










Positioning of Boat Slips

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The Problem

-  Some people feel that they have to pull their boats out of the water too early in the season (e.g. mid august)
-  Is this due to:
 -  Sedimentation?
 -  Mismanagement of the lake's water level?
 -  It's the way it is?

The Answer?

-  In all likelihood it's a combination of all three factors
-  Some of the coves have experienced significant sedimentation (still awaiting DNRs report on this issue)
-  Lake levels are subject to the amount of rain received and the protocol that dictates the amounts released through the hydroelectric station for power generation, whitewater recreation and Youghiogheny water temperature control
-  The overall lake bottom slopes downwards from the southern end of the lake to the northern end

What Can Be Done About It?

-  The Lake Levels Subcommittee is revisiting the lake level and release issues - stay tuned
-  Just be aware of what the water depth is in your neighborhood!

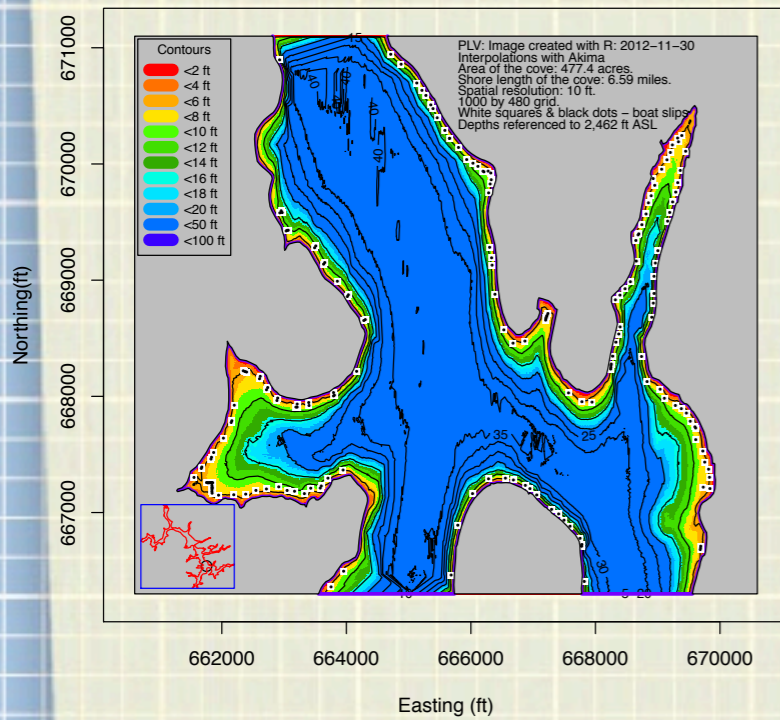
The latter point is addressed in this presentation.
This requires a good bathymetric map.

What's Been Done?

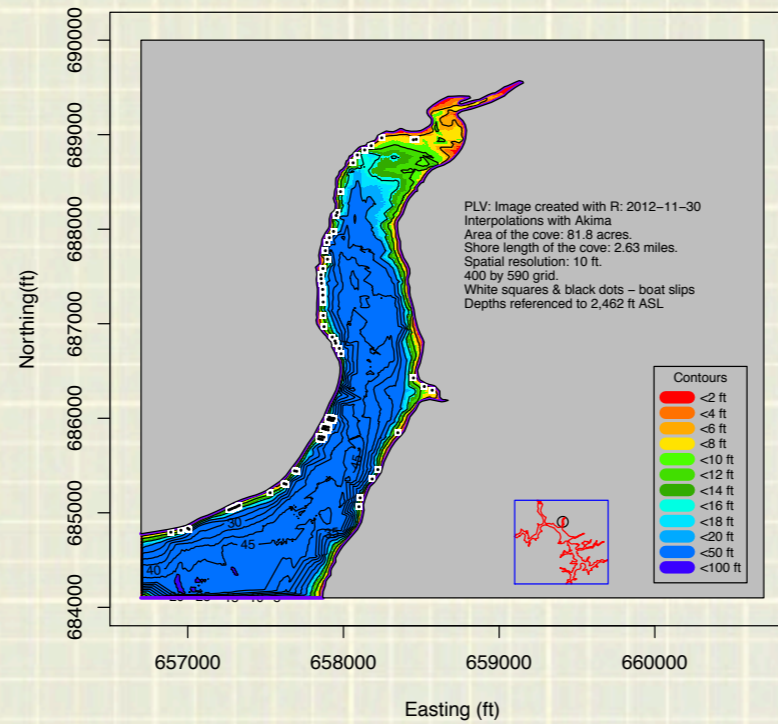
- Examined various methodologies to generate bathymetric contours and selected one
- Used DNRs data to generate detailed bathymetric maps for over 30 coves/areas of the lake
- Digitized 3,377 boat slips as they were in place on June 3, 2011
- Produced a variety of graphical images of depth contours and boat slip locations.
- They can be found on the Deep Creek Answers website ["http://deepcreekanswers.com/topics/bathymetry.php"](http://deepcreekanswers.com/topics/bathymetry.php)
- The POA has also been working on a tool that may be helpful: ["http://deepcreeklakepoa.com/mapping/exclusive-poa-mapping-tool"](http://deepcreeklakepoa.com/mapping/exclusive-poa-mapping-tool)
- Find your slip and how deep the waters are around you

