

# EBFM Approaches

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# EBFM in existing FMPs

- Background and baseline
  - Evaluation of ecosystem effects in existing plans, cumulative effects and non-fishing impacts on the fishery
  - Management measures that have ecosystem effects; i.e. gear regulations, closed areas (habitat conservation and other purposes), limited access, effort limits (gear, DAS)
  - Measures to protect and enhance EFH
  - Bycatch management



# Previous effort 2012

- EBFM PDT formed - 3 meetings held
- Develop scoping document identifying EBFM goals and objectives
- Develop holistic approach to EBFM
- Identification of important issues for Full FEP
  - Organizational structure and jurisdiction
  - Allocation mechanisms within EPU's and between jurisdictions
  - Scale of ecosystem production units
  - Redefinition of optimum yield
  - Integration with rebuilding requirements
  - Differing economic and social values
- Engage Council and Oversight Committee

# EBFM PDT

- Andrew Applegate, NEFMC staff
- Rich Seagraves, MAFMC staff
- Tobey Curtis, GARFO
- Dr. Kiersten Curti, NEFSC Population Dynamics Branch
- Dr. Geret DePiper, NEFSC Social Sciences Branch
- Dr. Michael Fogarty, NEFSC Ecosystem Assessment Program
- Dr. Sarah Gaichas, NEFSC Ecosystem Assessment Program
- Dr. Saang-Yoon Hyun, SMAST
- Dr. Jason Link, NMFS-HQ
- Dr. Kevin St. Martin, Rutgers Univ. Dept. of Geography
- Chris Powell, Fish and Habitat biologist (ASMFC)

