



*Florida Department of
Environmental Protection*

North Indian River Lagoon Seagrass Evaluation

April 26, 2012



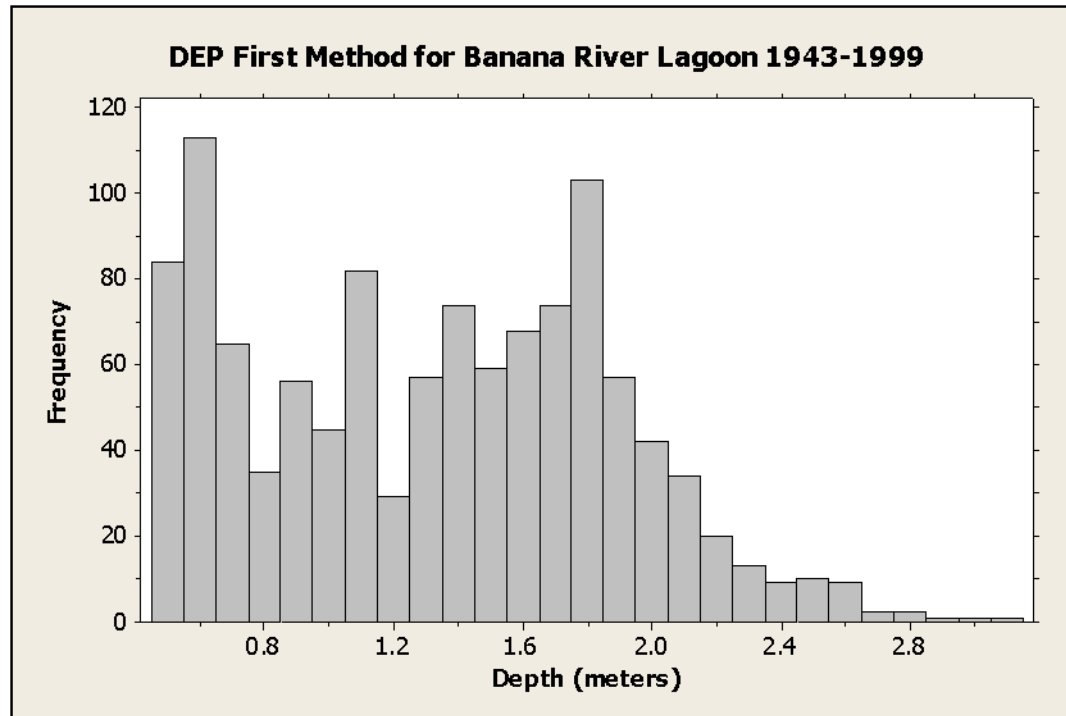
We Made Some Changes

- Review of data for Banana River Lagoon indicated that the median depth for deep edge of seagrass that FDEP calculated was too low when compared to calculations made by SJRWMD.
- FDEP uncovered some problems in the way data points were selected.
- FDEP methods differed from SJRWMD methods to select deep edge points.
- Data selection and analysis methods used are applied to both evaluation and TMDL periods.