Some of the Maps

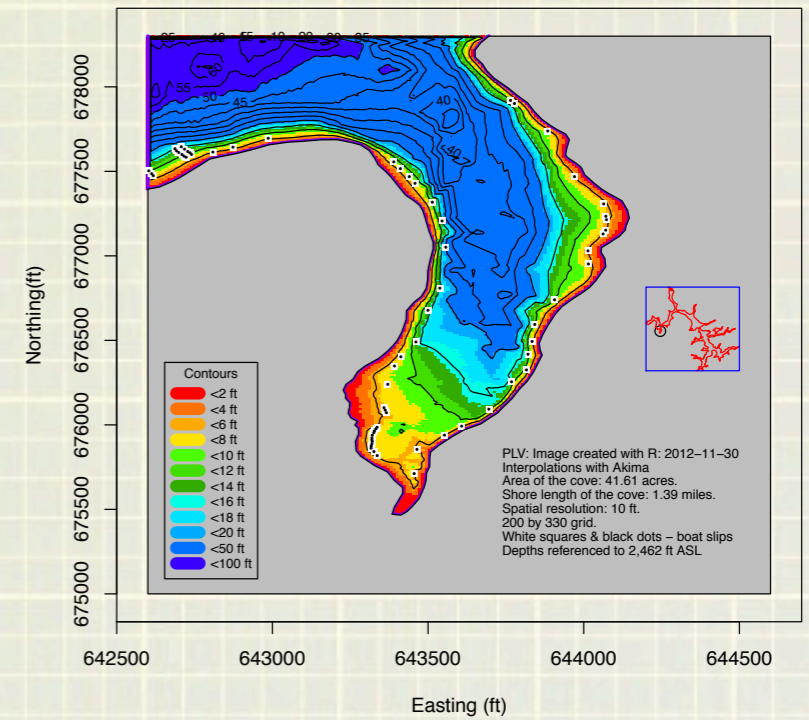
A Bathymetric Map of Turkey Neck4



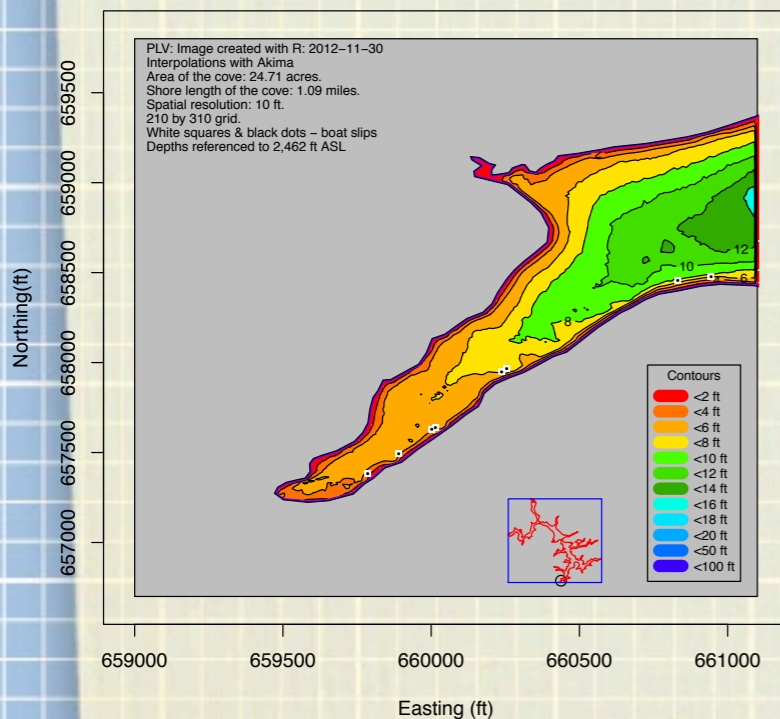
A Bathymetric Map of Cherry Creek



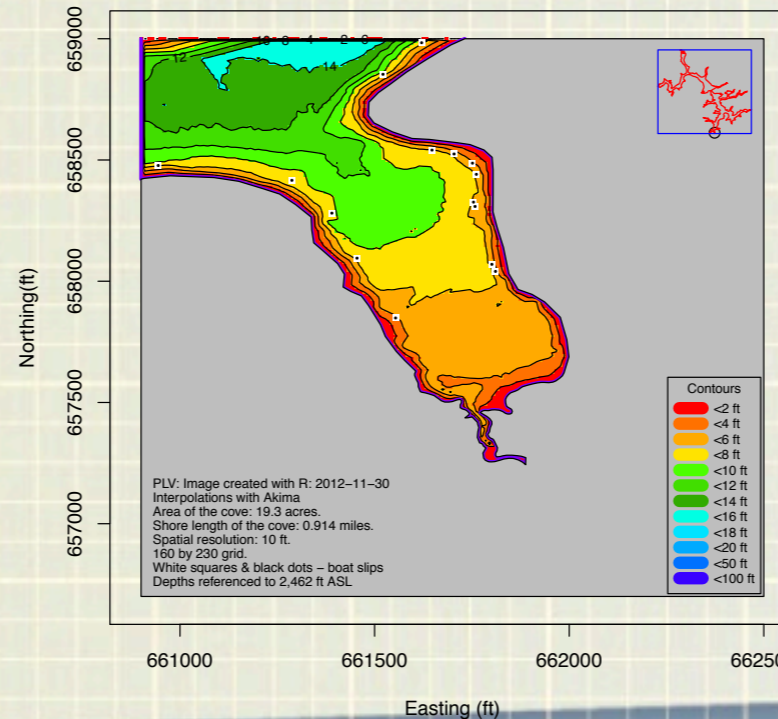
A Bathymetric Map of Red Run Cove



