

SJRWMD

Minimum Flows & Levels

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Statutory Directive for MFLs

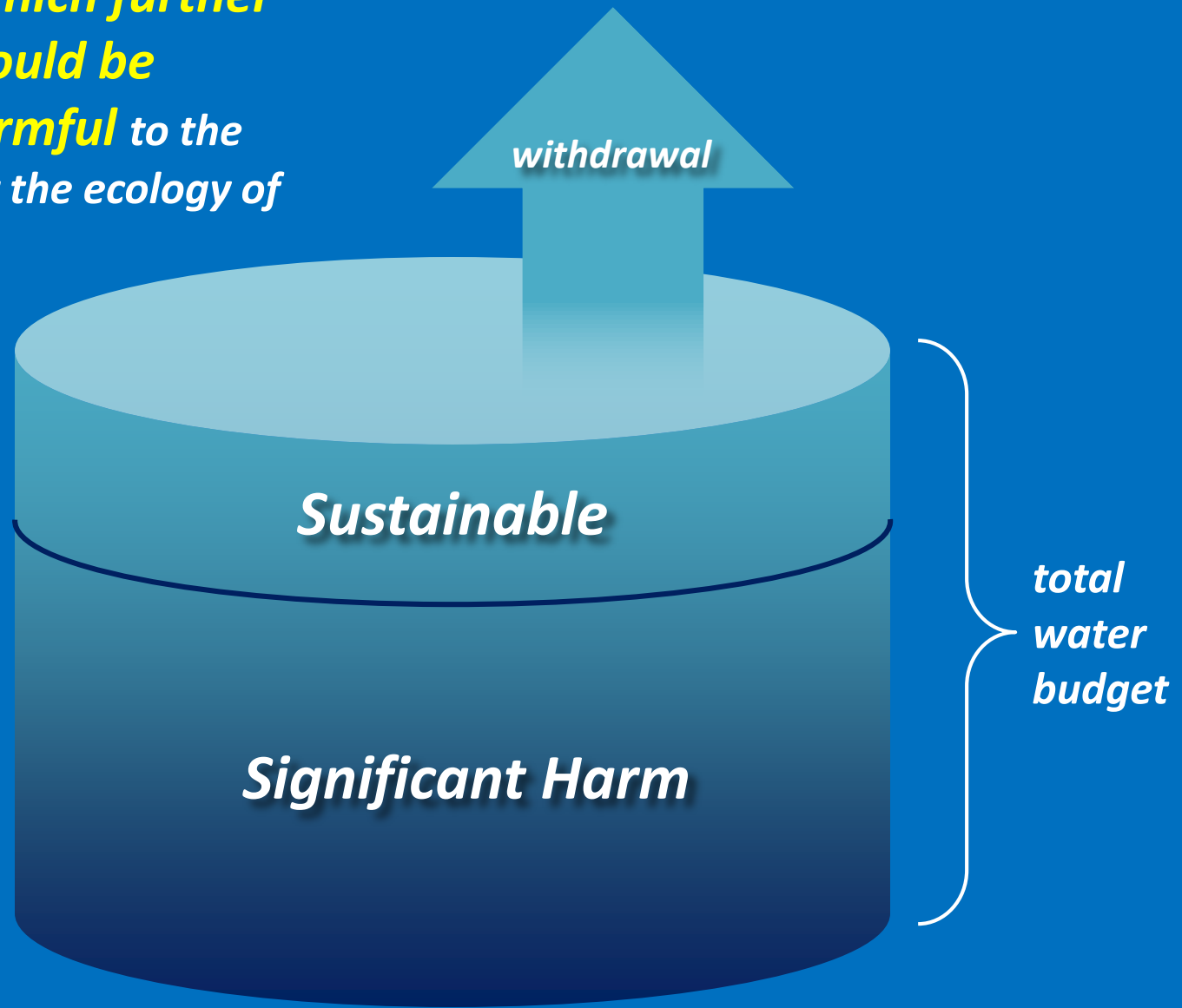
WMDs must establish MFLs that set...

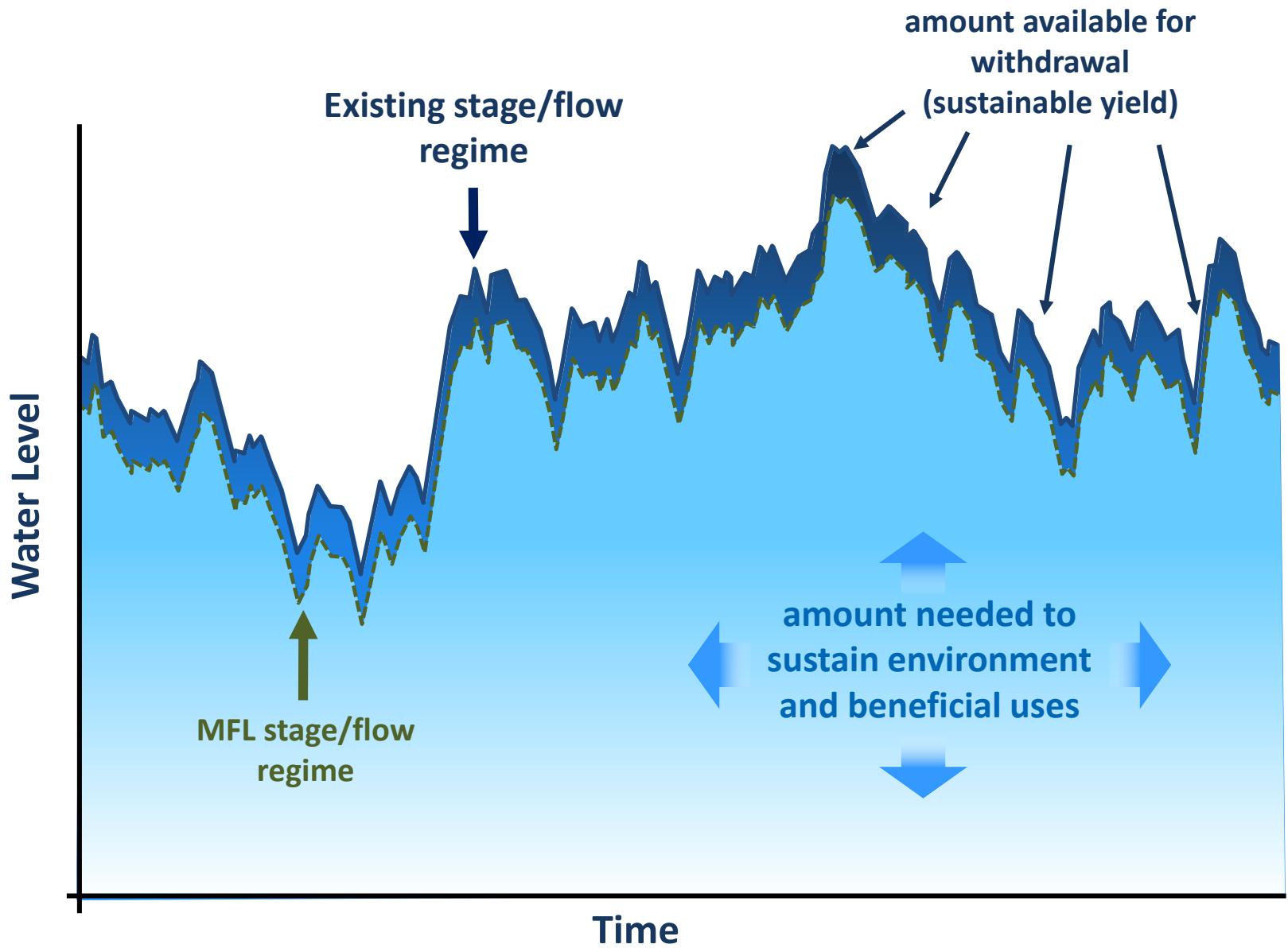
“...the limit at which further withdrawals would be significantly harmful to the water resources or the ecology of the area.”

