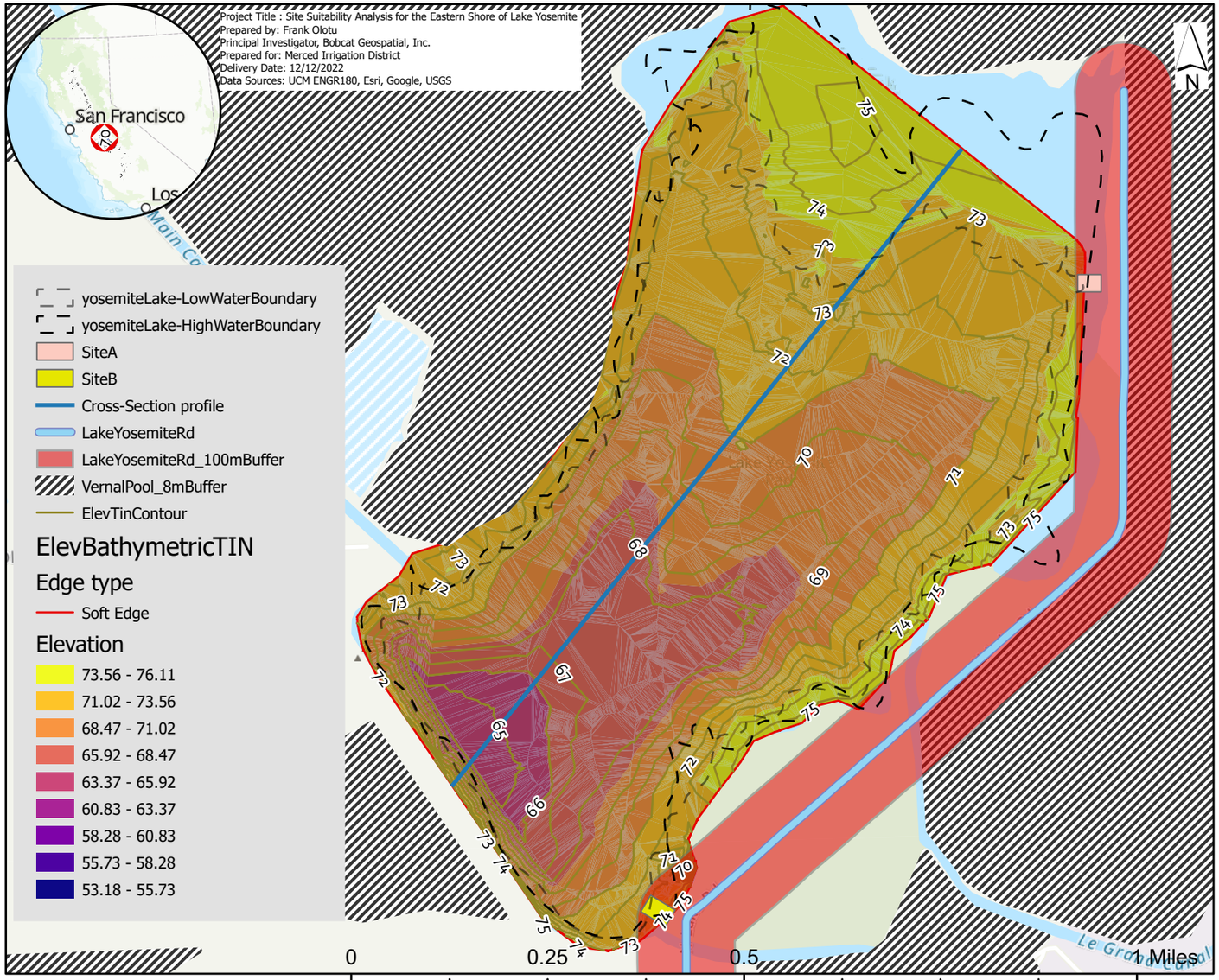
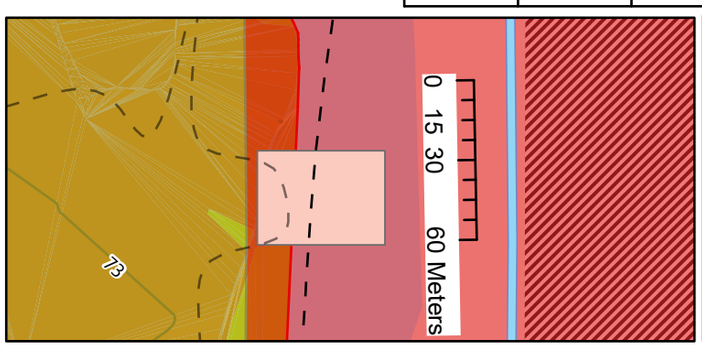
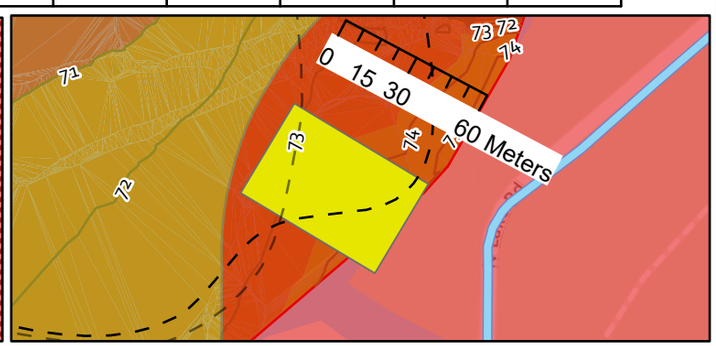






Objectives
-Project goals
The goal of the project is to perform a site suitability analysis of the area surrounding the Yosemite Lake, so as to identify two potential sites for the future floating boat dock that the Merced Irrigation District (MeID) is planning on building on the eastern shore of the lake. Another goal of this project is to calculate surface volume using IDW and Kriging methods.