Seagrass Depth Limit Corrections



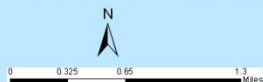
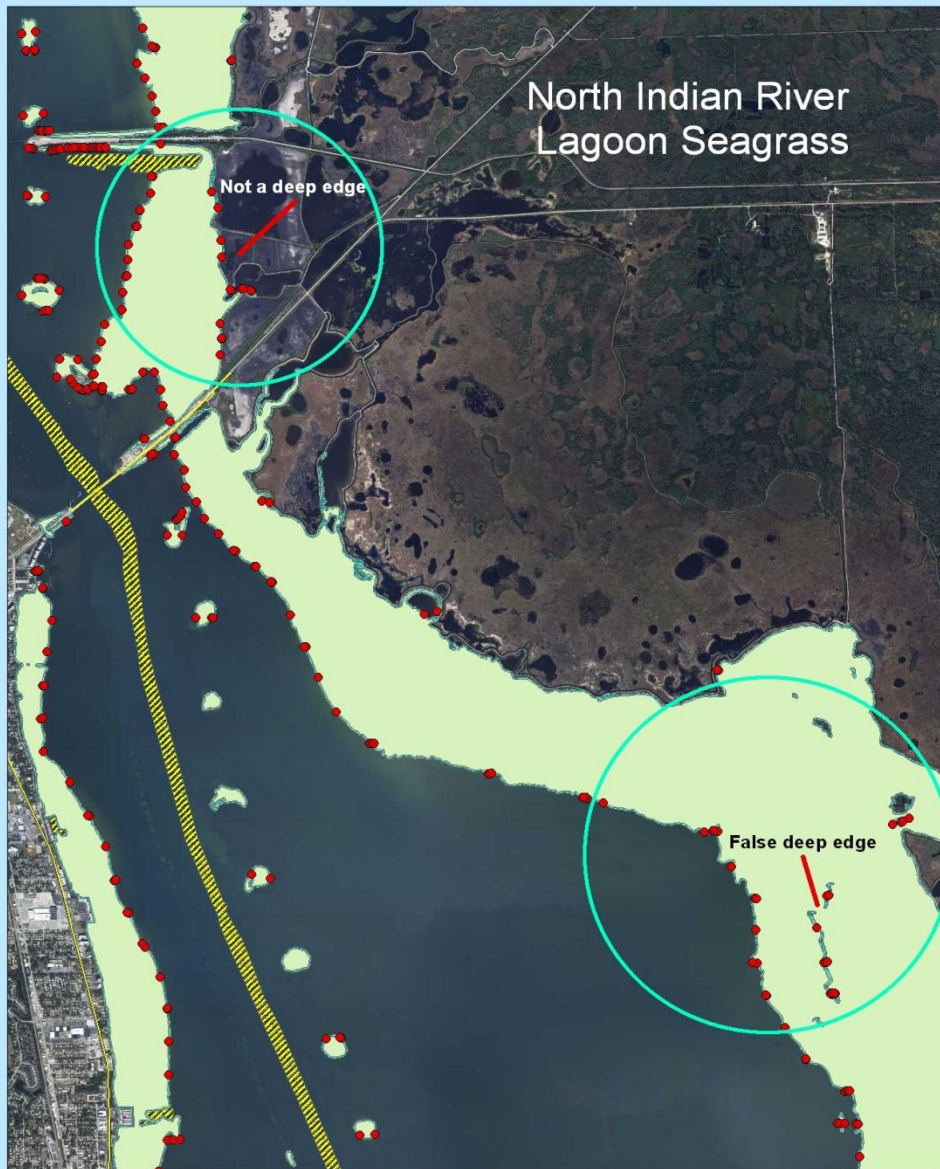
FDEP first tried an automated approach to select points; however, there were problems. The data distribution changed from an approximately normal one to unknown.