Section 373.042(1), F.S.



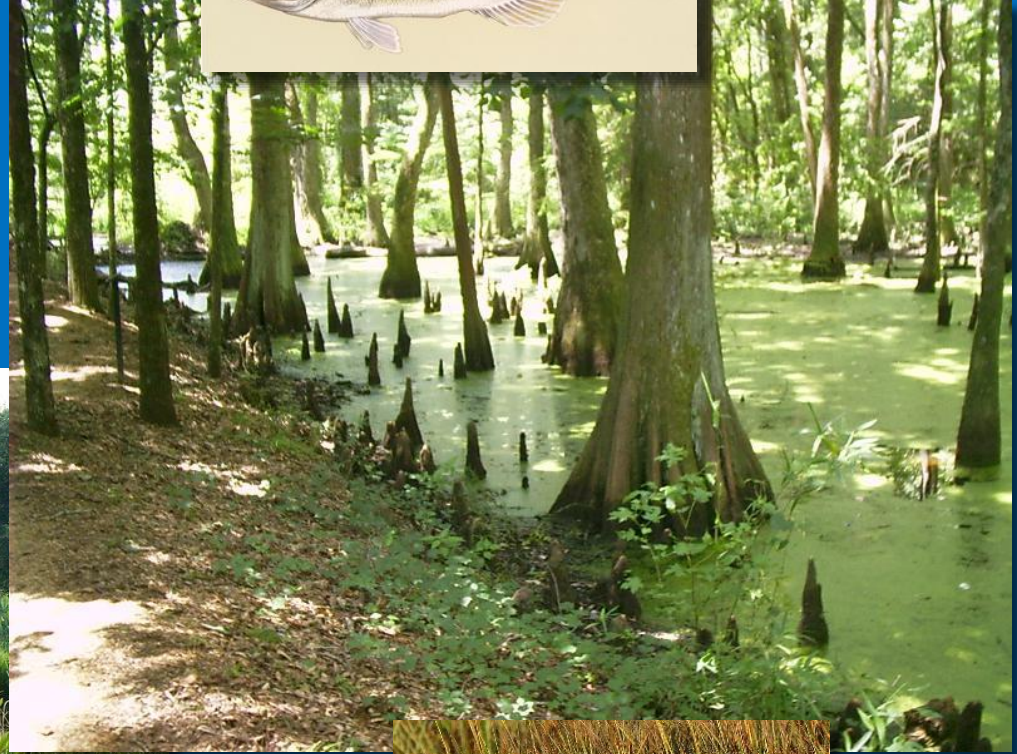
“...the limit at which further withdrawals would be significantly harmful to the water resources or the ecology of the area.”





*“...the limit at which further withdrawals would be significantly harmful **to the water resources or the ecology of the area.**”*