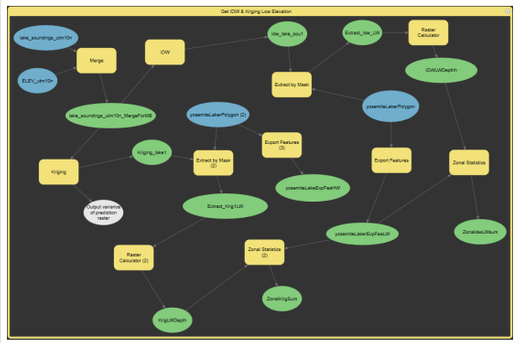
-Description of project area
The project area is the eastern shore of Lake Yosemite.
The project is within the jurisdiction of the Merced Irrigation District (MeID).

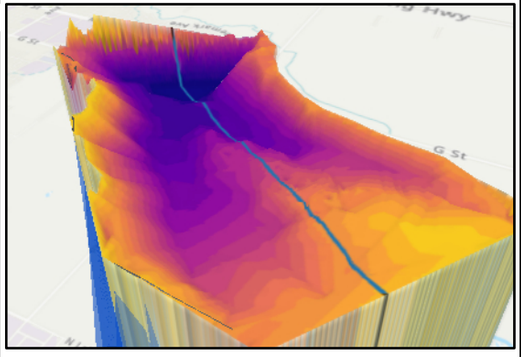
-Specific criteria
The potential dock sites must have an elevation between the high and low water years.
The minimum area for development must be 15 meters by 30 meters.
The potential sites cannot be within 8 meters of a protected vernal pool.
The sites must be within 100 meters of the existing road.
The potential sites must be presented in the referenced poster format for consideration at Legal Wide Size.
The analysis must be replicable using ArcPy code or ModelBuilder.

Discussion and Recommendations:

Justification of site options: The selected potential dock sites, referred to as options A and B, were chosen based on their suitability for the project. This suitability was determined by evaluating each site against the specific criteria, such as elevation, area, distance from protected vernal pools, and proximity to the existing road. The selected sites scored highly on these criteria, indicating that they are suitable locations for the new floating boat dock.

For example, both options A and B have elevations that fall within the range of the high and low water years, and they have areas that meet the minimum size requirement for development. They are also located a safe distance from protected vernal pools and within 100 meters of the existing road, as required by the criteria. In addition, both sites have good access to the lake, making them convenient for boaters.





Methods:
Projection information: The digital elevation model, low and high water year TIFFs, and sonar bathymetric data are all in the same projection for accurate analysis and comparison. Which is NAD_1983_UTM_Zone_10N.

Data Sources: Data such as elevation model, low and high water year TIFFs, sonar bathymetric were sourced from UCM ENGR180.

Data management: The provided data was organized and stored in a consistent and accessible manner for easy retrieval and analysis. Utilized Box.com for resilient storage.

Results:
Site Option A:

Option A is a potential dock site located on the eastern shore of Lake Yosemite. The site has dimensions of 45 meters by 35 meters, which meets the minimum size requirement for development. It is located at an elevation of roughly 72 meters, which falls within the range of the referenced high and low water years. The site is also situated a safe distance of 10 meters from the nearest protected vernal pool, and it is within 100 meters of the existing road. The site has good access to the lake and offers good visibility for boaters. Overall, option A is a suitable location for the new floating boat dock.

Site Option B:

Option B is a suitable location for the new floating boat dock on the south-western shore of Lake Yosemite. The site has dimensions of 60 meters by 40 meters, meeting the minimum size requirement for development. It is located at an elevation of 74 meters, within the range of the referenced high and low water years. The site is also situated a safe distance of 15 meters from the nearest protected vernal pool, and it is within 100 meters of the existing road. Option B is a also a good candidate for the project.

Ranking outcomes: The dock sites were ranked based on their suitability for the project. The ranking took into account factors such as elevation, area, distance from protected vernal pools, and proximity to the existing road. So based on these factors, we believe site B to a likely fit as it meets the elevation between referenced high and low water year's requirement the best.

Source	Average Acre Feet (AF)	IDW	Kriging
2014 Low Elevation	3250 Acre Feet (AF)	3200 Acre Feet (AF)	3300 Acre Feet (AF)
2018 High Elevation	6183 Acre Feet (AF)	6700 Acre Feet (AF)	5665 Acre Feet (AF)