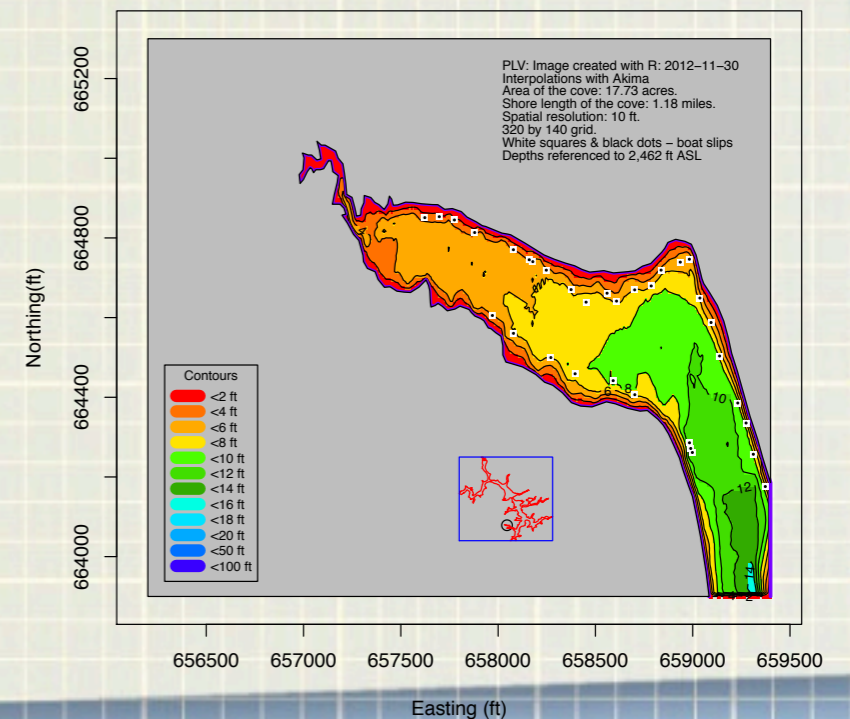
A Bathymetric Map of Deep Creek Cove






A Bathymetric Map of Barb's Cove



A Bathymetric Map of Penn Cove

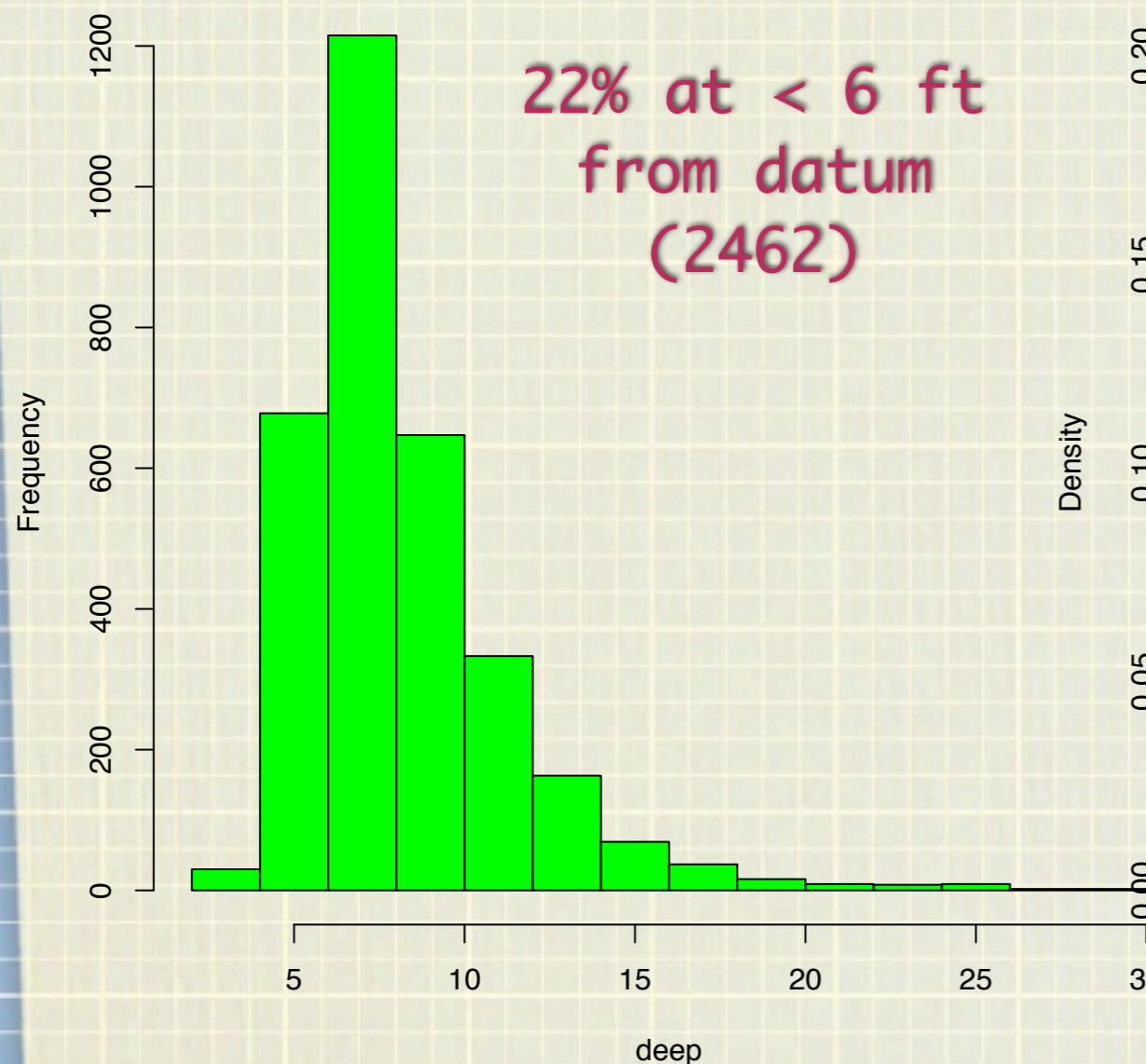


How were they created?