*Wetland communities
Wildlife habitat
Organic soils
Fish passage*



MFL Field Transects

Vegetation, Soils and Elevation Data

Field data collection at
multiple transects

Vegetation community
composition
boundaries

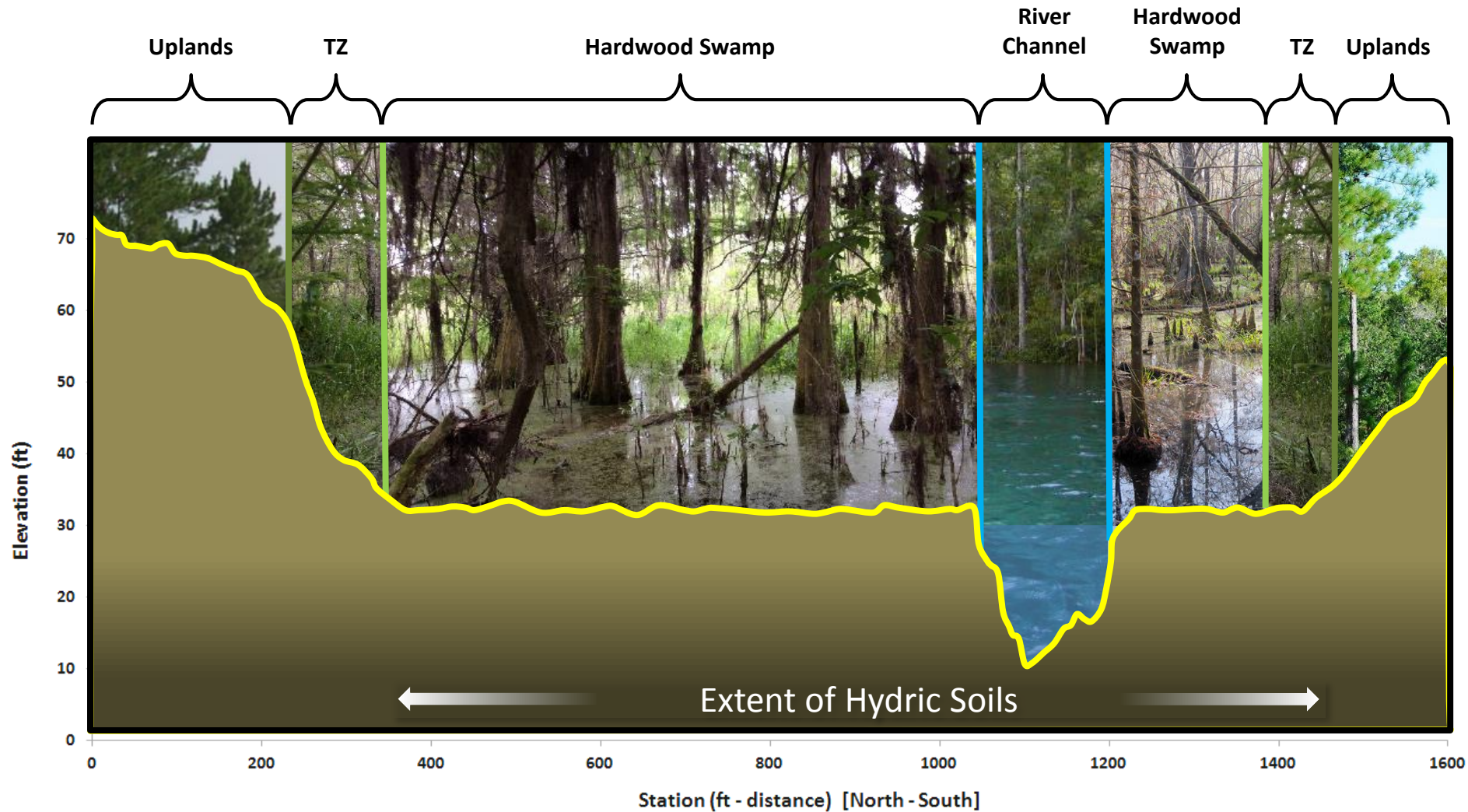
Hydric soils

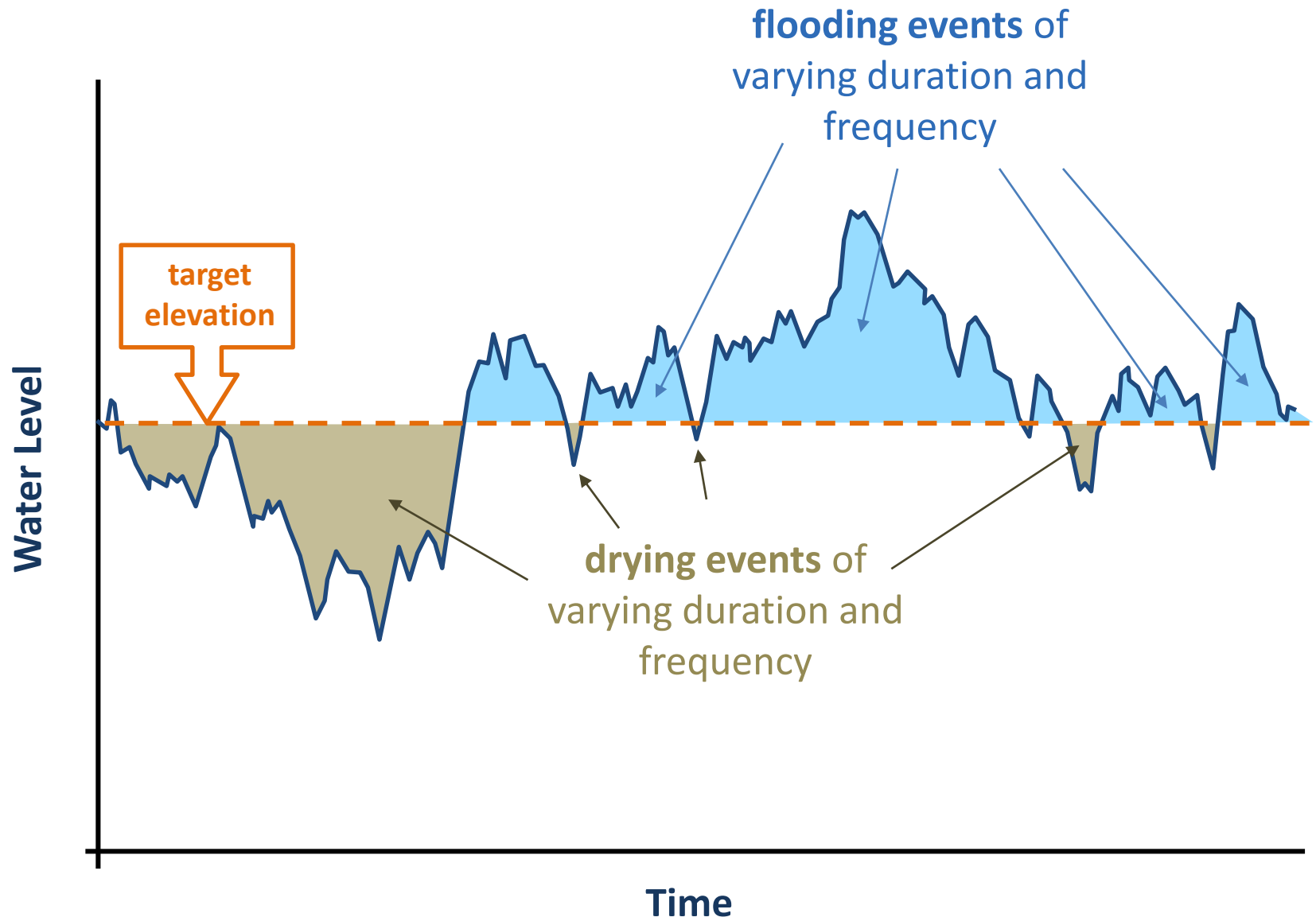
Elevations



MFL Field Transects

Vegetation, Soils and Elevation Data

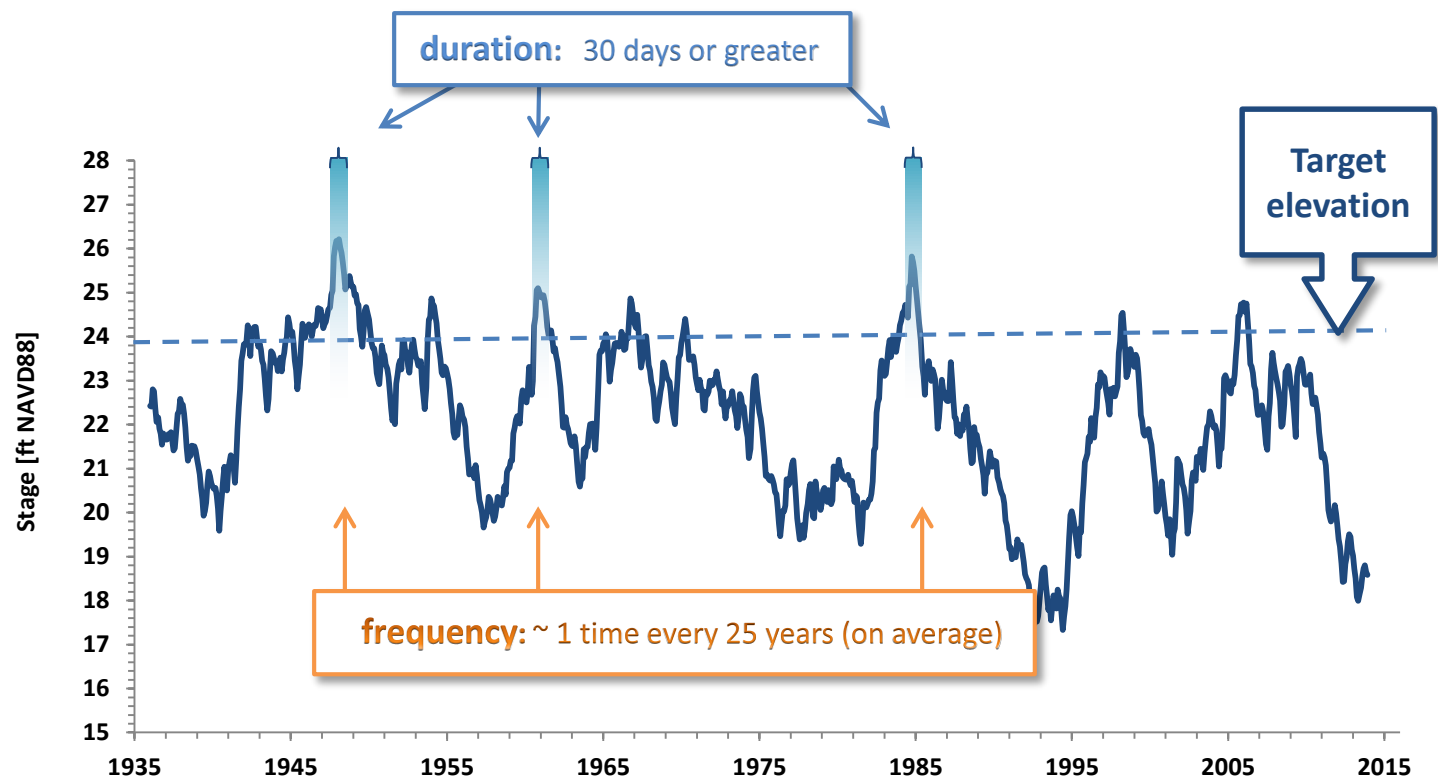




MFLs are Events: Magnitude, Duration and Frequency

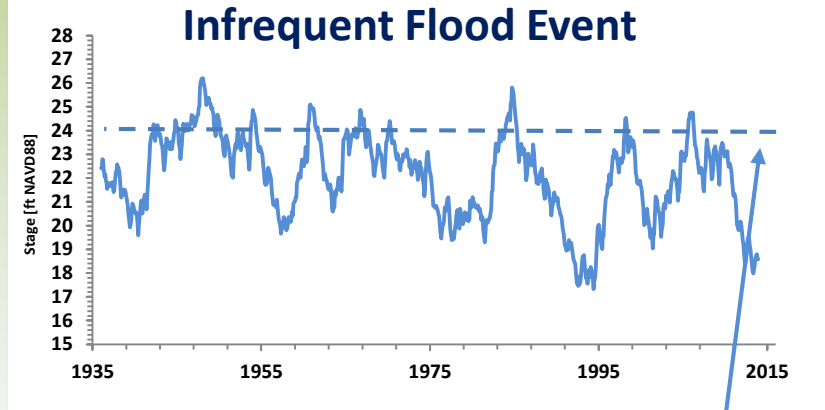
Example: Infrequent Flood Event (Infrequent High):

Target elevation is exceeded for at least 30 days, at least once every 25 years



