ScallopPopDensity

ScallopPopDensity

Read in command line arguments Configuration File Name is 1st argument

Read_Startup_Config

Read in additional command line arguments, overwrite configuration file settings
* start year
* stop year
* domain name

Set year range and and time step parameters based on command line inputs. This also defines initial conditions file name

Set_Init_Cond_File_Name
Force year and domain name to values in scallop configuration file
* Data/bin5mmYYYYDN.csv

Set_Grid_Manager

Set_Growth

Set_Recruitment

Set_Mortality

◇ ts = 1, num_timesteps

fishing_effort(:) =
Set_Fishing_Effort(year, ts-1, state, weight_grams, mortality, grid)

For each grid, n
state(n, :) =
Time_To_Grow(ts, growth(n), mortality(n), recruit(n), state(n, :), fishing_effort(n), year)

done

Read_Startup_Config

Read_Startup_Config

Reads in
* start year
* stop year
* domain name
* time steps per year
* Grid Manager Config File Name
* Mortality Config File Name
* Recruit Config File Name
* Max Number of Grids (used to allocate memory)
* Save by stratus (more for GB processing, forced to false by MA

return

Set_Grid_Manager

Set_Grid_Manager
(max_ngrids, state, grid, ngrids, dom_name)

- Save passed in arguments to private variables
- Define file name for grid in special access area

Read_Configuration

num_grids = Load_Grid_State
(grid, state)

num_areas =
Load_Area_Coordinates()

For each grid
    - Check if in special access area
    - If so, set index to access number

return

Set_Growth

Set_Growth
(growth, grid, shell_lengths, num_ts, ts_per_year, dom_name, dom_area, state, weight_grams, ngrids, max_ngrids)

Initialize private members
- max_num_grids
- domain_name
- num_time_steps
- delta_time
- time_steps_year
- num_grids
- domain_area_sqm

- Compute Shell Lengths (mm)
- And conversion to Meat Weight (g)
- Compute Growth Parameters,
    L_inf_mu, K_mu, L_inf_sd, K_sd
    based on depth, latitude, and if grid is closed
- Truncate state larger size classes based on L_inf_mu

return

```
                    Set_Recruitment
       (recruit, n_grids, dom_name, dom_area, L_inf_mu,
          K_mu, shell_length_mm, yr_start,  yr_stop)
                            │
                            ▼
    ┌───────────────────────────────────────┐
    │ Initialize private members            │
    │ - recr_period_start                   │
    │ - recr_period_stop                    │
    │ - recr_start_year                     │
    │ - recr_stop_year                      │
    │ - recr_all_rand_stop                  │
    │ - num_grids                           │
    │ - domain_name                         │
    │ - domain_area_sqm                     │
    └───────────────────────────────────────┘
                            │
                            ▼
    ┌─┬─────────────────────────────────┬─┐
    │ │      Read in Recruit Estimates   │ │
    │ │        Read_Scalar_Field()       │ │
    └─┴─────────────────────────────────┴─┘
                            │
                            ▼
                    ┌───────────────┐
                    │    return     │
                    └───────────────┘
```

```
integer, intent(in):: year, ts
real(dp), intent(in)::
    state(max_num_grids,
num_size_classes),
weight_grams(num_grids, num_size_classes
)
type(Mortality_Class), intent(in):: mortality(*)
type(Grid_Data_Class), intent(in) :: grid(*)
```

Set_Fishing_Effort
(year, ts, state, weight_grams, mortality, grid)