

Monitoring Optimization Project

Comprehensive Monitoring Plans for Structures Surrounding Everglades National Park



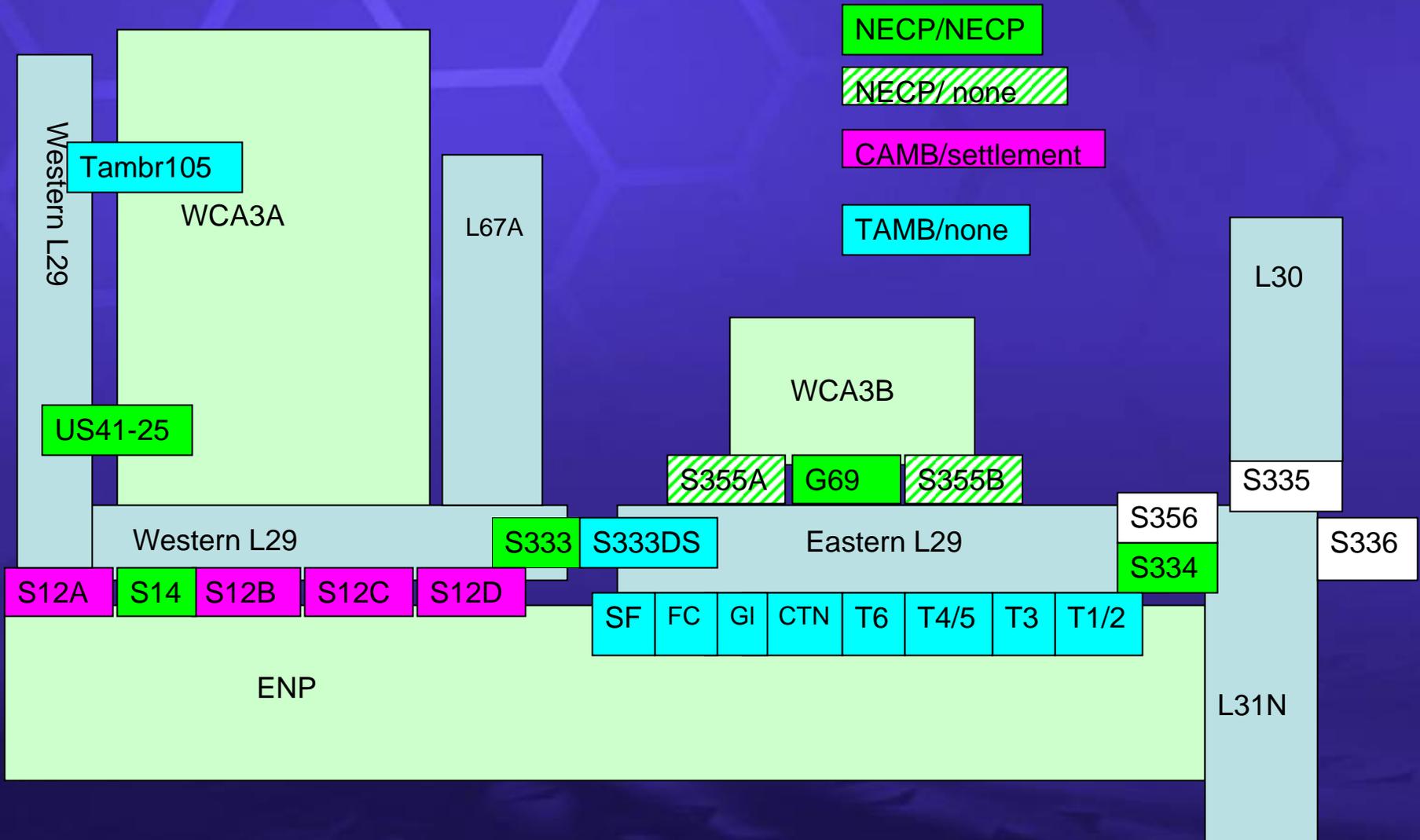
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SFWM D

A joint project of the
SFWMD, ENP, ACOE and
FDEP

The Problem

- Three Mandates (NECP, SA, EO).
- Five Projects (TAMB, CAMB, NECP, C111D, ENP).
- Forty Four Structures.
- >70 miles of canals.
- No consistent parameter list.
- No integration in the same geographic area.
- No leveraging of complementary work.