Wetland Community Boundary and Extent

Upland – Wetland Boundary



Prevents establishment of
upland species; maintains
upland/wetland boundary

Uplands

Shrub Swamp

Marsh

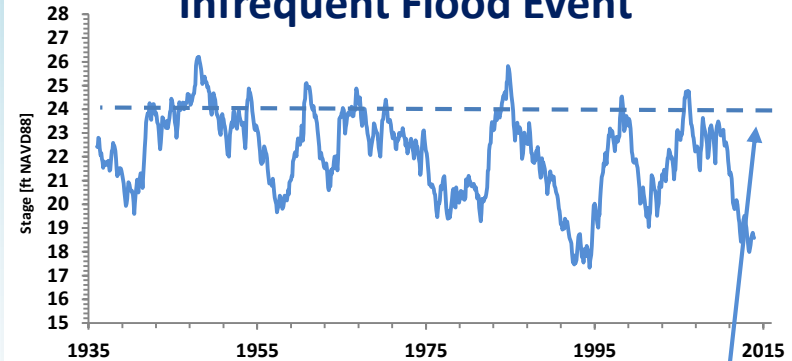


Wetland Community Boundary and Extent

Upland – Wetland Boundary

Boundary Shift

Infrequent Flood Event



Infrequent
Flood Event

Uplands

Shrub Swamp

Marsh



Multiple MFLs

Protect Natural Flow/Stage Regime

Communities and Species adapted to **a variety of events**

Protect different parts
of hydrologic regime

Protect unique features
in different ecosystems:

