**R1 NEPA Strike Teams GIS Analysis Report**

Project Name: South Otter

Date: 2022-04-12

Date Requested By: Unstated

GIS Request Number: None

Requesting Resource: Aquatics

Requesting Specialist: Cole Erickson

GIS Specialist: Jeff Erwin

Analysis or Task Summary: Re-establish RMZs for South Otter

Request: Re- establish CAT 2, 3, 4 RMZs for the South Otter Project. CAT 1 is used from previous modeling efforts. Combine spring locations from existing Forest springs layer and NHD.

Background: Several iterations have taken place with a varying method. Please see previous analysis reports.

Ruleset:

Provided to develop RMZs:

1. NHD Plus HR NHD Points (springs)
2. AshlandMbmSprings (this looks like additional springs from the Forest)
3. NHD Plus HR NHD Waterbodies (wetlands and waterbodies)
4. MT Natural Heritage Program Modern Wetland Mapping for (Riparian Areas/wetlands)
5. EZNetMapStrmsGeoFlow (for stream categories)
6. CusterGallatin Fish Distribution Streams (fish presence streams)
7. CusterGalatin Fish Distribution Lakes (fish presence lakes)
8. Landslides (im not sure where to get this…Eve likely)
9. CusGal LiveWater layers (can be used for additional field validated RMZ categories)

Buffers are in Feet and buffered off the feature.

Text

Description automatically generated

Here is a criterion from a previous request:

“**Request:** The 1:24k NHD layer has poor accuracy for flow regime on the eastern districts and I suggest you use the synthetic stream network that former CGNF Hydrologist Andy Efta attributed with flow regime, based on empirical observations to complete your analysis for categories 1 and 2. Although the network is broken into 100 meter reaches, you could dissolve on CHAN\_ID and FLOWFINAL, in the attribute table, then remove FLOWFINAL category “ephemeral” to generate your base layer for analysis. You will then use select by location to select the streams that intersect fish bearing streams in the Montana Fish Distribution layer for generating Category 1 buffers and reverse the selections for generating category 2 buffers. Some manual data cleanup may be necessary, but it shouldn’t be a heavy lift for the project area. Here is the path to the synthetic network attributed with flow regime.

**Data:**

T:\FS\Reference\GIS\r01\_gal\LayerFile\WaterResources\EZNetMapStrmsGeoFlow.lyr

T:\FS\NFS\Custer\Project\Ashland\SouthOtter\GIS\Data\SouthOtterNEPA.gdb\Fish\MTFishDistribution

RHCAs Source data from FPR : T:\FS\NFS\Gallatin\Program\2500Watershed\GIS\Workspace\BryceHancock\ForestPlanRevision\FPRRiparianLayers.gdb

**Process:**

1. Copied the above data to the project FGDB. Dissolved on CHAN\_ID and FLOWFINAL and removed the category ephemeral to generate base layer.
2. Clipped the MT Fish Distribution layer to the project boundary
3. Selected all streams that intersected the EZnet streams.
4. Assigned CAT1 to the selected and CAT2 to the remainder.
5. Applied a 100 and 200 foot buffer to the CAT1 Streams
6. Applied a 200 foot buffer to the CAT2 streams”

**UpdatedProcess:**

1. Copied the above data to the project FGDB. Dissolved on CHAN\_ID and FLOWFINAL and removed the category ephemeral to generate base layer.
2. Clipped the MT Fish Distribution layer to the project boundary.
3. Selected all streams that intersected the EZnet streams.
4. Assigned CAT1 to the selected and CAT2 to the remainder.
5. Applied a 100 ft inner and 200 ft buffer to the CAT1 Streams (CAT 1 Outer is 100ft from CAT1 inner edge)
6. Applied a 100 ft inner buffer and 150 ft outer buffer to CAT2 Streams (CAT 2 Outer is 50 ft from edge of CAT 2 inner)
7. Applied 100 ft inner buffer and 50 ft outer buffer to the CAT3 Streams(CAT 3 Outer is 50 ft from edge of CAT 3 inner)
8. Applied 50 ft inner buffer and 50 ft outer buffer to the CAT4 Streams(CAT 4 Outer is 50 ft from edge of CAT 4 inner)

Data Locations:

Springs from NHD that were added to the Forest Layer.

T:\FS\NFS\Custer\Project\Ashland\SouthOtter\GIS\Data\WatershedAnalysis\SORMZ20210416.gdb\NHDSpringsAdd

Overall Adjusted Springs Layer

T:\FS\NFS\Custer\Project\Ashland\SouthOtter\GIS\Data\WatershedAnalysis\SORMZ20210416.gdb\SOAdjustedSprings

MTHP Riparian Layer

T:\FS\NFS\Custer\Project\Ashland\SouthOtter\GIS\Data\WatershedAnalysis\SORMZ20210416.gdb\MTHPRiparianAdd

Combined MTHP Riparian Layer

T:\FS\NFS\Custer\Project\Ashland\SouthOtter\GIS\Data\SouthOtterNEPA.gdb\RiparianSurveysRMU\SOMTHPCombinedRiparian

Final RMZs

T:\FS\NFS\Custer\Project\Ashland\SouthOtter\GIS\Layerfile\Riparian\SORMZs.lyr