Conceptual Map of Structures Along the Northern Boundary of ENP



- S333 & S12s BWF/M

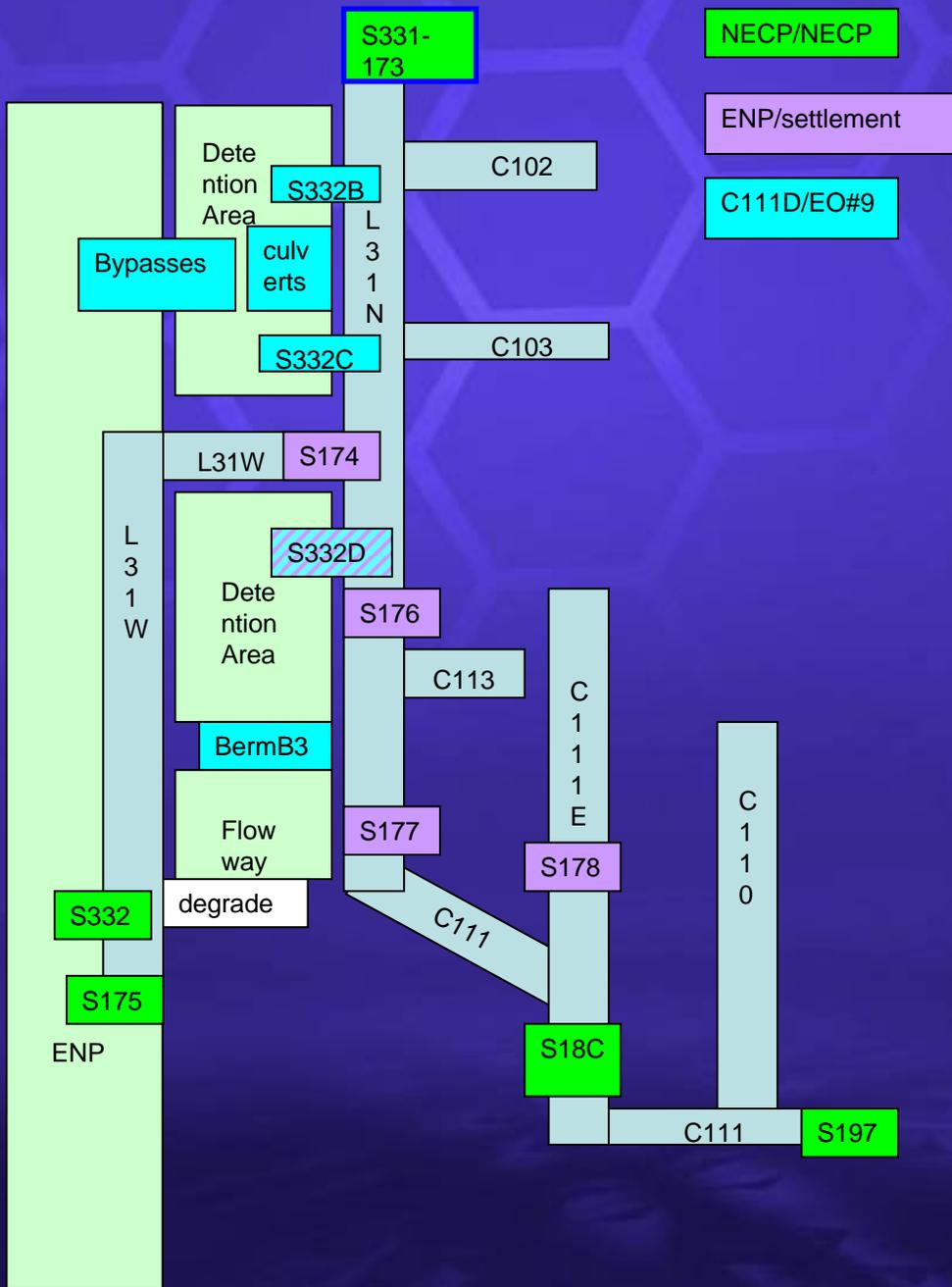
- Physicals
- Color
- Turbidity
- TSS
- TPO4
- OPO4
- TKN
- NOX
- NO2
- NH4
- Cl
- Alkalinity
- Ca
- Mg
- Na
- K
- APA
- Chlorophyll