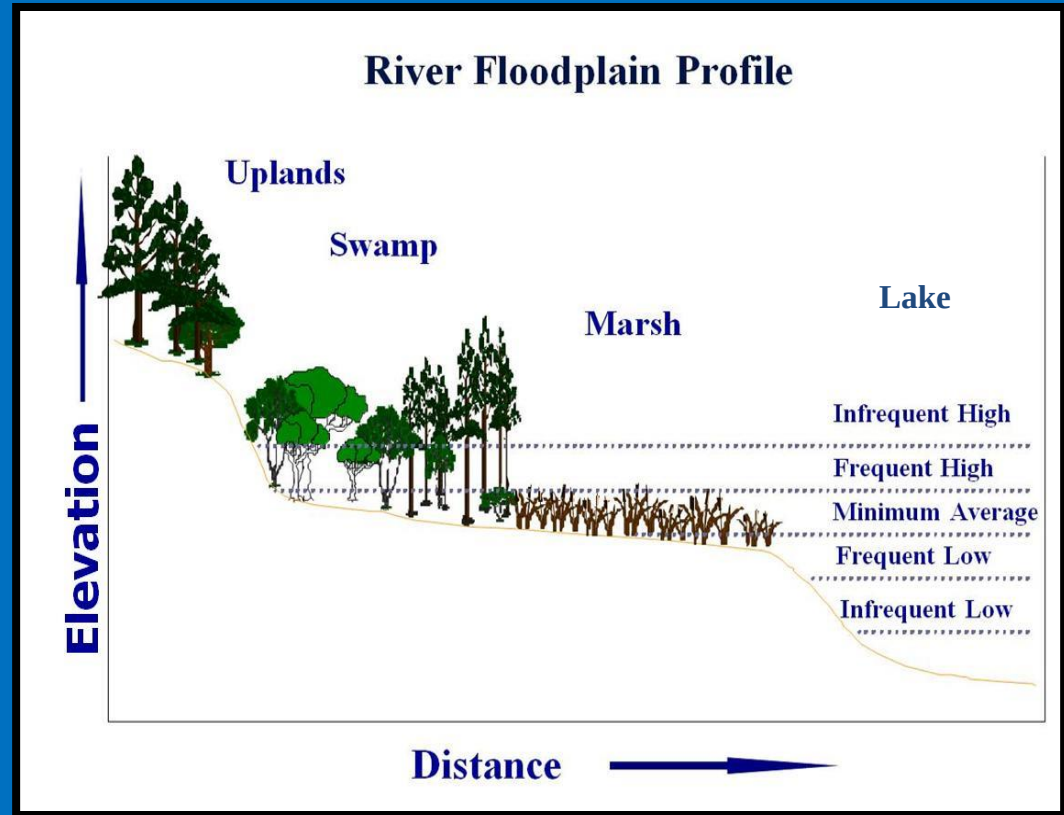
IH: upland encroachment

FH: wetland inundation

MA: organic soils

FL: wetland regeneration

IL: fish passage



Native Communities

Adapted to Hydrologic Variability

water resources and native communities are structured by **variable flow/stage events...**

...therefore, their protection requires the **maintenance of** a minimum number of these **events over the long-term.**

SJRWMD's **MFLs protect** these ecologically important **events.**



MFLs for Sylvan Lake (Seminole County)

Minimum Level	Elevation (ft NGVD)	Duration	Return Interval
Minimum frequent high (FH) level	41.2	30 days	5 years
Minimum average level (MA)	38.9	180 days	1.7 years
Minimum frequent low (FL) level	36.7	120 days	5 years



MFLs **Assessment**



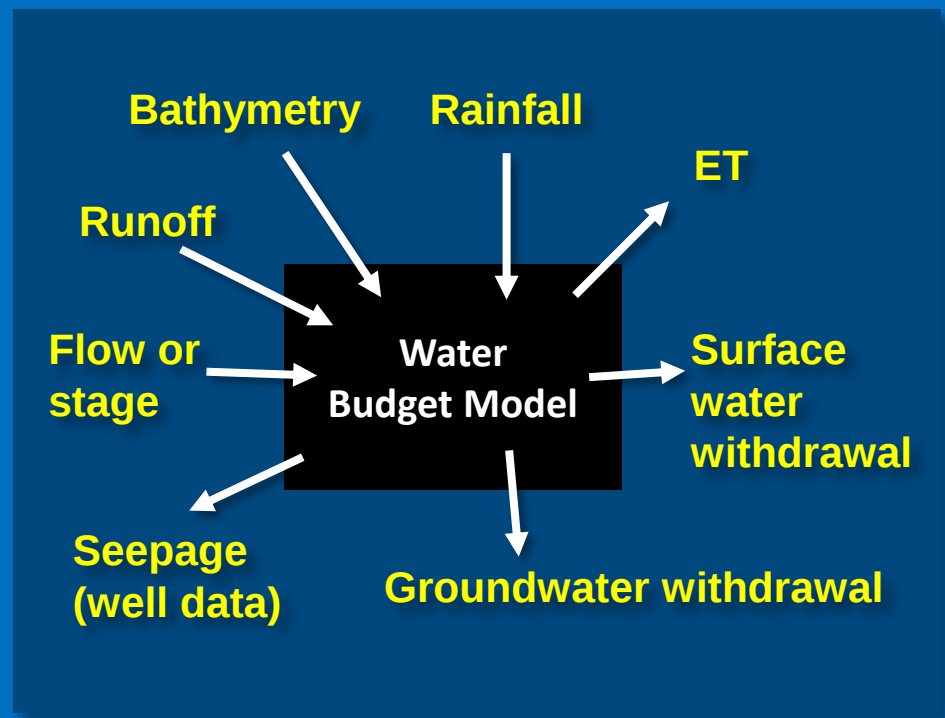
MFLs Assessment **relies on SW and GW Models**

Calibrate models using existing hydrologic records (& land-use, etc)

*Models used to simulate long-term water level record (**existing condition and MFLs condition**)*