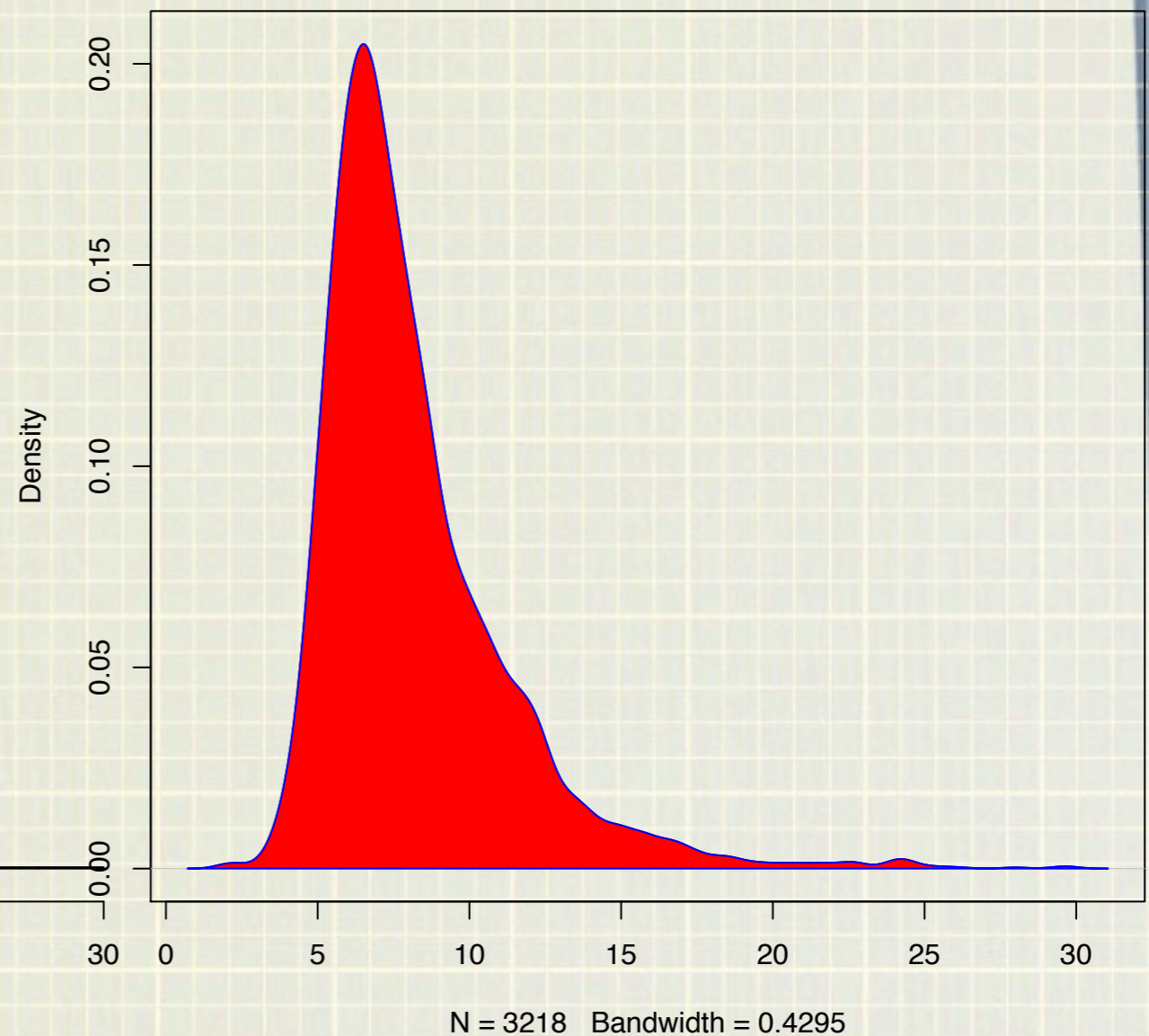
-  The process is described in detail in presentation format
-  Reference: Pete Versteegen, “Bathymetry of Deep Creek Lake,” December 2012, DCL_Bathymetry.pdf
-  Can download from [senstech.com](http://www.senstech.com):
 - ▶ Go to <http://www.senstech.com>
 - ▶ Click on “Searches by Keyword”
 - ▶ Enter “bathymetry” in the “keyword” field
 - ▶ Click on the “download” button (18.7 MB file)

At what depth are the boat slips around the lake?

Histogram of deep



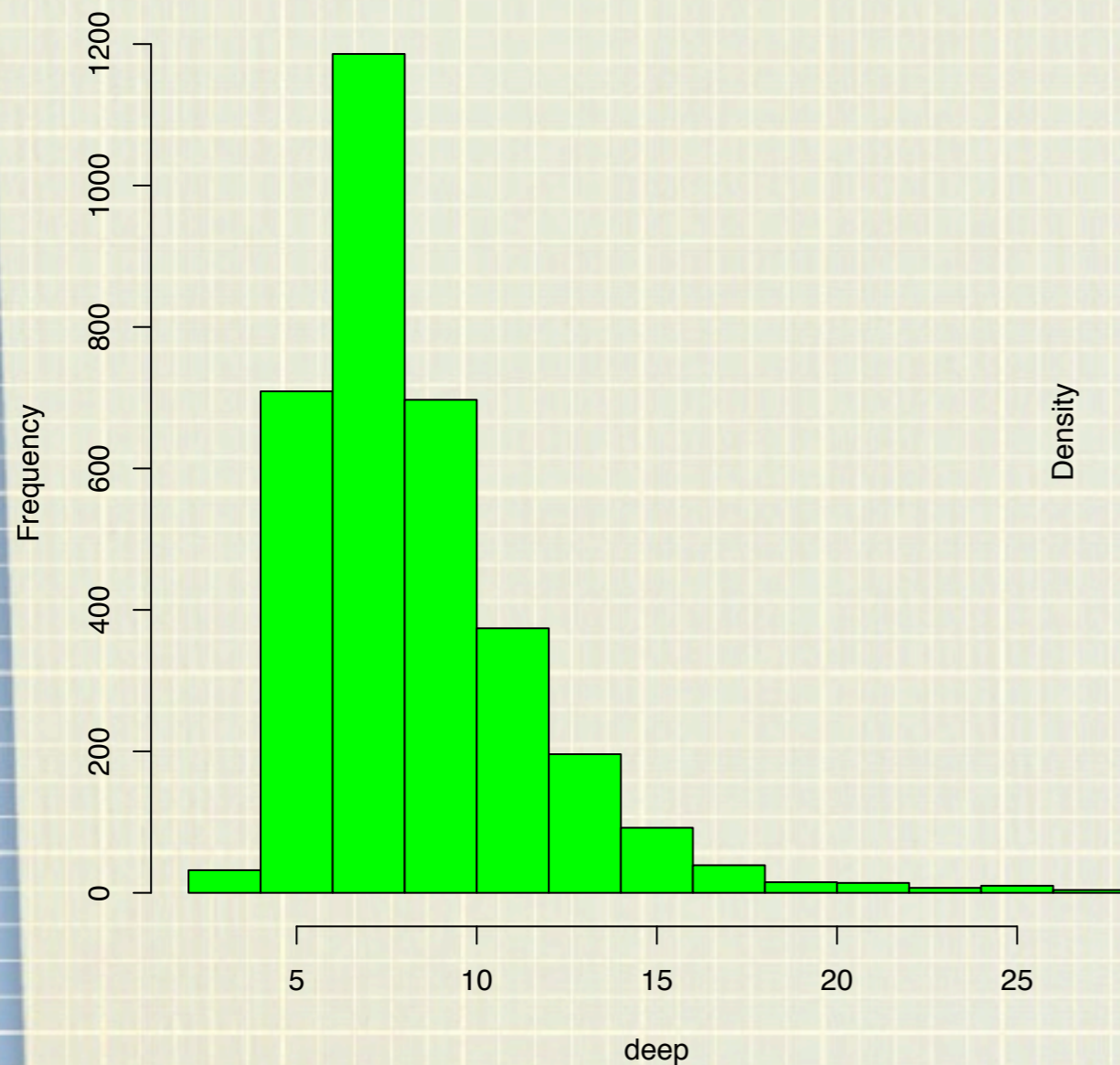
Kernel density of depths at boat slip locations