- S334, S14, S355s & G69 BWF

- Physicals
- Color
- Turbidity
- TSS
- TPO4
- OPO4
- TKN
- NOX
- NO2
- NH4
- Cl

- Tamb BWF

- Physicals
- TPO4



Conceptual Map of Structures Along the Eastern Boundary of ENP

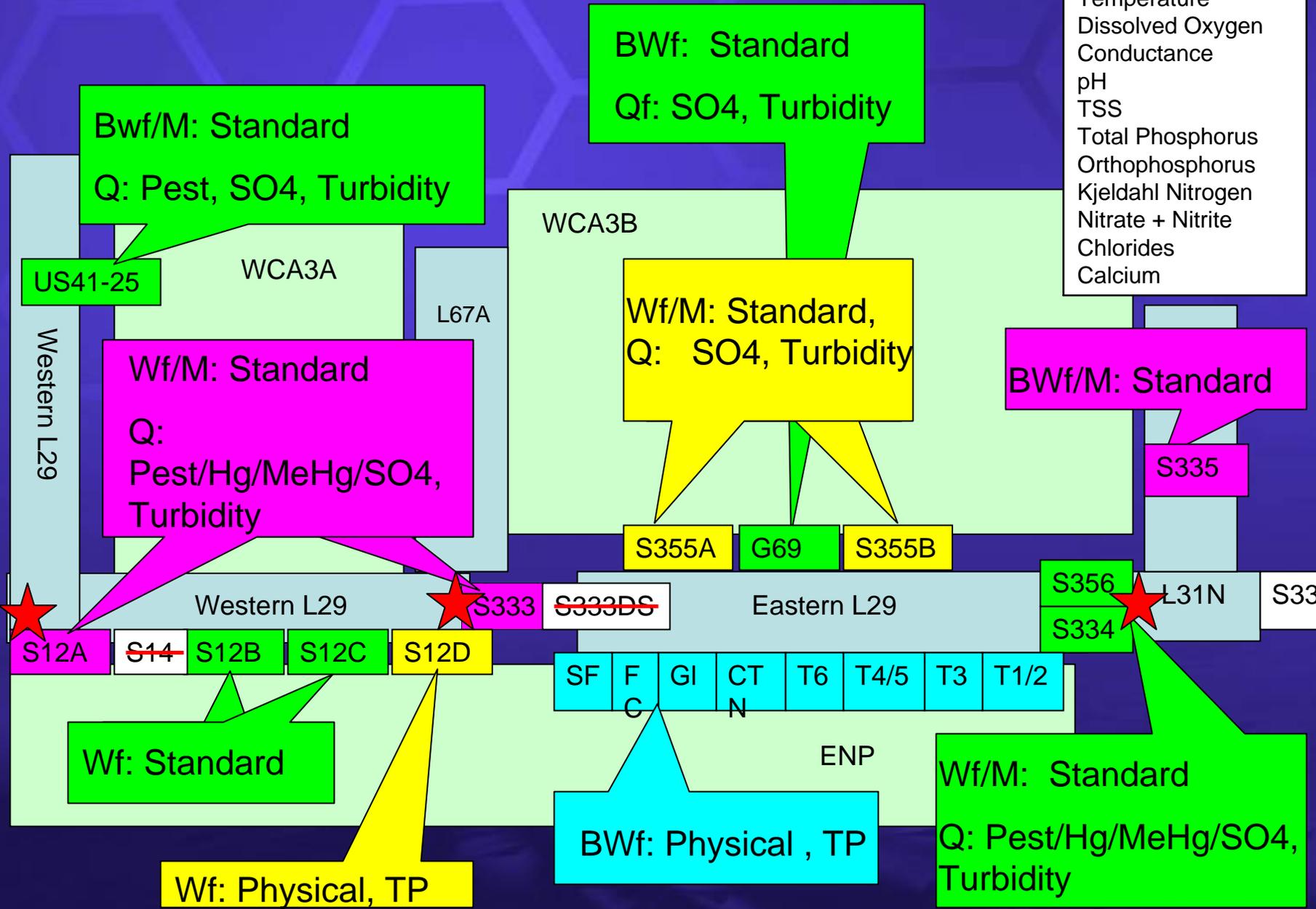
Goal and Process

- Create a master monitoring plan for the area
 - Examine mandates.
 - Standardize parameter lists.
 - Adjust frequencies and locations.
 - Increase parameters of high value.
 - Reduce parameters of limited value.
 - Explore the use of surrogate stations.
 - Explore the use of critical stations.
 - Limit special sampling.
 - Involve partner agencies: ENP, FDEP, and ACOE.