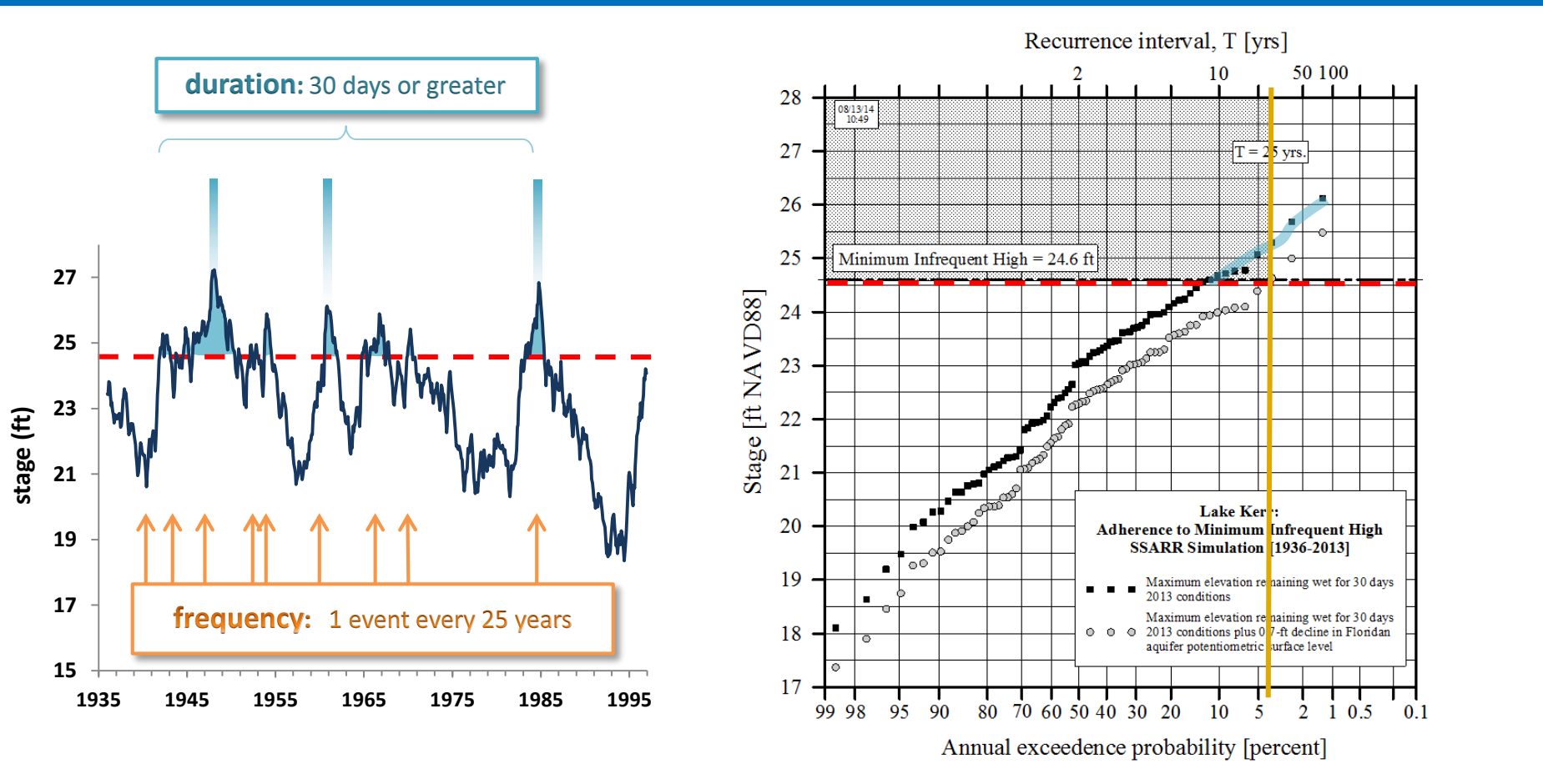
Include new water uses in model to generate a new long-term water level record

