Steps for making tables for CAMS discard tables

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Contents

0.1 Discard Rate Current Method Summary (J. Michael Lanning summary)

1) Rates determine by observer reported values (gear, area, etc)
2) Incomplete observed trips have missing 'hauls' prorated by observed information from that trip
3) Trips with observer get reported/calculated observed discards of that specific trip
4) Unobserved trips get discards from the rate calculated from 1)
5) QM is only interested in the summary total of discards for each trip, not subtrips. Often the interested number is a summary of trips, ie. the herring total of bycatch for an area/season or a sector's season's total of GB Cod.
6) Other others are driven by regs. Here I would place transition rates and EM methods.

I recommend separating out issues such as mismatching gear and area for the future QA data system.

And of course, any change management must be worked through proper and transparent interaction with all end users and clients including council and SFD.

0.2 Tables created and steps to date

Rates determine by observer reported values (gear, area, etc) Observed discards

`make_obdbs_table_cams_v2.sql`

created:

- `apsd.bg_obdbs_cams_mock2018`
- `apsd.bg_obdbs_cams_mock2019`
- `apsd.bg_obdbs_cams_mock2020`

Incomplete observed trips have missing 'hauls' prorated by observed information from that trip

Prorate observed discards on unobserved hauls within a subtrip. This is done by applying a ratio of kept all on the entire trip to kept all on the unobserved hauls only

$$d_{total} = d_{observedhauls} * (1 + KALL_{unobservedhauls}/KALL_{subtrip})$$

`make_obdbs_prorate.sql`

created:

- `apsd.obs_cams_prorate`
  - this table was made using `apsd.bg_obdbs_cams_mock2018` and `apsd.bg_obdbs_cams_mock2019`

Trips with observer get reported/calculated observed discards of that specific trip

Match observed hauls to subtrips

`explore_link3_mesh_match.sql`

This step matches on `AREA`, `GEAR` and `MESHGROUP` (sm, lg, xlg). This is a hard match and will go awry if there is a mismatch in the data.

created:

- `apsd.bg_cams_catch_mock`
  - follows the steps layed out for mid-Atlantic discard estimation. Gear, mesh and area CASE statements should be replaced at some point with table driven code.
  - Utilizes the current apportionment table: `apsd.cams_apport_20201230`

- `apsd.bg_obs_cams_tmp1`
  - links to `dmis.d_match_obs_link` and `apsd.bg_cams_catch_mock`
- to date (2021-01-29), this is only using trips that have **multiple** subtrips. These are the only cases where the pro-ration step matters.
- `apsd.bg_obs_cams_tmp2` is used in the `squid example` and include all trips.

0.3 R functions

get_obs_disc_vals make_assumed_rate make_bdat_focal run_discard

0.4 Output

```
> dest_strata %>% slice(grep('Otter Trawl_sm*', dest_strata$STRATA))
              STRATA    N   n orate       drate     KALL disc_est   CV
1 Otter Trawl_sm_N_1 1307 122  0.09 0.007531621 21959570   165391 0.41
2 Otter Trawl_sm_N_2 1943 212  0.11 0.004653792 29085106   135356 0.67
3 Otter Trawl_sm_S_1 2023 373  0.18 0.054646780 25624532  1400298 0.23
4 Otter Trawl_sm_S_2 1930 432  0.22 0.005260938 33174274   174528 0.44
>
```