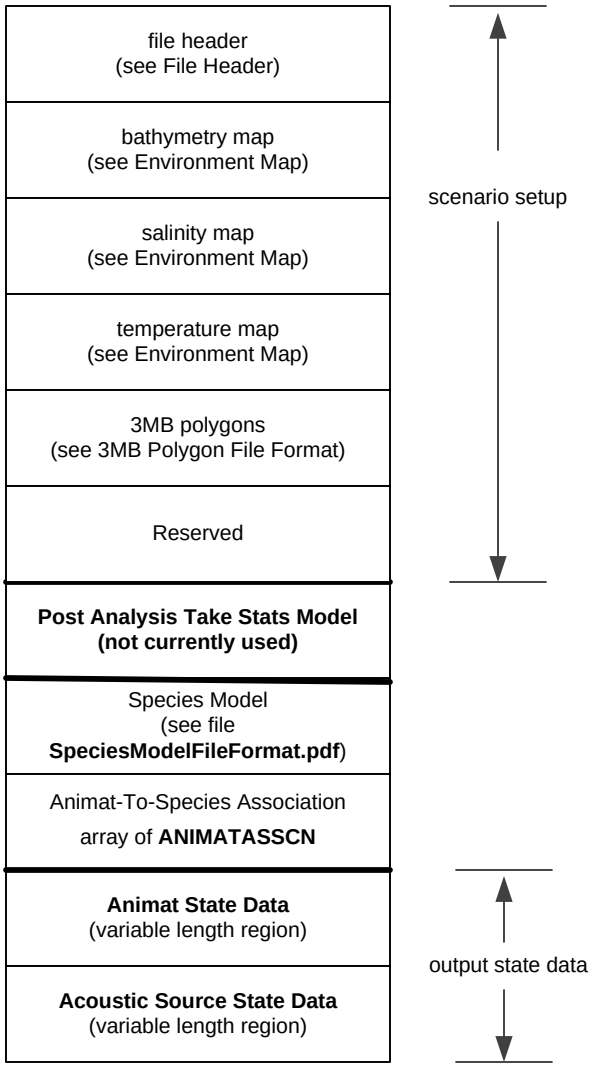