Compare results to determine if MFLs are met now and in future



MFLs Assessment

Frequency Analysis: compare Critical Event with different scenarios

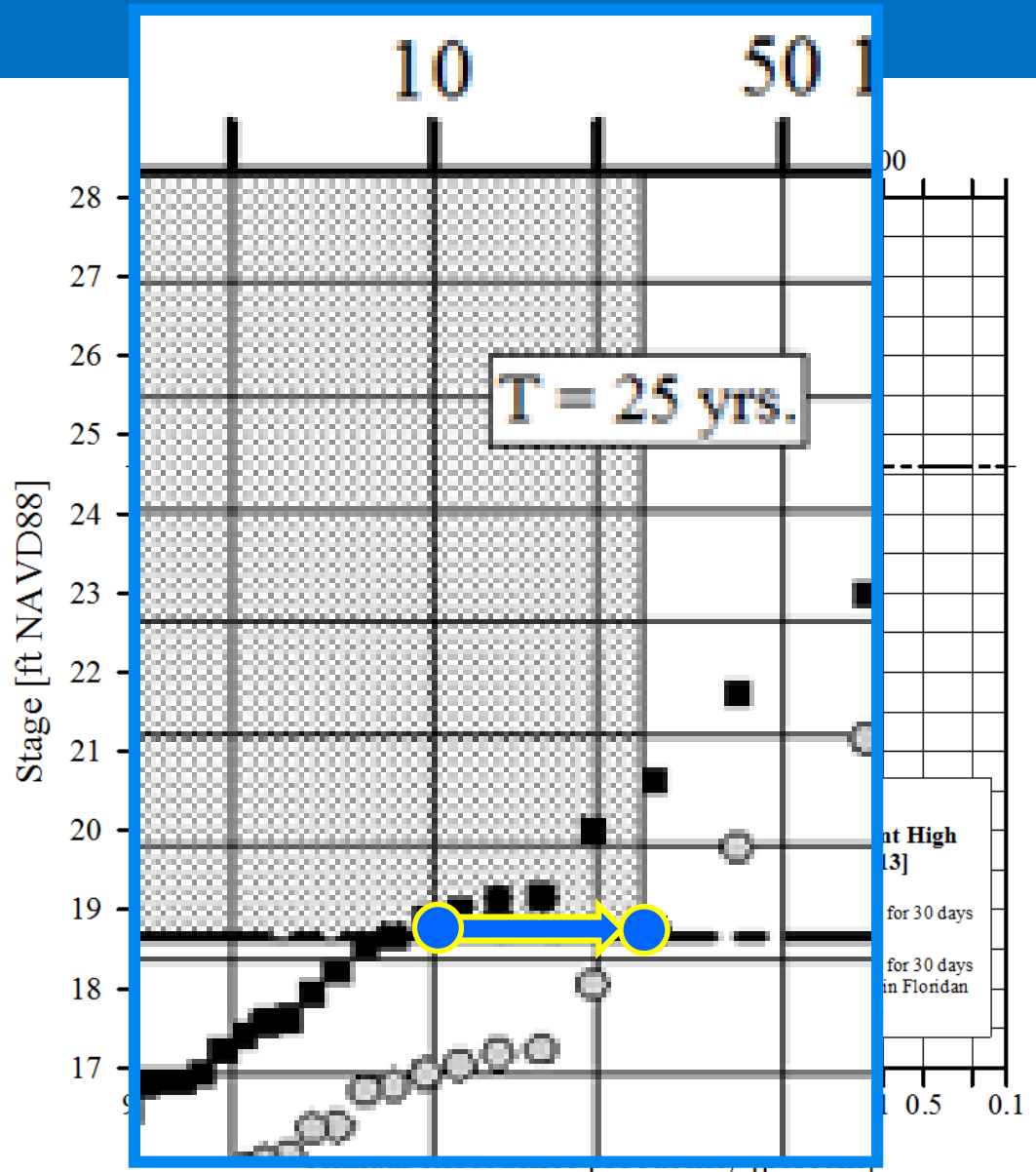


Freeboard

The amount of **water available** for consumptive use.

Calculated as the amount of potentiometric surface **decline required to trip an MFL.**

Determined through an **iterative process** by adding to the **leakance component** in a surface water model (i.e., reducing the well file data by a uniform amount, iteratively until the MFL is tripped).



Water Resource Values

"...consideration shall be given to... non-consumptive uses, and environmental values..."

62-40.473, F.A.C.