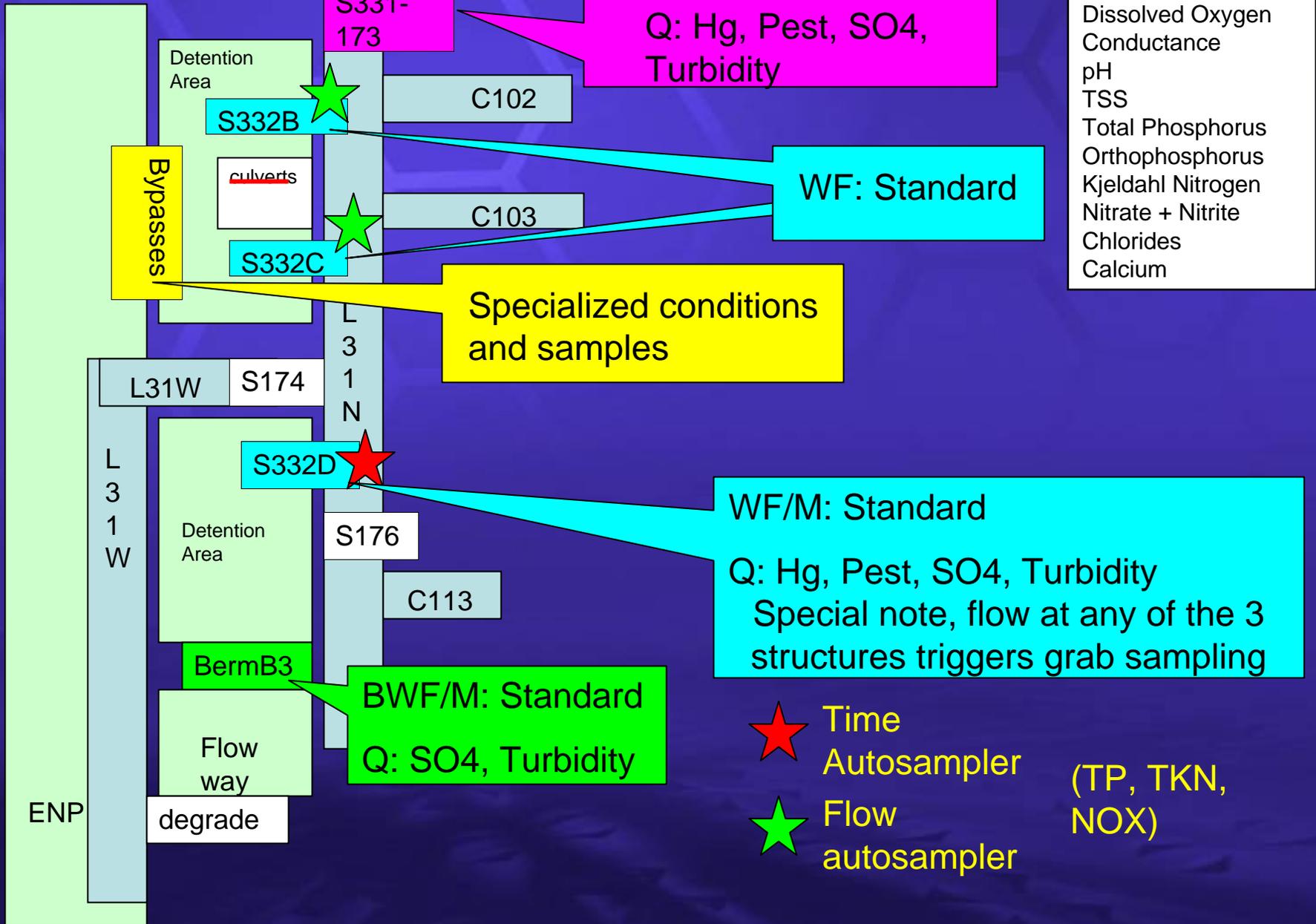
PIN

★ Time Autosampler (TP, TKN, NOX)

Standard Set
Temperature
Dissolved Oxygen
Conductance
pH
TSS
Total Phosphorus
Orthophosphorus
Kjeldahl Nitrogen
Nitrate + Nitrite
Chlorides
Calcium



PIE



PIE



Flow (TP, TKN, autosampler NOX)