Problems with the Approach

Counted as deep edge points that were clearly not deep edge



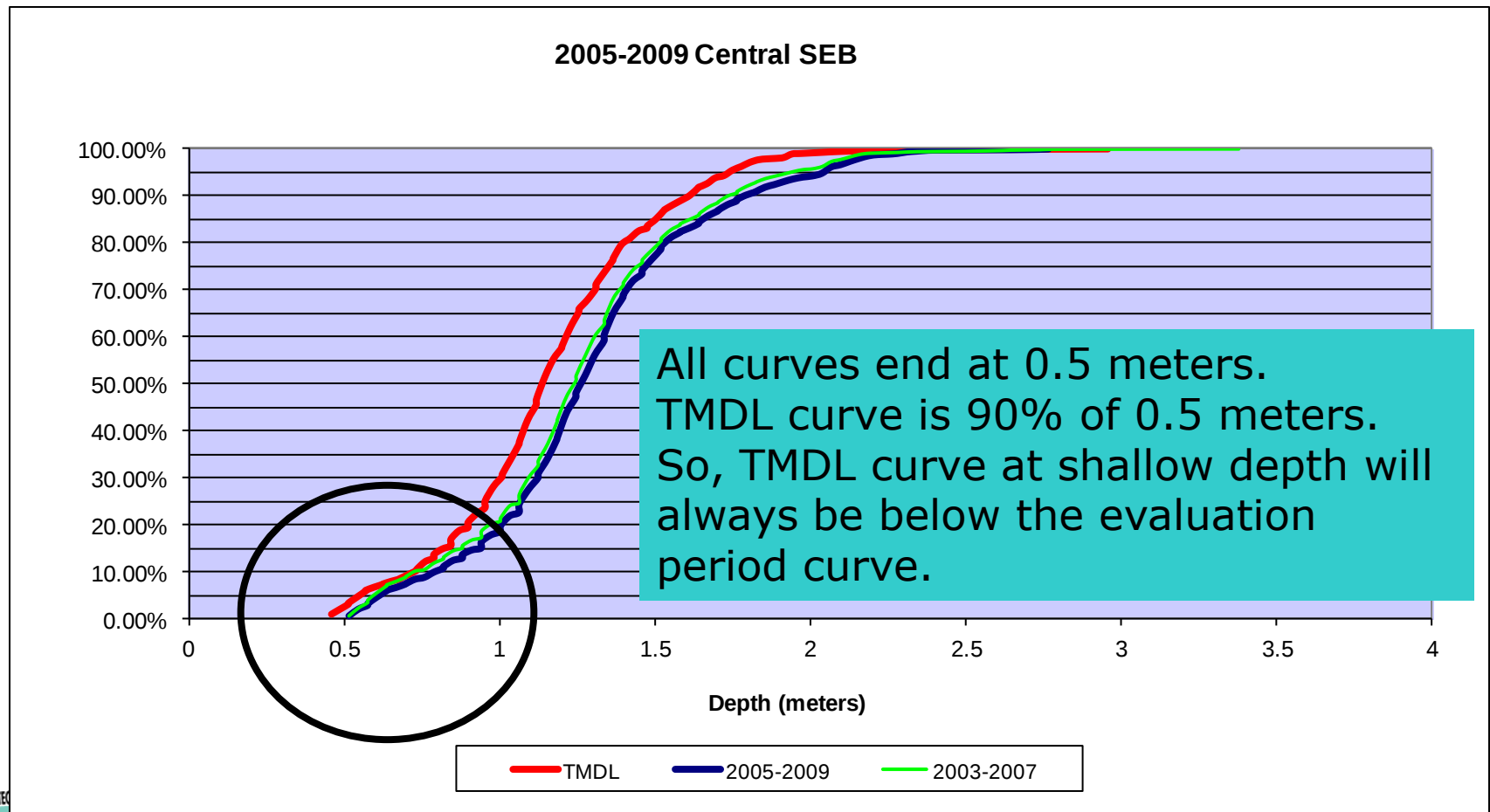
Legend

- Deep Edge Point
- seagrass_2005_2009_line
- seagrass_2005_2009_buffer
- Seagrass Beds
- IRL_Dredged_ICW_50ft_Buffer_DEP

The map of the distribution of seagrass was interpreted from aerial photography ranging from 2005-2009.

