



Recent changes to  
GMACS

**Andre Punt  
& Katie  
Palof**

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# Major changes-I

## Updates to the parameter vectors

- How to specify a parameter is now (more) consistent across parameters
- All\* parameters can be
  - time-blocked
  - allowed to change as random walk
  - linked to an environmental parameter
- \* Growth transition, molt probability, maturation, selectivity, catchability, additional variance.

# Major changes-II

- Reorganized the CTL file so that the order of inputs are more natural
- All natural mortality-related parameters are in the natural mortality section
- Fixed the retrospective analysis (still cannot estimate SEs for retrospective analysis cases)
- Buck added his alternative data input scheme.
- Buck added a power growth function (PWRLAW\_GROWTHMODEL)
- Added new pre-specified selectivity option.
- Added bias-ramp for recruitment (makes a difference for WAIGK)

# Other changes

- Tidied up labeling of outputs in the GMACSALL.OUT, GAMCS\_in.\* and GMACS\_out\* files
- Maximum gradient reported to the GMACSALL.OUT file.
- Reorganized the growth/molt probability section.
- A maturation probably matrix can be entered.
- Maximum selectivity can be specified by size-class
- Changed the projections and OFL sections to use the generic seasons
- Immature indices can now be entered.

# Workshop Feb 2024

Workshop on size structured models and GMACS held in Juneau (Feb 2024)

- Great training opportunity for new GMACS users
- Within season timing of MMB estimation, recruitment, and growth discussed and corrections made for BBRKC and SMBKC for season timing.