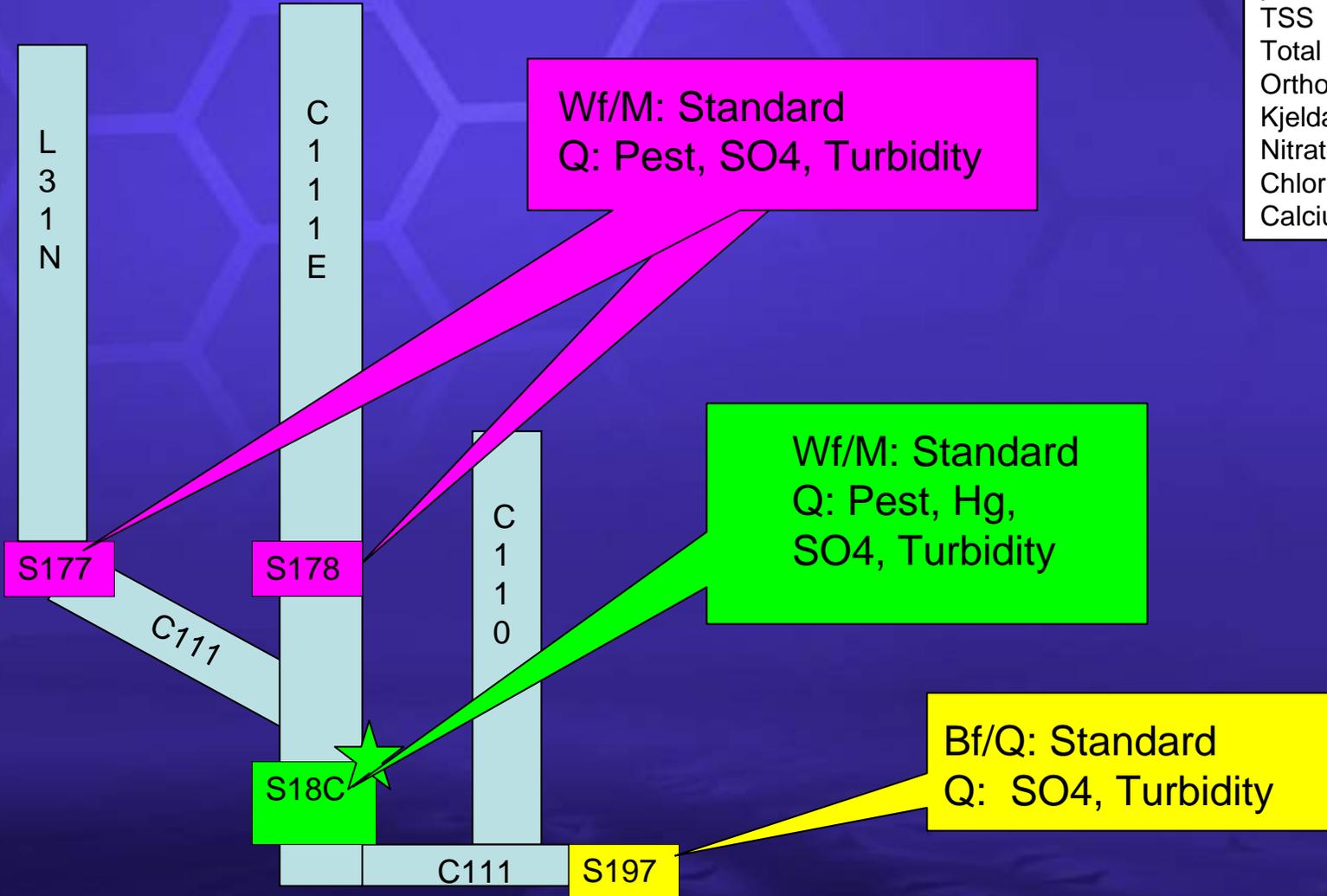
Standard Set

Temperature
Dissolved Oxygen
Conductance
pH
TSS
Total Phosphorus
Orthophosphorus
Kjeldahl Nitrogen
Nitrate + Nitrite
Chlorides
Calcium

Wf/M: Standard
Q: Pest, SO4, Turbidity

Wf/M: Standard
Q: Pest, Hg,
SO4, Turbidity

Bf/Q: Standard
Q: SO4, Turbidity



Optimization Benefits

- Standardizes monitoring set for area
 - Reduces ions.
 - No trace metals.
 - Eliminates atypical parameters (TDS, DOC, TDPO₄, NO₂, NH₄).
 - Focuses pesticides, mercury and sulfate on critical stations.
 - Eliminates questionable biological analyses (APA, Chlorophylls).
- Increases frequency at strategic stations.
- Decreases frequency at secondary stations.
- Leverages trips.

Cost Analysis (Test Year 2005)

<u>Area</u>	<u>Existing</u>	<u>New Design</u>
Staff Time	\$144K (\$12K/month)	\$120K (\$10K/month)
Lab analysis	\$109K	\$112K
Total	\$253K	\$232K

Other Benefits

- Reduces projects/monitoring plans from four to two, which reduces project management.
- Centralizes data under two project codes.
- Fulfills the intent of three mandates in a comprehensive integrated manner.
- Reduces confusion over mandate interpretation/integration.
- Provides a vehicle to absorb future projects in the area and guides future parameter sets.
- Better targeted and timed collection provides more data for analysis and models.
- Standardized sets reduce errors.

Implementation

- 10/06 TOC approves PIE and PIN.
- 12/06 Modify FDEP EO/permits.
- 01/07 All grab samples transferred to PIE/PIN plan.
- 01/07 Autosamplers at S333, S332B, S332C, S18C and S331-173 transferred to PIE/PIN.
- 03/07 Infrastructure/autosampler at S332D-S174-S176 (S332DX) installed.
- 04/07 S332DX activated, S332D and S174 deactivated.
- 07/07 Infrastructure and autosamplers at S12A and S356 installed (ACOE or SFWMD?).
- 09/07 ENPAS project ends. Autosamplers at S12C, C102, C103, C113, S176, S177, S178, C111E and S18CN deactivated.
- 09/07 S12A and S356 activated under PIN.