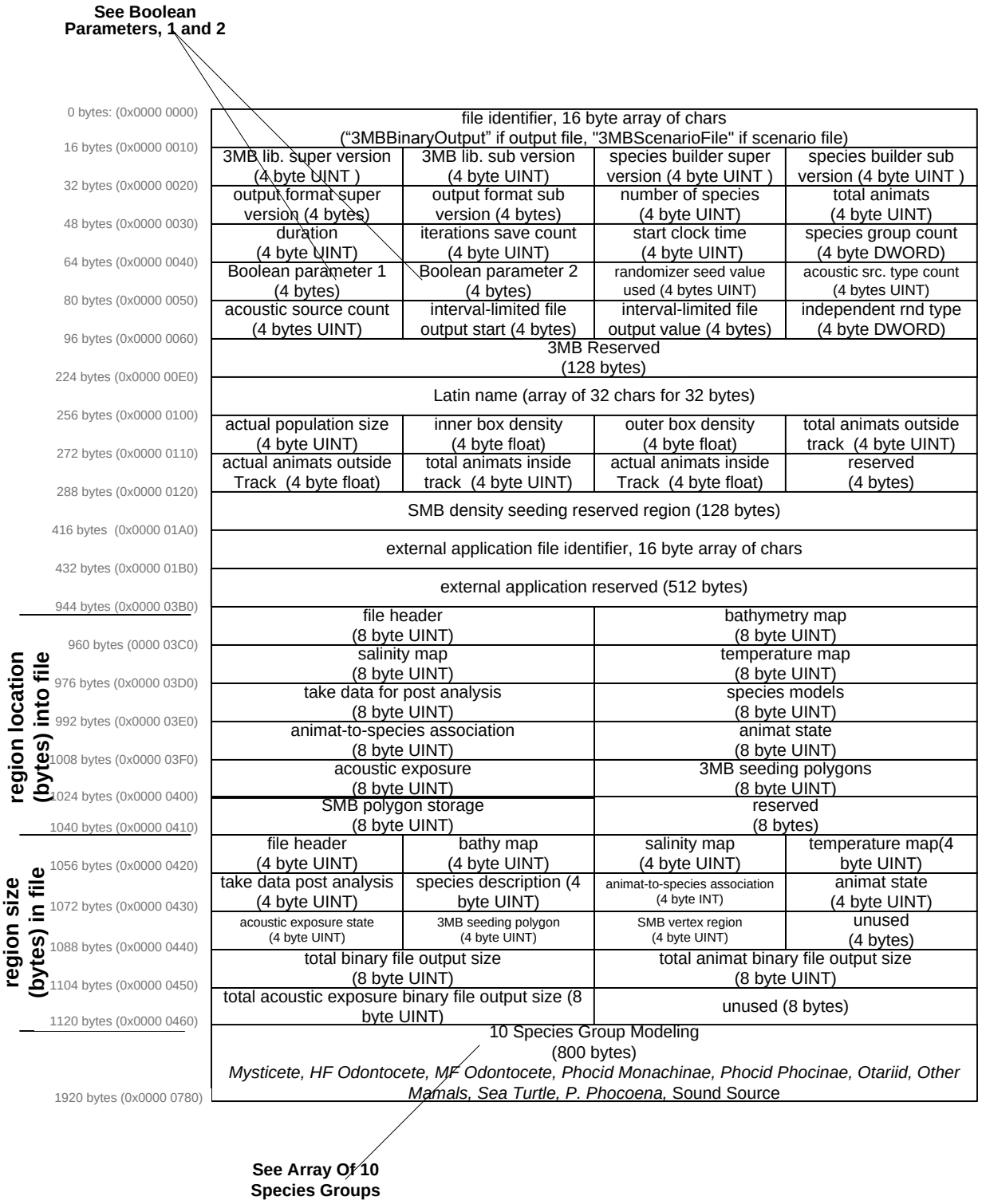