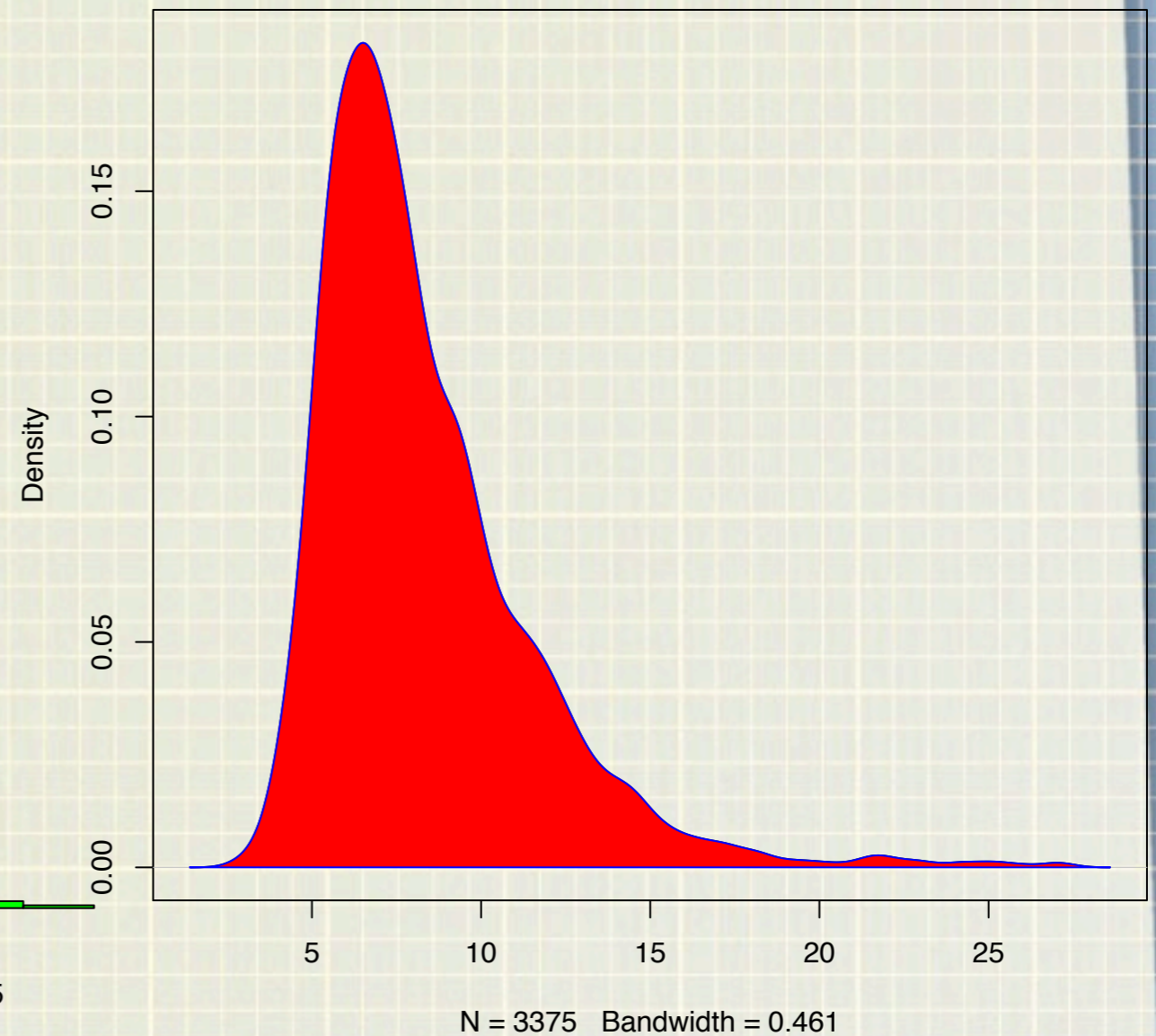
Akima Interpolation

Very much the same results with another interpolation algorithm (Loess), except now ALL slip.
--- 22% of slips have datum depths < 6 ft ---

