

CAPs Summary and Sighting Table Notes and Definitions
Version 7

CAPs Summary Table

1. Only large whale species are used to compute the CAPs statistics. The species and associated species codes are:
 - a. Ba = minke whale
 - b. Bm = bowhead whale
 - c. Bp = fin whale
 - d. Er = gray whale
 - e. Mn = humpback whale
2. The current code summarizes data collected during CAPs passing (FltType 7) and CAPs circling (FltType 9). The current code does not know how to work with CAPs strip data (FltType 11), but this can easily be added in the future.
3. The summary table has one row for each CAPs session. A CAPs session is defined as all saved=1 records in the Flight table beginning with Entry=CAPs and ending with the last record prior to the first Entry=deadhead, search, or start transect later in the flight. There may be more than one CAPs session per flight.
4. For each row of the CAPs summary table (i.e., each CAPs session), the sum of the Xx_Circ_Prop should add to 1.0
5. Xx_Adj_calf should never be smaller than Xx_Pass_calf
6. Xx_Adj_ind should never be smaller than Xx_Pass_ind
7. Xx_Adj_n should never be smaller than Xx_Pass_n
8. Variable definitions: The variables defined below use "Xx" as a substitute for the 2-letter species code, "n" = number of sightings, "ind" = number of individual whales, "Circ" = CAPs circling, "Pass" = CAPs passing, "Add" = additional, and "Adj" = adjusted.

FltNo: Flight Number

StartDateTime: Date and time of the CAPs entry initiating the CAPs session

StartEventNo: Event number corresponding to the CAPs entry initiating the CAPs session

n_WhaleSp: Number of large whale species in the CAPs session. Any large whale identified to species species that was recorded during FltType 7 or 9 is counted. This excludes Species = unidentified cetacean.

Pass_n_unid: Number of unidentified cetacean sightings during CAPs passing

Xx_Circ_n: Number of sightings of species Xx sighted during CAPs circling

Xx_Circ_ind: Number of whales of species Xx sighted during CAPs circling

Xx_Circ_Prop: Proportion of sightings of species Xx during CAPs circling = $(Xx_Circ_n) / (\text{total \# sightings of all large whales identified to species during circling})$. The denominator of this variable excludes unidentified cetaceans.

Xx_Circ_avggrp: Average group size (FinalGrp) of species Xx during CAPs circling = $(Xx_Circ_ind) / (Xx_Circ_n)$

Xx_Circ_calf: Total number of calves of species Xx sighted during CAPs circling

Xx_Circ_avgcalf: Average number of calves of species Xx per sighting during CAPs circling = $(Xx_Circ_calf) / (Xx_Circ_n)$

Xx_Circ_Prop_FeedMill: Proportion of sightings of species Xx sighted during CAPs circling with behavior feed or mill

Xx_Pass_n: Number of sightings identified as species Xx during CAPs passing

Xx_Pass_ind: Number of whales identified as species Xx during CAPs passing, based on FinalGrp

Xx_Pass_avggrp: Average size of groups (FinalGrp) identified as species Xx during CAPs passing = $(Xx_Pass_ind)/(Xx_Pass_n)$

Xx_Pass_calf: Total number of calves identified as species Xx during CAPs passing

Xx_Pass_Prop_FeedMill: Proportion of sightings of species Xx sighted during CAPs passing with behavior feed or mill

Xx_Add_n: Additional number of CAPs passing sightings for species Xx, based on proportion of sightings of species Xx during CAPs circling and the number of unid cetacean sightings during CAPs passing:
 $Xx_Add_n = Xx_Circ_Prop * Pass_n_unid$. If species Xx was not sighted during circling, Xx_Add_n will be zero.

Xx_Add_ind: Additional number of whales for species Xx: $Xx_Add_ind = Xx_Add_n * \max(Xx_Circ_avggrp, Xx_Pass_avggrp)$. In other words, Xx_Add_n is multiplied by the larger of Xx_Circ_avggrp or Xx_Pass_avggrp. Xx_Add_ind will be zero if species Xs was not sighted during circling.

Xx_Adj_n: Adjusted number of sightings of species Xx, after accounting for unid cetaceans: $Xx_Adj_n = Xx_Pass_n + Xx_Add_n$.

Xx_Adj_ind: Adjusted number of whales of species Xx: $Xx_Adj_ind = Xx_Pass_n * \max(Xx_Circ_avggrp, Xx_Pass_avggrp) + Xx_Add_ind$.

Xx_Adj_calf: Adjusted number of calves during passing = $\max(Xx_Circ_avgcalf * Xx_Adj_n, Xx_Pass_calf)$.

CAPs Sighting Table

1. Relies on statistics computed for the CAPs Summary Table, defined above
2. This table includes a single row for every saved=1 large whale sighting identified to species during CAPs passing. Every saved=1 unid cetacean sighting during CAPs passing is replicated n_WhaleSp times.
3. Variable definitions:
 - a. Event: Event number of sighting in Flight table
 - b. StartEvent: Event number corresponding to the CAPs session for the sighting
 - c. FltNo: Flight number
 - d. Month: Month of sighting
 - e. Yr: Year of sighting
 - f. Behavior: Behavior of original sighting
 - g. IcePctL and R: Ice percent on the L and R sides of plane for original sighting
 - h. Blk: Survey block of original sighting, from Flight table
 - i. Depth: Depth of original sighting, from Flight table
 - j. XWhale: Longitude of sighting, from Flight table
 - k. YWhale: Latitude of sighting, from Flight table
 - l. OffshDist: Offshore distance of original sighting, from Flight table
 - m. Species: Species recorded for sighting in Flight table
 - n. new.Sp: New species identification assigned to this record, based on species identifications during CAPs circling in this CAPs session
 - o. FinalGrp: FinalGrp of sighting, from Flight table

- p. capsN: Number of sightings this record represents, after accounting for CAPs statistics. capsN for unid cetacean sightings equals Xx_Circ_Prop for the corresponding new.Sp. capsN for sightings originally identified to species will always be 1.
 - q. capsInd: Number of individuals this record represents, after accounting for CAPs statistics. capsInd for unid cetaceans equals $Xx_Add_ind/Pass_n_unid$. capsInd for sightings originally identified to species equals $\max(Xx_Pass_avggrp, Xx_Circ_avggrp)$.
 - r. capsCalf: Number of calves this record represents, after accounting for CAPs statistics. capsCalf for unid cetaceans and sightings originally identified to species equals $Xx_Adj_calf/(Pass_n_unid+XX_Pass_n)$.
 - s. capsPropFeedMill: Proportional feeding/milling behavior, defined as follows:
 - i. For CAPs passing sightings with behaviors recorded in the original survey data, capsPropFeedMill = 1 if Behavior = feed or mill, and capsPropFeedMill = 0 for all other behaviors.
 - ii. For CAPs passing sightings lacking behavior in the original survey data, capsPropFeedMill = $Xx_Circ_Prop_FeedMill$ from the CAPs session.
4. For a given CAPs session, the following should always be true:
- a. The sum of all capsN values for species Xx should equal Xx_Adj_n in the CAPs Summary Table
 - b. The sum of all capsInd values for species Xx should equal Xx_Adj_ind in the CAPs Summary Table
 - c. The sum of all capsCalf values for species Xx should equal Xx_Adj_calf in the CAPs Summary Table