3MB Binary Ouput File Regions


See Boolean Parameters, 1 and 2
0 bytes: (0x0000 0000)
file identifier, 16 byte array of chars
("3MBBinaryOutput" if output file, "3MBScenarioFile" if scenario file)
16 bytes (0x0000 0010)
3MB lib. super version (4 byte UINT)
3MB lib. sub version (4 byte UINT)
species builder super version (4 byte UINT)
species builder sub version (4 byte UINT)
32 bytes (0x0000 0020)
output format super version (4 bytes)
output format sub version (4 bytes)
number of species (4 byte UINT)
total animats (4 byte UINT)
48 bytes (0x0000 0030)
duration (4 byte UINT)
iterations save count (4 byte UINT)
start clock time (4 byte UINT)
species group count (4 byte DWORD)
64 bytes (0x0000 0040)
Boolean parameter 1 (4 bytes)
Boolean parameter 2 (4 bytes)
randomizer seed value used (4 bytes UINT)
acoustic src. type count (4 bytes UINT)
80 bytes (0x0000 0050)
acoustic source count (4 bytes UINT)
interval-limited file output start (4 bytes)
interval-limited file output value (4 bytes)
independent rnd type (4 byte DWORD)
96 bytes (0x0000 0060)
3MB Reserved (128 bytes)
224 bytes (0x0000 00E0)
Latin name (array of 32 chars for 32 bytes)
256 bytes (0x0000 0100)
actual population size (4 byte UINT)
inner box density (4 byte float)
outer box density (4 byte float)
total animats outside track (4 byte UINT)
272 bytes (0x0000 0110)
actual animats outside Track (4 byte float)
total animats inside track (4 byte UINT)
actual animats inside Track (4 byte float)
reserved (4 bytes)
288 bytes (0x0000 0120)
SMB density seeding reserved region (128 bytes)
416 bytes (0x0000 01A0)
external application file identifier, 16 byte array of chars
432 bytes (0x0000 01B0)
external application reserved (512 bytes)
944 bytes (0x0000 03B0)
region location (bytes) into file
file header (8 byte UINT)
bathymetry map (8 byte UINT)
960 bytes (0000 03C0)
salinity map (8 byte UINT)
temperature map (8 byte UINT)
976 bytes (0x0000 03D0)
take data for post analysis (8 byte UINT)
species models (8 byte UINT)
992 bytes (0x0000 03E0)
animat-to-species association (8 byte UINT)
animat state (8 byte UINT)
1008 bytes (0x0000 03F0)
acoustic exposure (8 byte UINT)
3MB seeding polygons (8 byte UINT)
1024 bytes (0x0000 0400)
SMB polygon storage (8 byte UINT)
reserved (8 bytes)
1040 bytes (0x0000 0410)
region size (bytes) in file
file header (4 byte UINT)
bathy map (4 byte UINT)
salinity map (4 byte UINT)
temperature map(4 byte UINT)
1056 bytes (0x0000 0420)
take data post analysis (4 byte UINT)
species description (4 byte UINT)
animat-to-species association (4 byte INT)
animat state (4 byte UINT)
1072 bytes (0x0000 0430)
acoustic exposure state (4 byte UINT)
3MB seeding polygon (4 byte UINT)
SMB vertex region (4 byte UINT)
unused (4 bytes)
1088 bytes (0x0000 0440)
total binary file output size (8 byte UINT)
total animat binary file output size (8 byte UINT)
1104 bytes (0x0000 0450)
total acoustic exposure binary file output size (8 byte UINT)
unused (8 bytes)
1120 bytes (0x0000 0460)
10 Species Group Modeling (800 bytes)
Mysticete, HF Odontocete, MF Odontocete, Phocid Monachinae, Phocid Phocinae, Otariid, Other Mamals, Sea Turtle, P. Phocoena, Sound Source
1920 bytes (0x0000 0780)
See Array Of 10 Species Groups