Histogram of deep

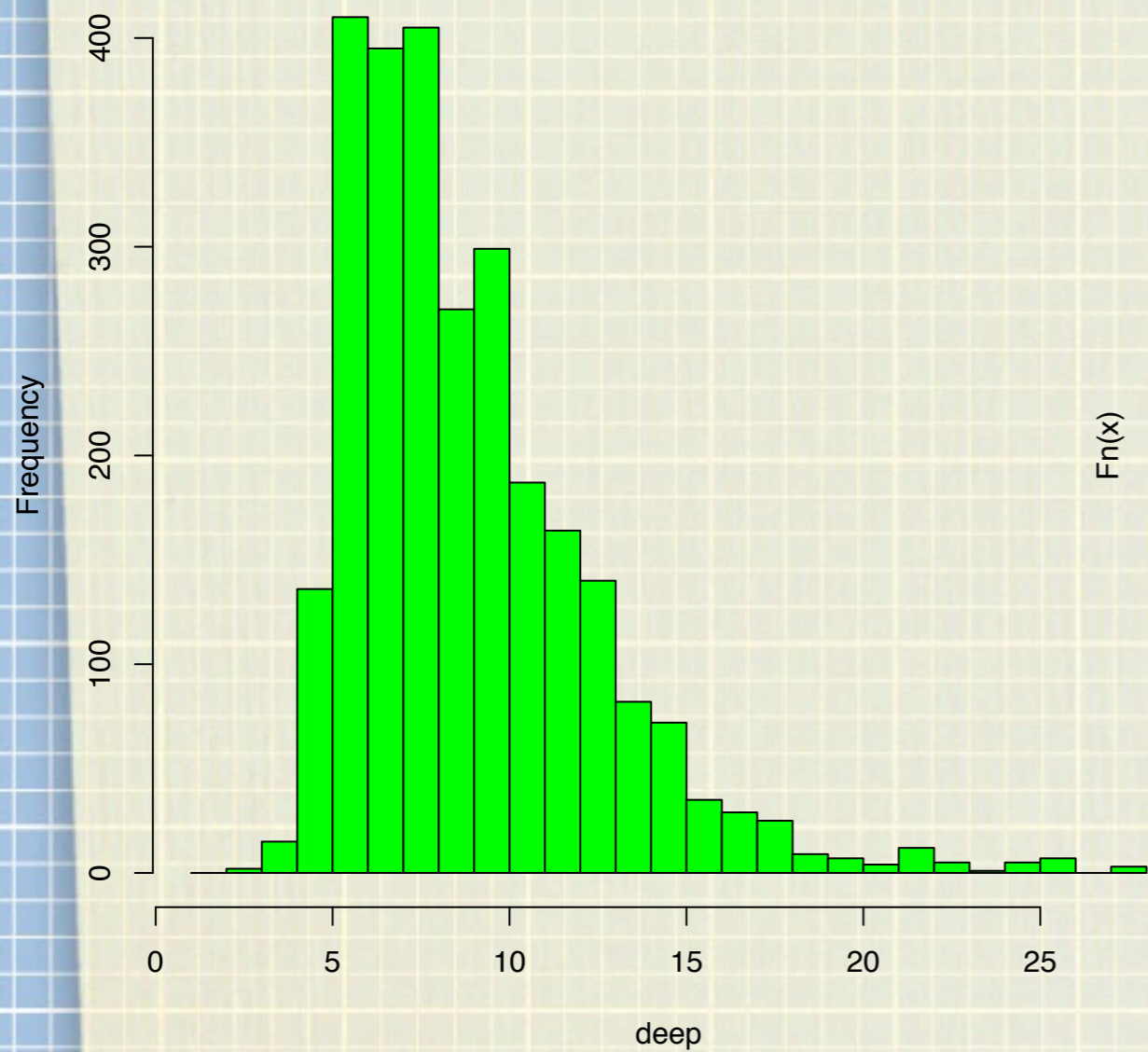


Kernel density of depths at boat slip locations

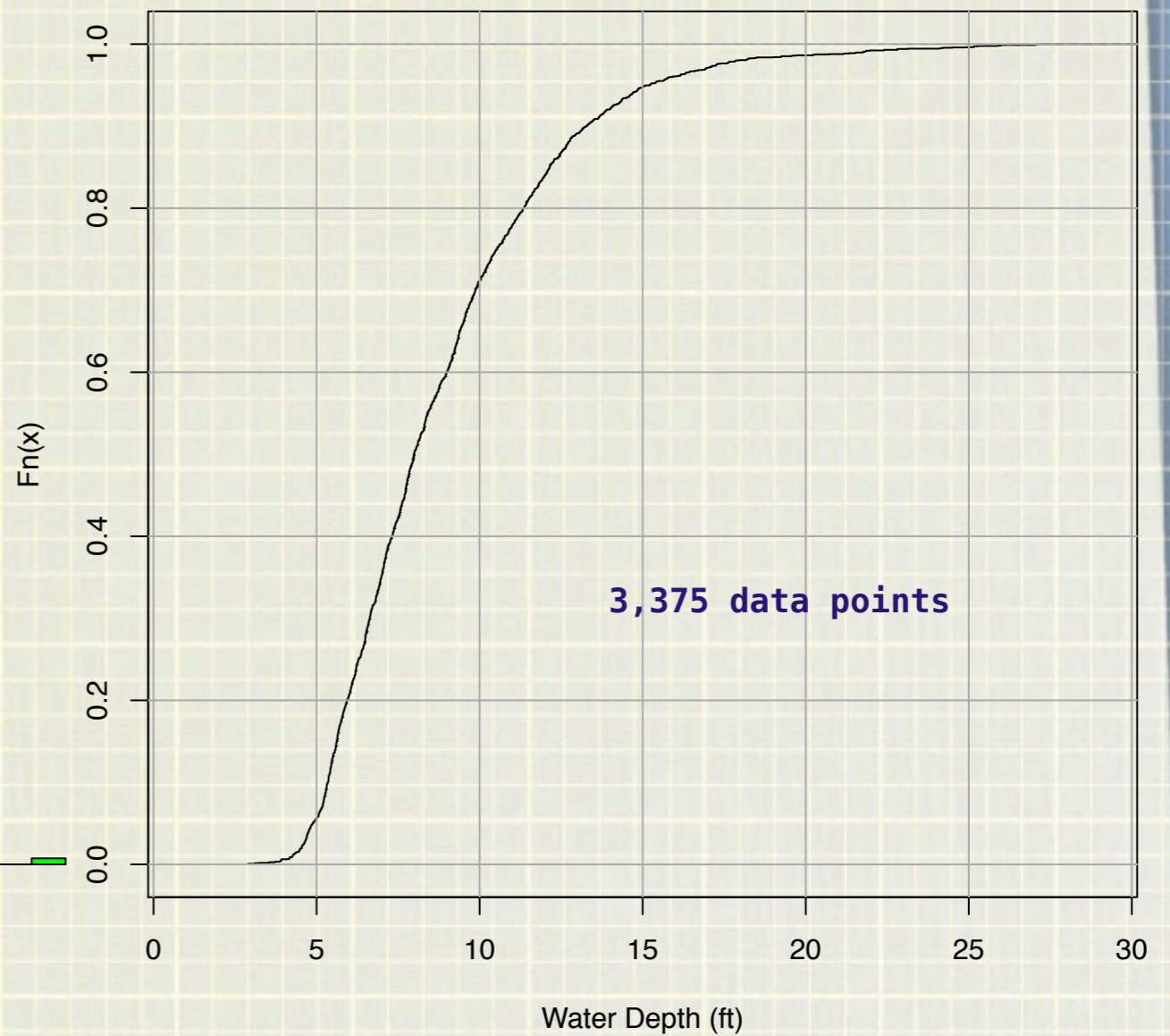


Finer Detail

Water depths at 6 ft below datum
(datum=2,462 ft)



Water depths at 6 ft below datum
(datum=2,462 ft)



How Computed?

- For each boat slip selected all DNR data points within a 400 foot square (range of number of points typically from 400 to 600)
- Created a surface with those points using the same methodology as used for the bathymetric maps
- Recorded the depth at the location of the boat slip
- Out of 3,377 slips, the Akima algorithm could not produce a number for 59 of them, while Loess could do all.
- If all of 59 would be > 6 ft, that would still mean 21% were less than 6 ft. A surprising number!