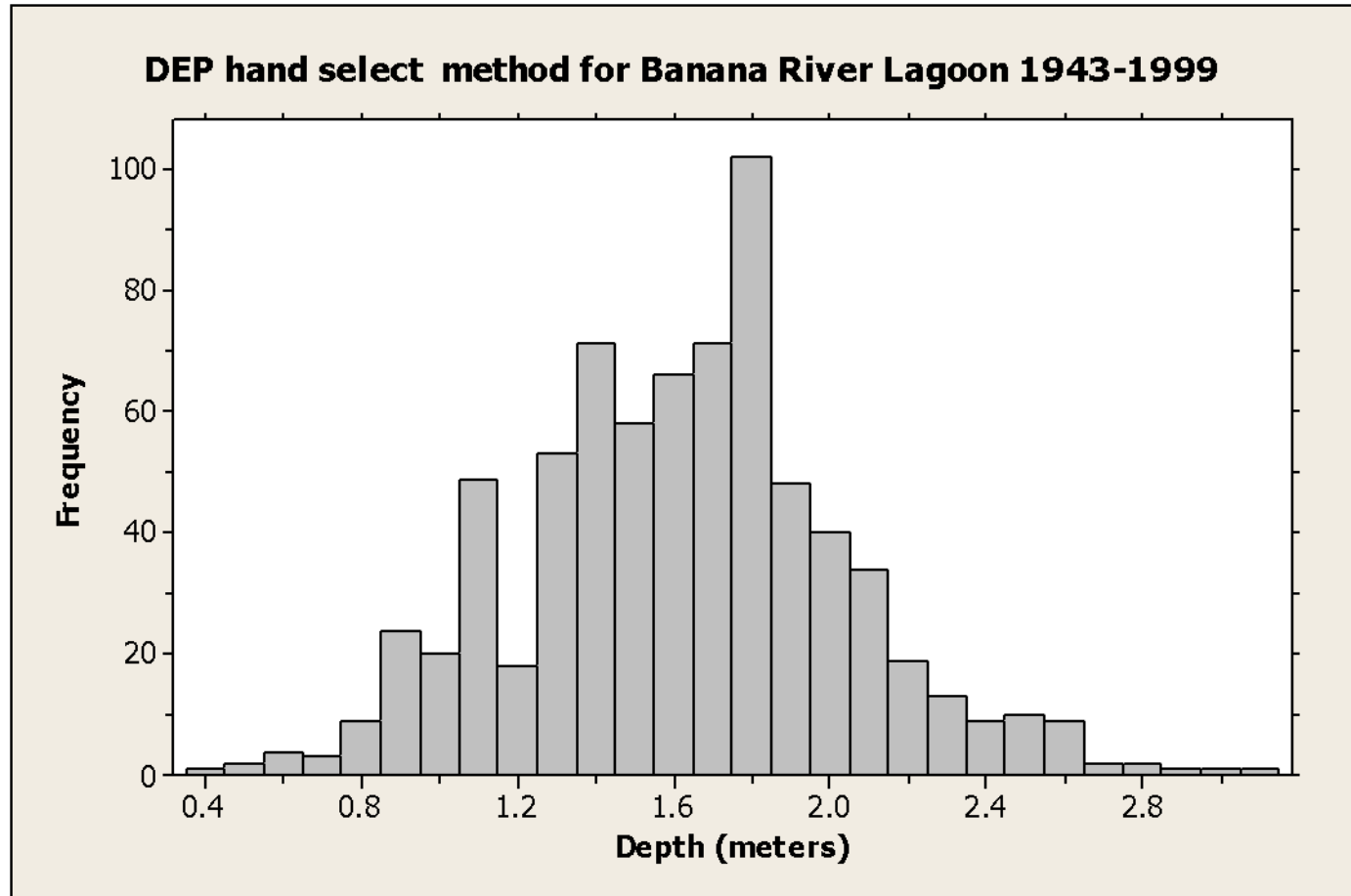


Problems, continued



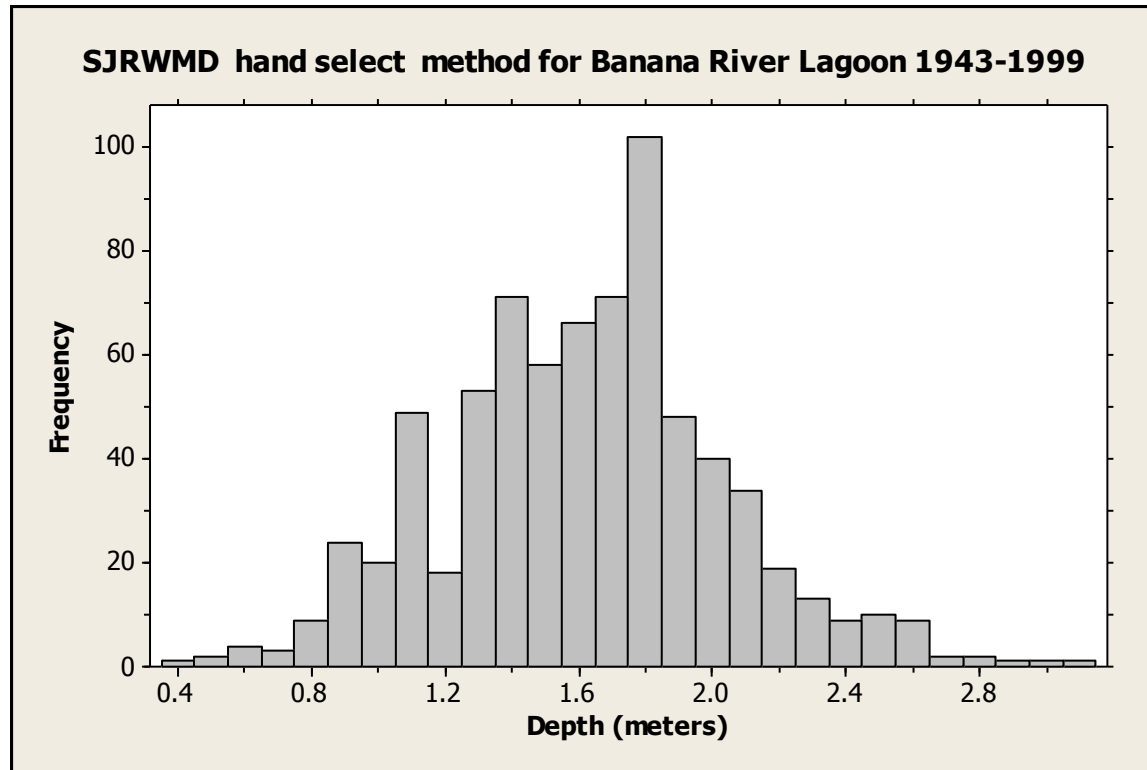


Hand Selection of Data Method





Comparison to SJRWMD Method



FDEP hand selection of deep edge of seagrass points now mimics SJRWMD method. This is the method which the TMDL is based upon.





Restoration Targets

- Complete seagrass recovery is considered to be seagrass growth at 100% of the depth limit of the union coverage of the 1943-1999 mapping years.
- The total maximum daily load (TMDL) depth limit targets are 90% of that 1943-1999 union coverage depth limit.



Evaluation Steps for TMDL Compliance

- Determination of TMDL compliance is a two-step evaluation method:
 - **Step 1:** For each project zone, generate the cumulative frequency distribution of the maximum seagrass depth limits at each transect.
 - **Step 2:** Determine the seagrass mapping year median depth limit value.