File Header

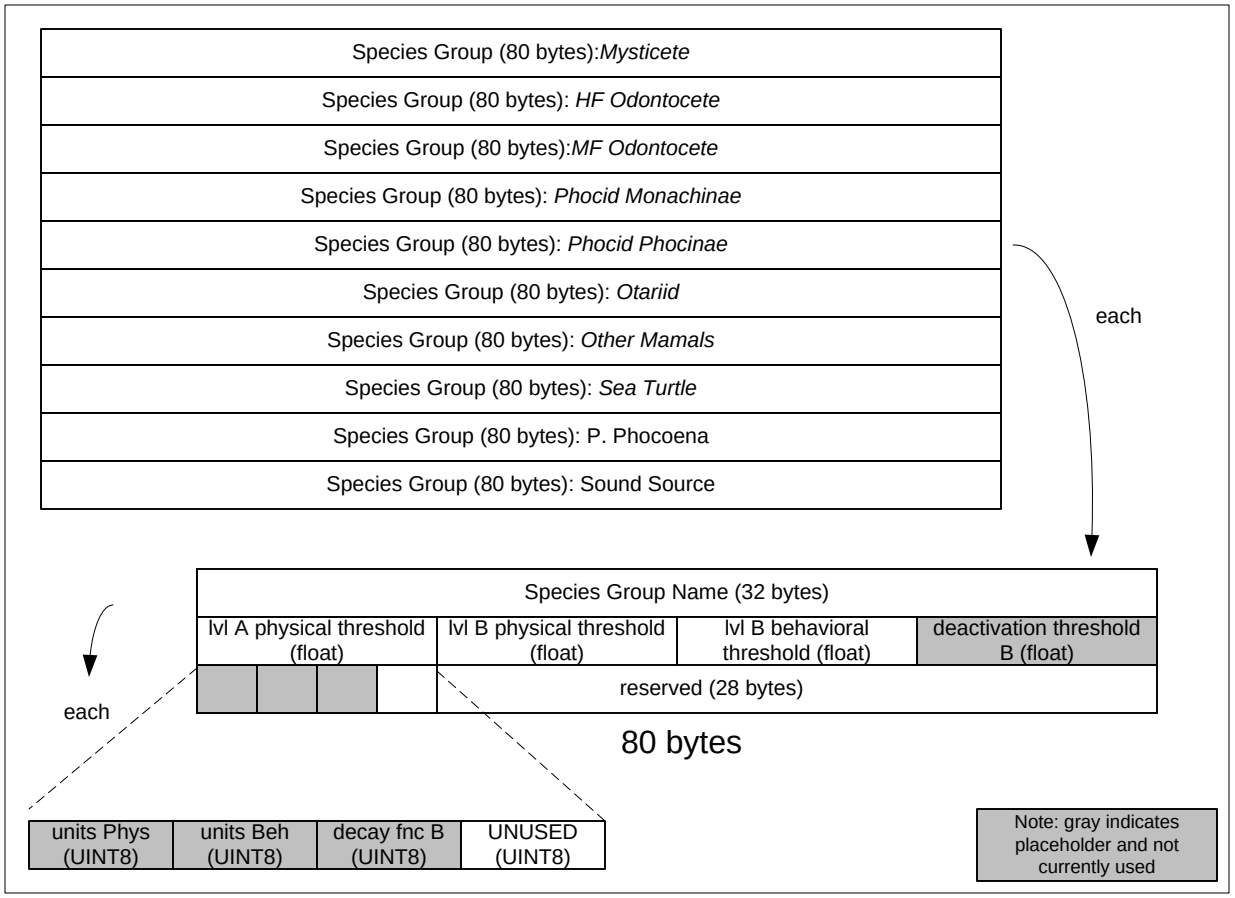
Boolean parameters 1

bit 0: bathymetry Map is saved to file
bit 1: Save Salinity Map
bit 2: Save Temperature Map
bit 3: Output Post-Run Analysis
bit 4: Output Species Information and Animat to Species Associations
bit 5: Output Animat State ID
bit 6: Output Animat State Time Of Day
bit 7: Output Animat State Coordinate
bit 8: Output Animat State Depth
bit 9: Output Animat State Bearing
bit 10: Output Animat State Dive Rate
bit 11: Output Animat State Travel Rate
bit 12: Output Animat State Cumulative Acoustic Exposure
bit 13: Output Animat State Instantaneous Acoustic Exposure
bit 14: Output Animat State Acoustic Source Relative Angle
bit 15: Output Animat State Time Averting Acoustic Source
bit 16: Output Animat State Bathymetry Depth
bit 17: Output Animat State Salinity
bit 18: Output Animat State Temperature
bit 19: Output Animat State Target Depth
bit 20: Output Animat State Packed Data (see Fig X.xx)
bit 21: Output Animat State Calculated Depth
bit 22: Output Animat State Acoustic Source Coordinate
bit 23: Output Animat State Output Enabled
bit 24: Output Animat State XY Distance Travelled
bit 25: Output Animat State Risk Value
bit 26: Output Animat SubID
bits 27 ~ 30: Unused
bit 31: Output Format By-Time (vs. By-Animat)