# EBFM approaches

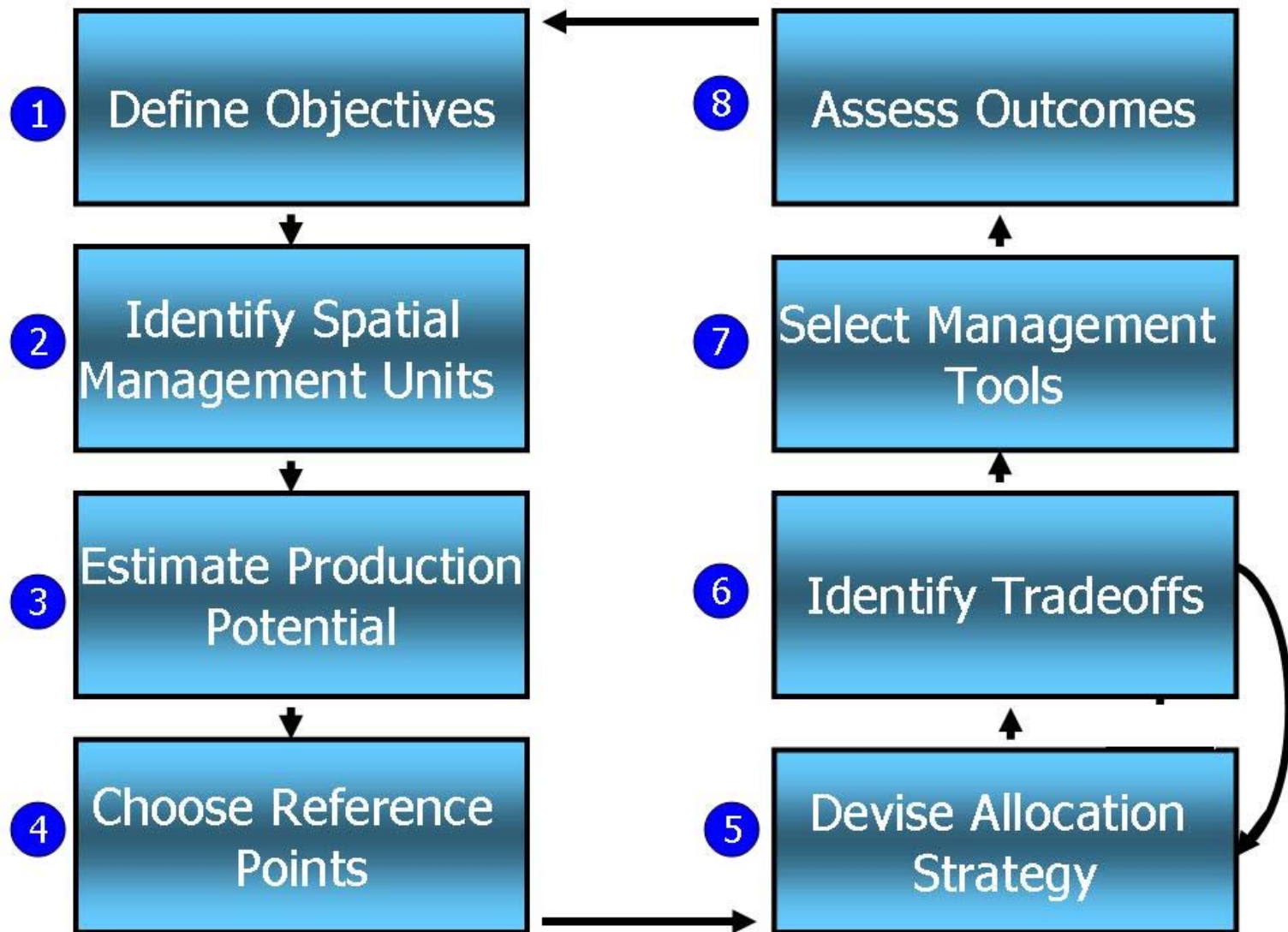
- Spatially oriented FEP

- E.g. Gulf of Maine, Georges Bank, Southern New England, Mid-Atlantic
- Implements approved regulations
- Requires scoping and agency approval

- EBFM guidance document

- Addresses specific ecosystem issues and special circumstances by area
- Informal scoping and public input
- Does not require agency approval
- FMPs implement strategy
- May point out where National Standards need more flexibility (recognize but not constrained by)

# Full FEP Framework





# EBFM public input

- Scoping/hearings
- Oversight Committee & Council meetings
- Advisory panel
  - Fishing industry input
  - NGOs
  - Role and responsibilities should be clear



# EBFM strawman

## Guidance and initiatives

- Definition of spatial scale for assessment and coordinated management across plans and jurisdictions
- Assessment of and appropriate management response to climate change adaptation
  - Climate vulnerability assessment – being completed
- Identification of non-fishing impacts and potential mitigation
  - Facilitate dialogue and understanding of broad impacts