The "bounding box" (200 ft x 200 ft)

The slip location under consideration

Boat slip # 1 (9.7 ft.)

DNR Measured Depths

Contour Value (ft)

Computed Contours

Shoreline

State Plane Coordinates (ft)

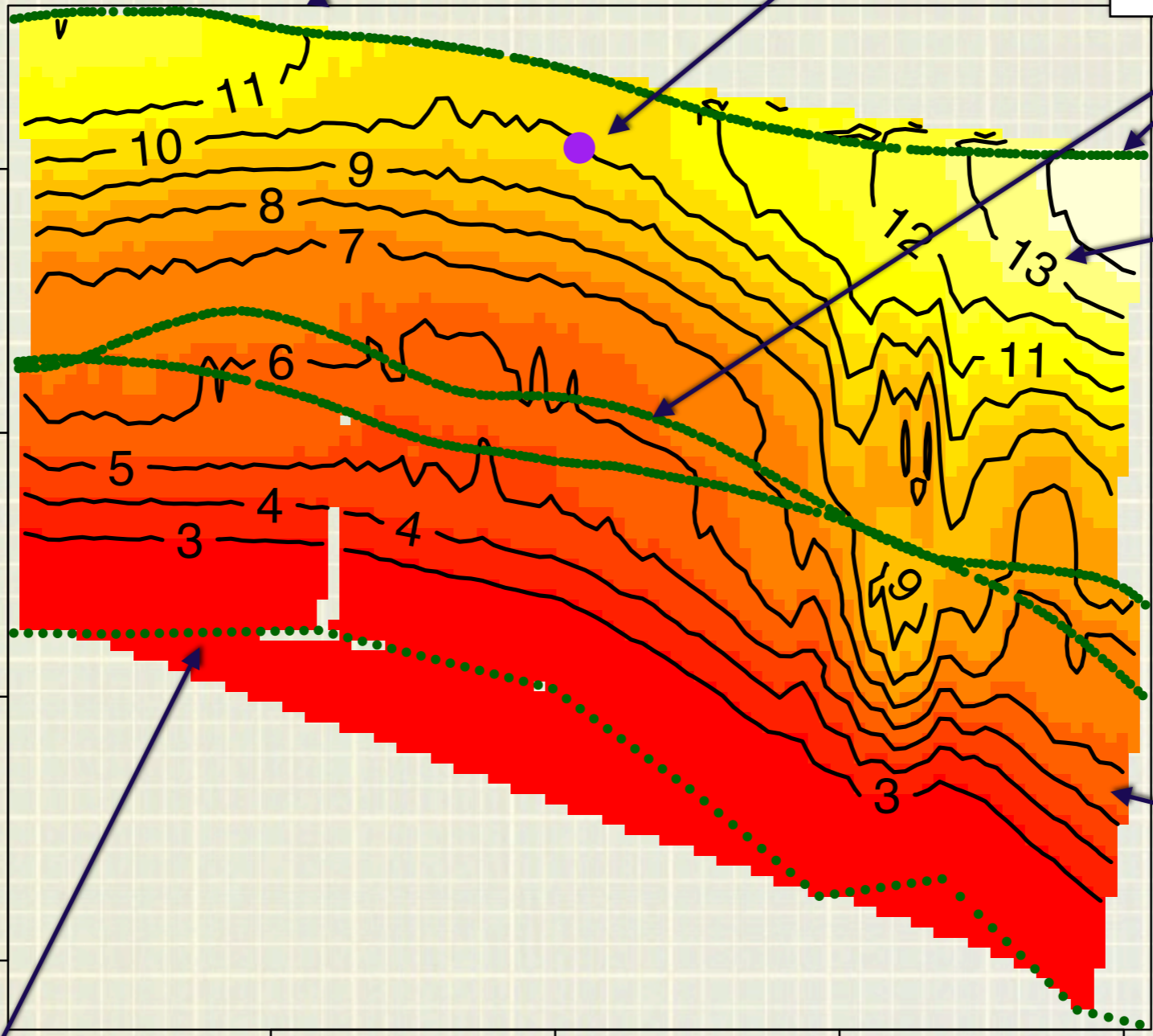


Northing(ft)