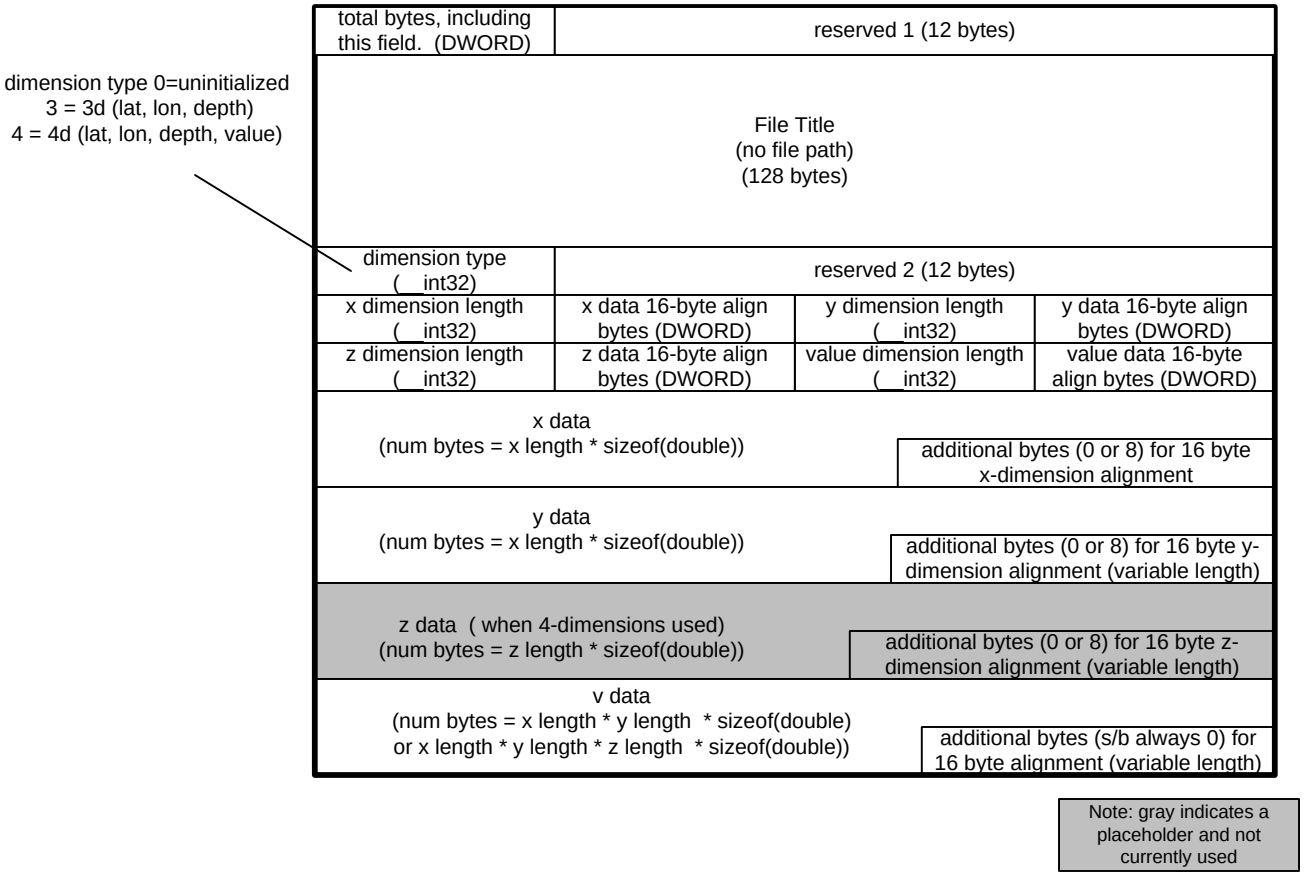
Boolean parameters 2

bit 0: Track ESME input
bit 1: Durationless Scenario
bit 2: Acoustic Src Active
bit 3: Distance Calculation Method
bit 4: Use Current Tick for seeding
bit 5: acoustic ping (clear = omni, set = arc)
bit 6: Animat Output Limited To Acoustic Source Pings
bit 7: Animat Output Limited To Specified Iterations
bits 8 ~ 31: Unused

