

Introduction to GIS Analysis

Topics covered:

- Geoprocessing tools
 - Clipping
 - Buffering
 - Intersect
 - Dissolve
- Field calculator
- Select by location, attribute, expression

Use the QGIS Essentials reference manual and GIS data to complete the following exercises:

Setup

Create a new GIS project folder using the Spatial Project Folder Structure Template. Copy the layers from GIS Layers > Day 4 folder into the appropriate folders in your working directory.

Clipping

Clip the fish observation layer to the kispiox area of interest and save it as a new layer in your project folder with a descriptive filename.

Buffering

Create a new buffer layer representing a riparian buffer of 30 m from the modelled fish habitat layer (i.e. 60 m total width). Save the buffer layer as a new layer.

Create a new buffer layer representing road disturbance of 15 m from the road atlas layer (i.e. 30 m total width). Save the buffer layer as a new layer.

Use the measure tool to confirm the width of your buffers.

Intersect and dissolve (not in reference manual, under Vector > Geoprocessing Tools)

Use the Intersect geoprocessing tool to intersect your two buffer layers (leave all defaults).

Use the Dissolve geoprocessing tool to merge the intersect layer into one multipolygon (leave all defaults)

Field Calculator

Q1. Use the field calculator to calculate the area of the dissolved layer. What does this represent?

Select by...

Q2. Determine approximately how many fish observations are within the extent of the fish model layer using the select by location tool.

Q3. Determine how many of the fish observations are Sockeye Salmon use the select features by value tool.

Q4. Determine how many fish observations are within 30 m of a road using select by location (Vector > Research Tools > Select by Location)

Use your new skills to answer the following:

Q5. How many fish observations are within 100 m of a road? Create a new layer from this subset.

Q6. What area of the riparian buffer disturbed by road development is classified as non-fish habitat? Observed fish habitat?

Check your answers

Q1. Approximately 217,179 m²

Q2. Approximately 126

Q3. 9 sockeye salmon observations

Q4. 2 observations

Q5. 43 observations

Q6. Non-fish habitat: 188,265 m²; Observed fish habitat: 11,242 m²