Recreation in and on the water

Fish and wildlife habitats and the passage of fish

Estuarine resources

Transfer of detrital material

Maintenance of freshwater storage and supply

Aesthetic and scenic attributes

Filtration / absorption of nutrients & pollutants

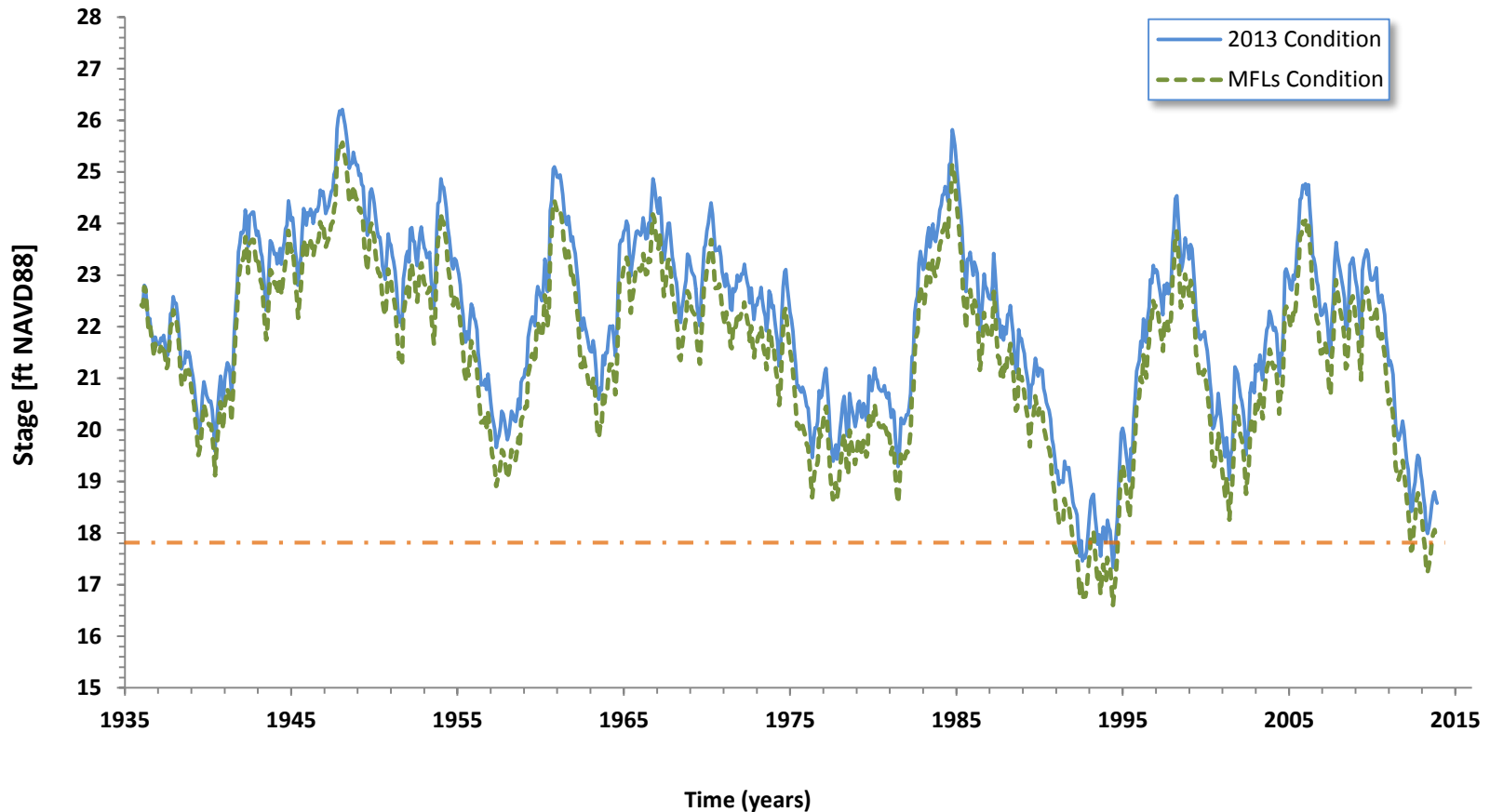
Sediment loads

Water quality

Navigation

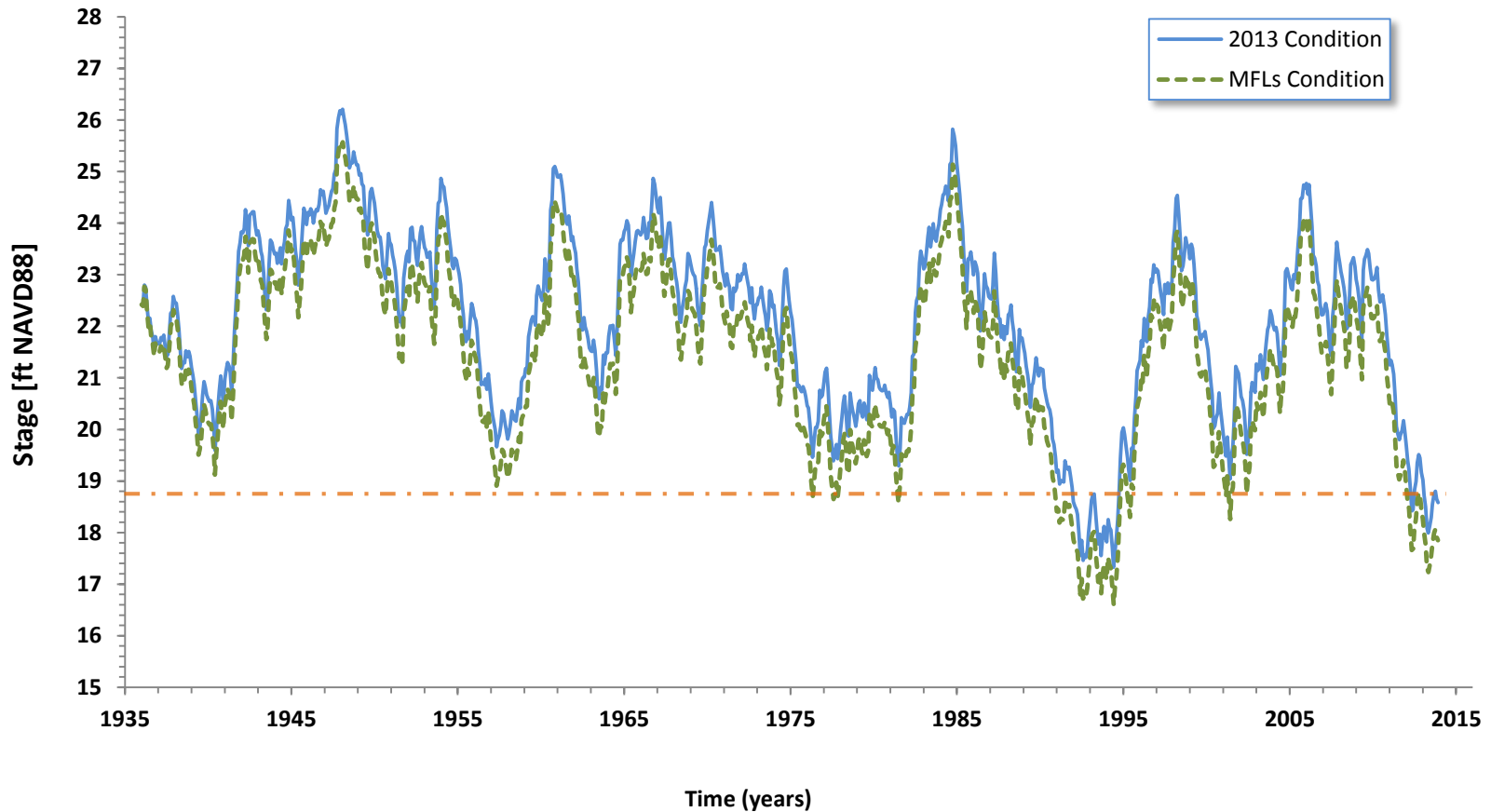


Lake Kerr Dock Access – Existing Condition vs MFLs Condition



Dock Access: 2% Change = 7 fewer days/year

Lake Kerr Lake Lobe Connection – Existing Condition vs MFLs Condition



Lake Connectedness: 4% Change = 15 fewer days/year

Future Compliance

- Freeboard (**sustainable yield**) is determined
- GW model used to determine **effect of individual and cumulative CUPs** on aquifer decline, and remaining freeboard



MFLs Prevention & Recovery

Are MFLs met under
2035 water demand?

Yes

No action
required

No

Are MFLs met under
**current water
demands?**

Yes

Prevention
strategy

No

Recovery
strategy

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Draft 2015 MFLs Priority List and Schedule

Year 2016

Water Body Type	Water Body Name	County	Voluntary Peer Review	Affected by Withdrawals in Other WMDs
Rivers				
Aquifers (springs)	De Leon Springs	Volusia	Yes	No
Lakes				
Re-evaluations	Brooklyn	Clay	Yes	Yes
	<u>Cowpen</u>	Putnam	Yes	No
	Geneva	Clay	Yes	Yes

Year 2017

Water Body Type	Water Body Name	County	Voluntary Peer Review	Affected by Withdrawals in Other WMDs
Rivers	Alexander Springs Creek	Lake	Yes	Yes
	Silver River	Marion	Yes	Yes
Aquifers (springs)	Alexander Springs	Lake	Yes	Yes
	Silver Glen Springs	Marion/Lake	Yes	No
	Silver Springs	Marion	Yes	Yes
Lakes	Apopka	Lake/Orange	Yes	Yes
	Griffin	Lake	Yes	Yes
	Harris Chain of Lakes (<u>Beauclair</u> , Dora, Eustis, Harris)	Lake	Yes	Yes
Re-evaluations				

Year 2018

Water Body Type	Water Body Name	County	Voluntary Peer Review	Affected by Withdrawals in Other WMDs
Rivers	Ocklawaha River at SR40	Marion	Yes	Yes
Aquifers (springs)				
Lakes	Johns	Orange	Yes	Yes
Re-evaluations	<u>Apshawa South</u>	Lake	Yes	Yes
	<u>Prevatt</u>	Orange	Yes	Yes
	Sylvan	Seminole	Yes	Yes
	Wekiva River at SR 46 Bridge and associated springs	Seminole/Lake	Yes	Yes

Year 2019

Water Body Type	Water Body Name	County	Voluntary Peer Review	Affected by Withdrawals in Other WMDs
Rivers				
Aquifers (springs)	<u>Bugg</u>	Lake	Yes	Yes
Lakes	Butler	Volusia	Yes	No
	East Crystal	Seminole	Yes	Yes
	Hodge	Seminole	Yes	Yes
Re-evaluations				

Year 2020

Water Body Type	Water Body Name	County	Voluntary Peer Review	Affected by Withdrawals in Other WMDs
Rivers				
Aquifers (springs)				
Lakes	<u>Lochloosa/Orange</u>	Alachua	Yes	Yes
Re-evaluations				





Questions?