Boolean Parameters 1 and 2
4 bytes each



Array Of 10 Species Groups



Environment Map
(size varies)

3MB Polygon Count (4-byte int)	reserved (24 bytes)
polygon header 0 (48 byte **POLYGON_FILE** struct)	
(lon, lat) vertex 0 (double x 2)	

⋮

(lon, lat) vertex n-1 (double x 2)
polygon header 1 (48 byte **POLYGON_FILE** struct)
(lon, lat) vertex 0 (double x 2)

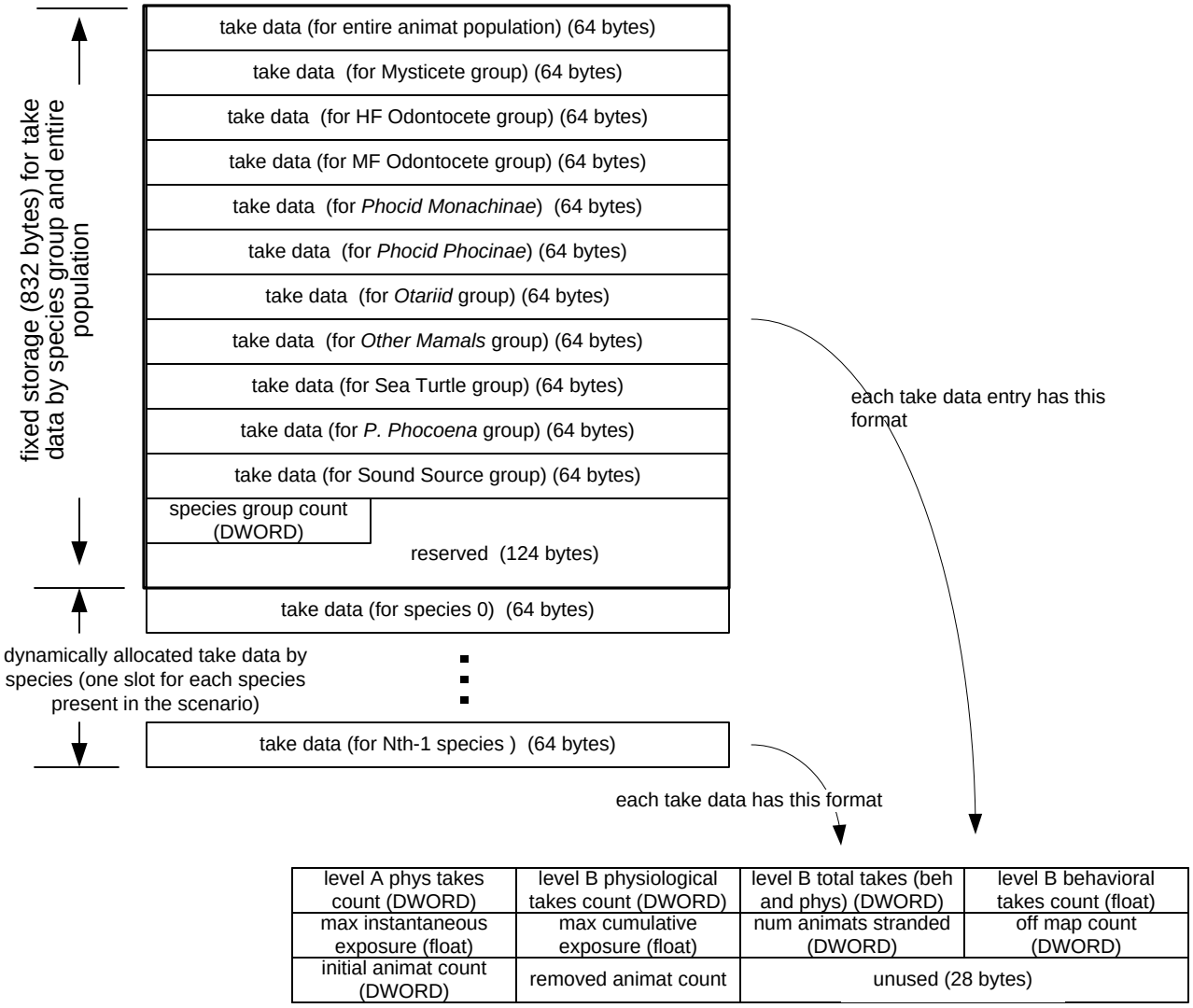
⋮

(lon, lat) vertex n-1 (double x 2)