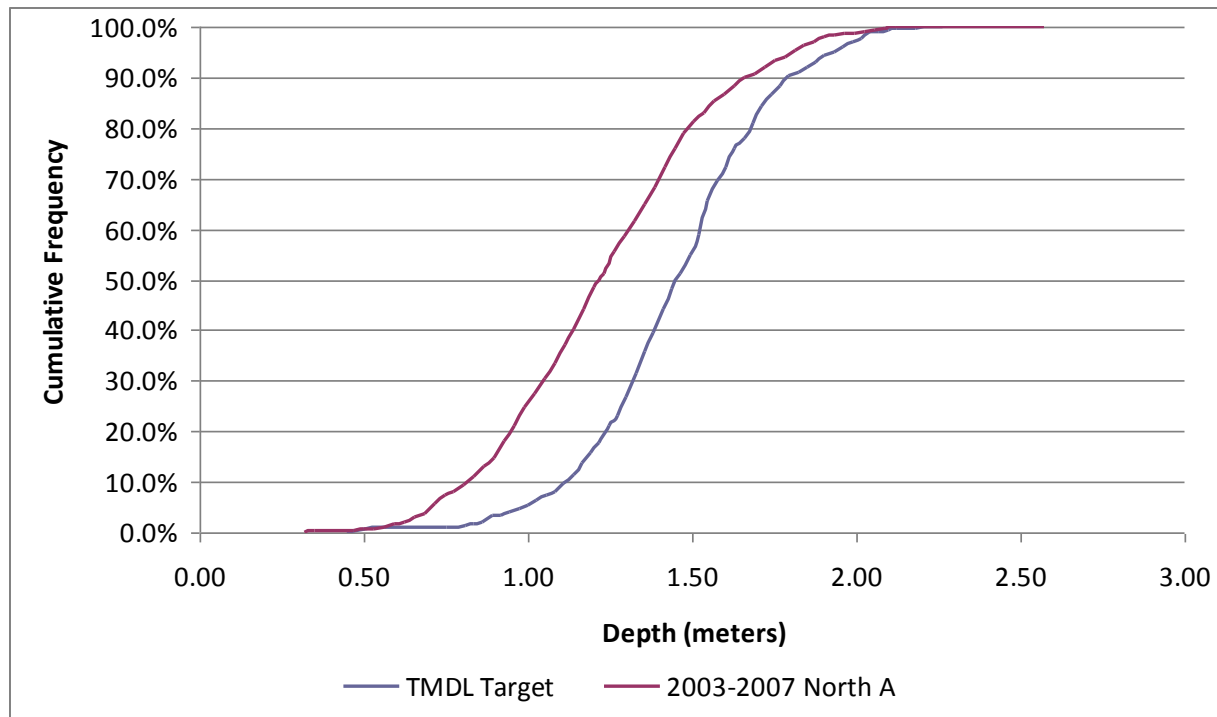
TMDL Compliance: Step 1

- Generate cumulative frequency distribution graphs to compare the TMDL years to the composite of the evaluation years:
- More than 50% of the composite evaluation year's distribution curve must lie on or to the right of the TMDL curve.
 - Including the 50th percentile.





Step 1 Curve for North A for 2003-2007

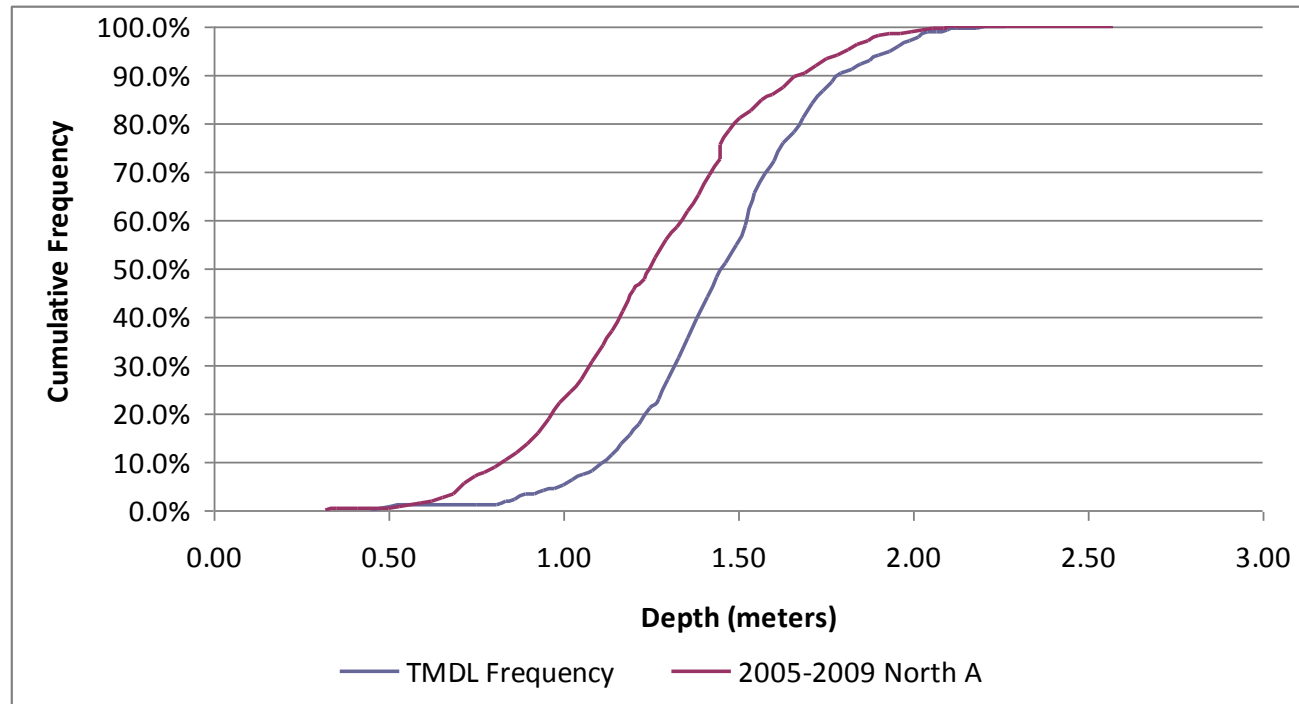


The 2003-2007 curve is to the left of the TMDL curve more than 50% of the time. Therefore, the North A project zone is not Step 1 compliant.





