioned on data moderate stock
    - Standard procedures to test "issues" and give advise
    - OM
      - Biomass model/stock assessment model
      - A set of LH & | other bio/gen relevant factors
    - MP
      - A set of metric generators to HCR
      - A set of HCR
        - Generic, multi-element, switch on/off
    - ? 1 Which elements shoud constitute the standard
    - ? 2 Presenting results
  - Simulation experiment
    - 1 Simulate data that fits the definition of moderate data
    - 1 Use real data that fits the definition of moderate data
    - 2 Id relevant elements that are subject for testing
    - 3 Write MSE using the ICES HCR
    - 4 Expand to more HCR
    - 5 Tests
  - Genetics
    - Presentation
    - BS
      - 😕 population size
        - ❌ effective population size
          - Doesn't work well at yearly time scales
        - frequency of rare alleles
        - 🙂 May work for endareged species
      - 😕 genetic diversity
        - monitor specifi genes that are linked to specific biological functions
        - indicators are still difficult to id and measure
        - 🙂 May work for endareged species
        - reproductive success
      - 😕 IUU
        - 30-50% scale
        - markers easy to compare between labs and reproducible
      - ✓ Monitor over time
      - ✓ Stock ID
        - 🙂 inout rates
          - requires baselines
          - % of individuals
        - Id biological representative characteristics
      - 😕 risk indicator
        - time evolution of distribution may give indications of something "wrong" going on
        - monitor specifi genes that are linked to specific biological functions
        - mixt stock analysis
          - helps borrowing information between stocks
        - rate of change of "fast" allele frequency
      - MSE
  - Operationalise
    - FLR
    - short time visits
    - scientific meetings
    - experts have some time for dev. and review during next year