3MB Polygon File Format

polygon string (32 byte char array)		
polygon number (4 byte int)	number of vertices (4 byte int)	**LONLAT_PTR** (8 byte pointer to **LONLAT** array, (not use in output file)

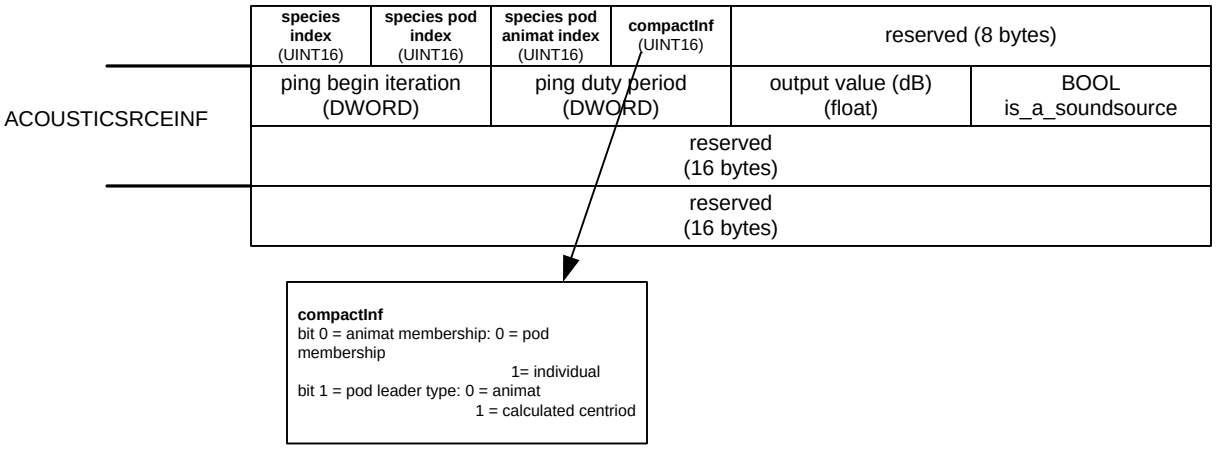
Polygon File Header
(48 bytes)



Post Analysis Take Stats Model

(not currently used but present in file)

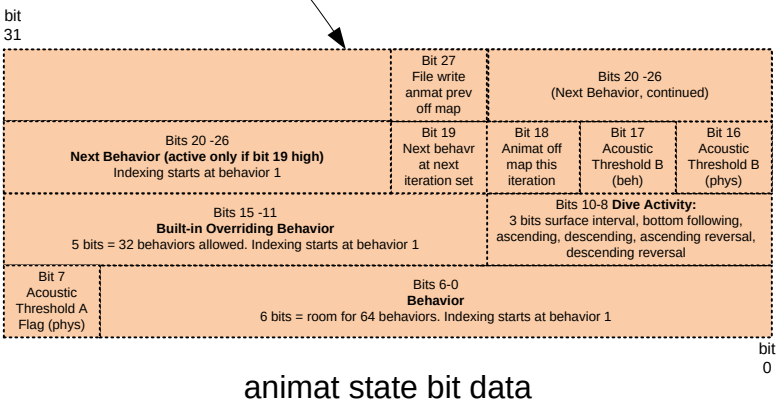
Composed Of: (1) entire population +
(2) each species Group +
(3) species group count and reserved space +
(for 832 bytes) +
(4) each species in the scenario (64 bytes each)