Step 1 Curve for North A for 2005-2009

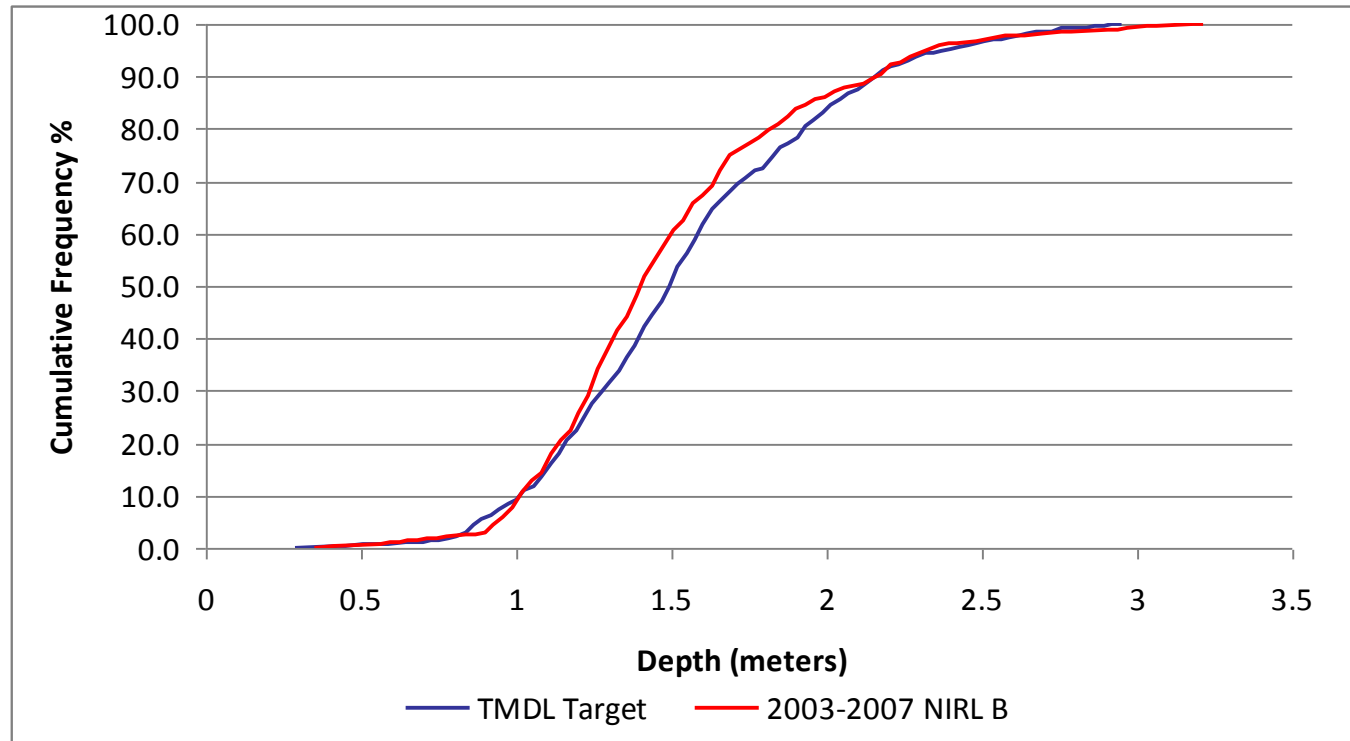


The 2005-2009 curve is to the left of the TMDL curve more than 50% of the time. Therefore, the North A project zone is not Step 1 compliant.