# EBFM strawman

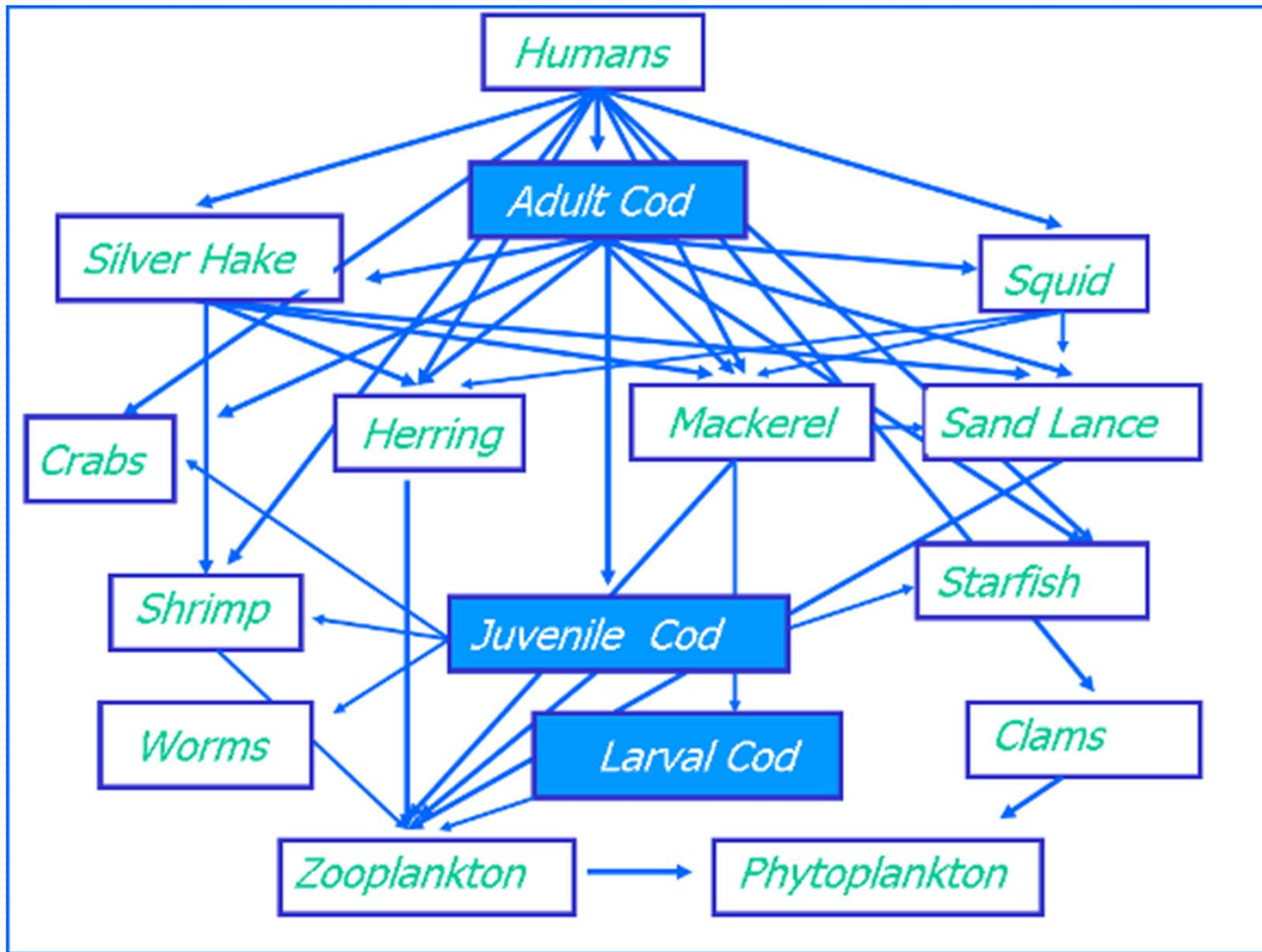
## Guidance and initiatives

- Ecosystem initiatives
  - Establishing ABCs and reference points that account for ecosystem function, trophic relationships, climate change, and variable natural mortality
  - Aggregate biological reference points
  - Bycatch and size selectivity management; catches and non-catch mortality of managed and unmanaged species
  - Building and maintaining fishing community resilience, flexibility, and viability
  - Social, economic, and ecological sustainability

# EBFM strawman

## Guidance and initiatives

- Enhancing and promoting applied ecosystem research and model data support
  - Northeast Shelf Ecosystem Advisory Reports – enhancement
  - Climate change risk assessment
  - MSE model development
  - Multispecies/trophic models
    - Atlantis
    - Ecopath/Ecosym
    - Others





## Enhancing and promoting applied ecosystem research and model data support

- Identification of key indicators of ecosystem status and health, and useful interactions (ecosystem status reports)
  - a) Catch and landings by species and (or) functional groups and fishing effort (where available)
  - b) Biomass, abundance, or production by species and (or) functional groups at a number of trophic levels from plankton to apex predators
  - c) Species diversity of biological communities and catches and diversity of fishing fleet characteristics



## Enhancing and promoting applied ecosystem research and model data support

- Identification of key indicators of ecosystem status and health, and useful interactions
  - d) Diversity in size and (or) age composition size or biomass spectra of biological communities and in catch or landings
  - e) Spatial concentration indices for biological communities and for fishing fleets
  - f) Ecosystem-balance indicators (e.g., the ratio of piscivores to planktivores)
  - g) Mean trophic level in the ecosystem and in the catch, or proportions of each at each trophic level



## Enhancing and promoting applied ecosystem research and model data support

- Identification of key indicators of ecosystem status and health, and useful interactions
  - h) Levels of employment, net revenues, and (where possible) profits
  - i) Measures of social well-being in fishing communities
  - j) Change in variance and (or) autocorrelation in space and time for any of these indicators