Animat-To-Species Association
(64 bytes, one per animat)

animat global index / ID (UINT32)	animat subID (UINT32)	clock (UINT32)	latitude (float)
longitude (float)	depth (float)	bearing (float)	dive rate (float)
travel rate (float)	acoustic exposure cumulative (float)	acoustic exposure instant (float)	acoustic source relative angle (float)
time averting sound (UINT32)	bathy depth at animat current location (float)	salinity at animat current location (float)	temperature at animat current location (float)
animat state bit data (DWORD)	target depth (float)	calculated depth (float)	absolute X meters (float)
absolute Y meters (float)	current risk Value (float)		

animat state data saved to output file

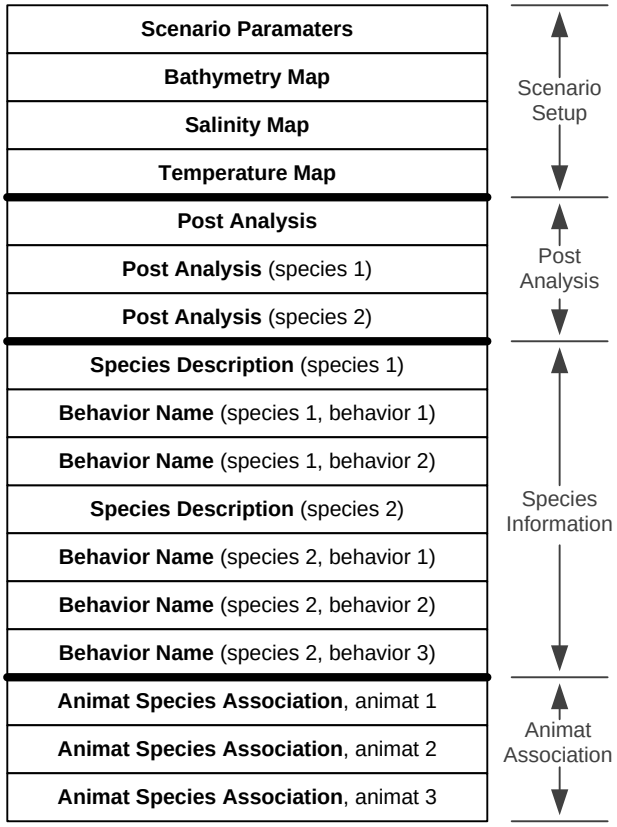


DWORD

animat state bit data

Configurable Animat State Data
(one per animat for each outputted iteration)

3MB Binary Output File Possible Example



Hypothetical .3mb Binary Output File Example

Animat State (animat 1, 1st saved state)
Animat State (animat 2, 1st saved state)
Animat State (animat 3, 1st saved state)
Acoustic State (1st saved state)
Animat State (animat 1, 2nd saved state)
Animat State (animat 2, 2nd saved state)
Animat State (animat 3, 2nd saved state)
Acoustic State (2nd saved state)
Animat State (animat 1, 3rd saved state)
Animat State (animat 2, 3rd saved state)
Animat State (animat 3, 3rd saved state)
Acoustic State (3rd saved state)

3mb By Iteration Binary Output File Example

Animat State (animat 1, 1st saved state)
Animat State (animat 1, 2nd saved state)
Animat State (animat 1, 3rd saved state)
Animat State (animat 2, 1st saved state)
Animat State (animat 2, 2nd saved state)
Animat State (animat 2, 3rd saved state)
Animat State (animat 3, 1st saved state)
Animat State (animat 3, 2nd saved state)
Animat State (animat 3, 3rd saved state)
Acoustic State (1st saved state)
Acoustic State (2nd saved state)
Acoustic State (3rd saved state)

3mb By Animat Binary Output File Example