Step 1 Curve for North B for 2003-2007

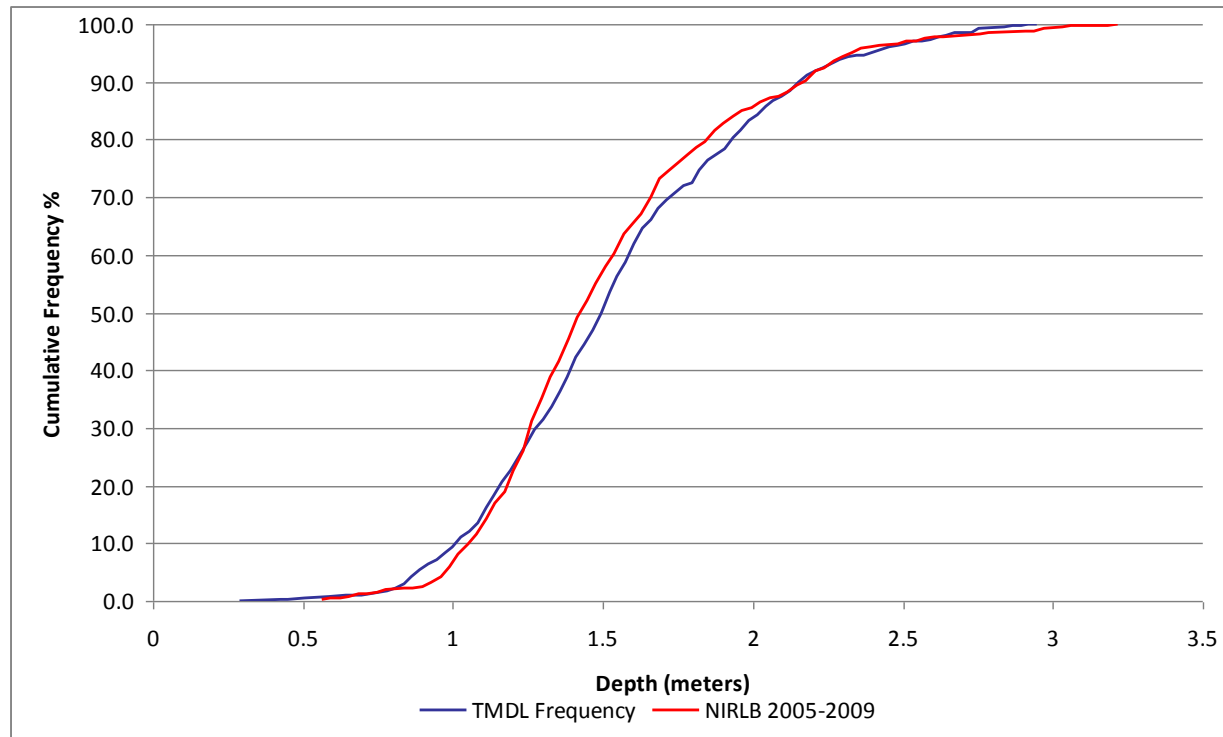


The 2003-2007 curve is not on or to the right of the TMDL curve more than 50% of the time. Therefore, the North B project zone is not Step 1 compliant.





Step 1 Curve for North B for 2005-2009



The 2005-2009 curve is not on or to the right of the TMDL curve more than 50% of the time. Therefore, the North B project zone is not Step 1 compliant.





TMDL Compliance: Step 2

- Assessment of each mapping year's median relative to the TMDL median depth limit target:
 - Must meet or exceed the TMDL median depth limit target to meet the Step 2 requirement.
 - This ensures that one exceptional year does not overpower other years.
- Three of the four medians of the assessment years must meet or exceed the median TMDL depth limit target in order for a project zone to be Step 2 compliant.





Step 2 Compliance Summary

- The years where the median exceeds the TMDL median are highlighted and a determination of Step 2 compliance is included.

	North A	North B
TMDL Median	1.44	1.51
2003	1.17	1.32
2005	1.08	1.35
2006	1.20	1.45
2007	1.23	1.39
2009	1.17	1.39
Step 2 Compliant?	No	No





North IRL Required Reductions

- Stakeholders in the North IRL will be required to achieve TN and TP reductions in this first five-year BMAP period.
- Reductions are required because this area is not meeting the TMDL depth limit targets.
- Stakeholders must provide sufficient projects to achieve at least 15% of the required TN and TP reductions in the first BMAP iteration.





Seagrass Target Reassessment

- In year four of the BMAP, TMDL depth limit targets will be reassessed using 2007, 2009, 2011, and 2013 mapping data for the North IRL project zones.
- If North A and/or North B is compliant using the 2007-2013 mapping years, FDEP will not ask stakeholders in that project zone(s) to make additional TN and TP reductions in the next iteration of the BMAP.
- If either project zone is not compliant, a second iteration of the BMAP will be developed with additional reductions required.





QUESTIONS?