678200
678150
678100
678050

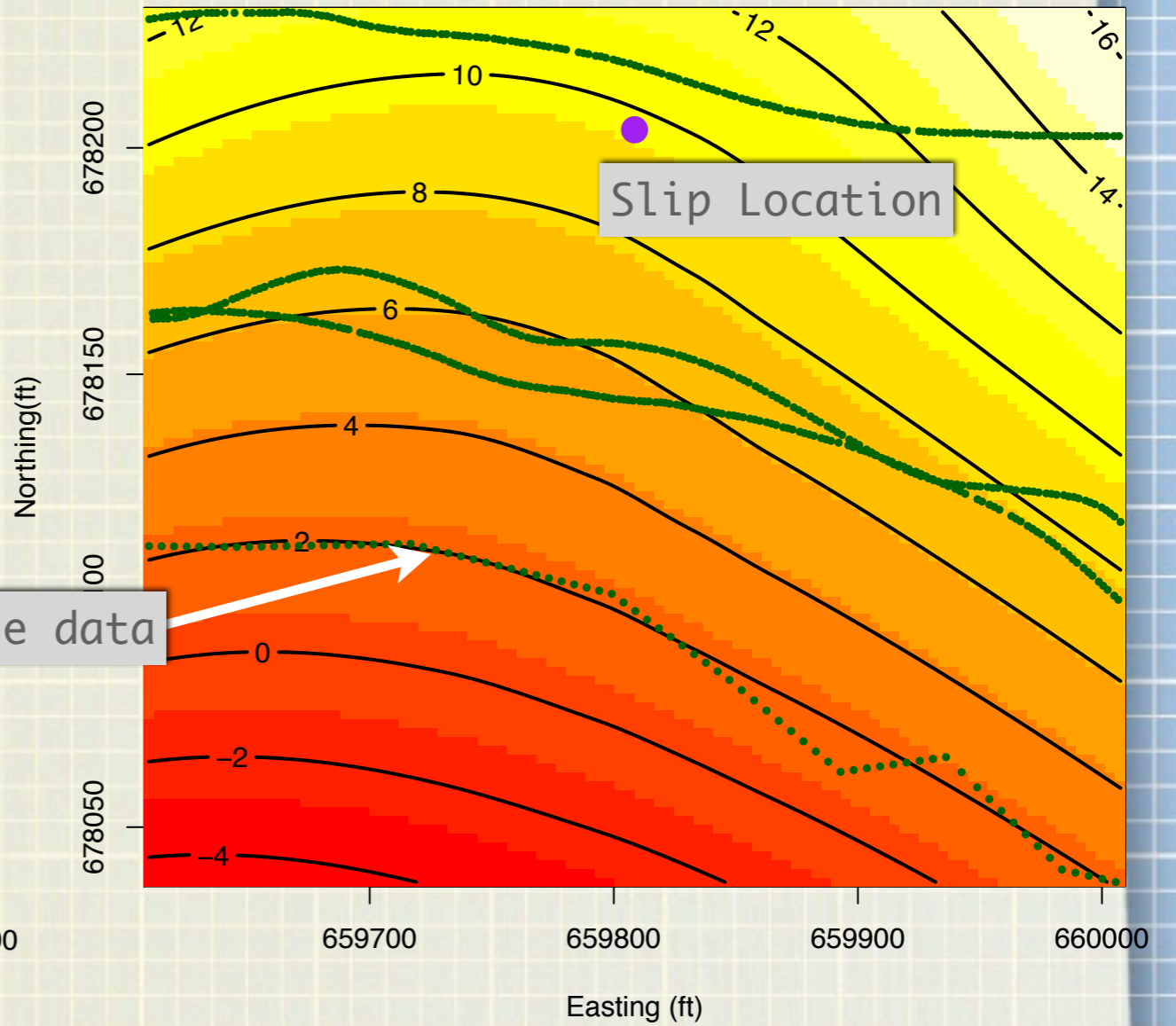
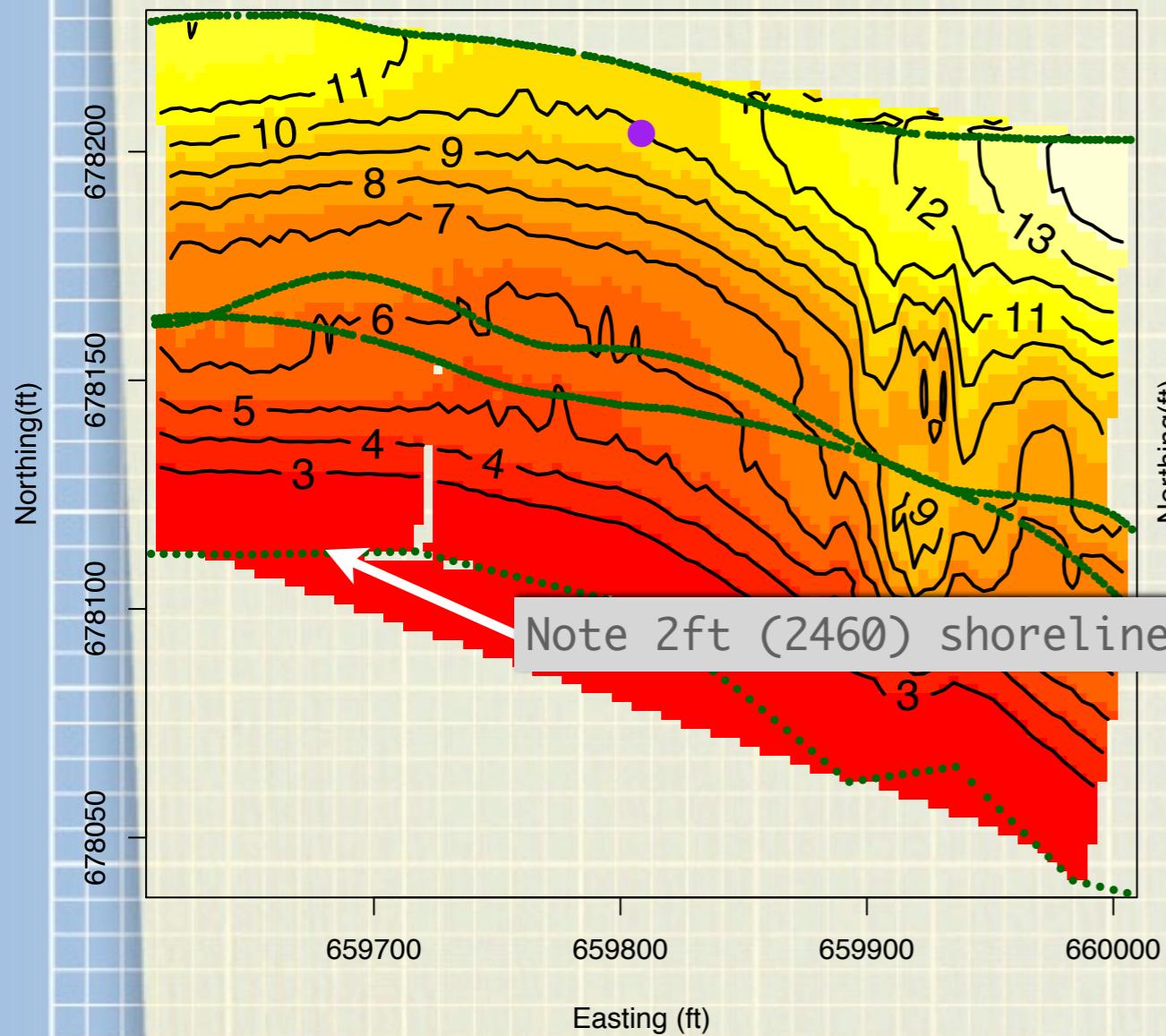
659700 659800 659900 660000

Easting (ft)



Two Interpolation Methods

Boat slip # 1 (9.7 ft.) ← Note Similar Result → Boat slip # 1 (9.5 ft.)





Akima

(Lots of detail - real?)

Loess

(smoother - less detail)

Conclusions

-  The approach provides results similar to the POA's analysis.
-  The result is somewhat surprising!

Ascertain your boat slip capabilities using the lake's bathymetry and keep track of lake levels!