BBSEER Round 2 Transect Flows

Analysis of Impacts on Everglades National Park

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National Park Service
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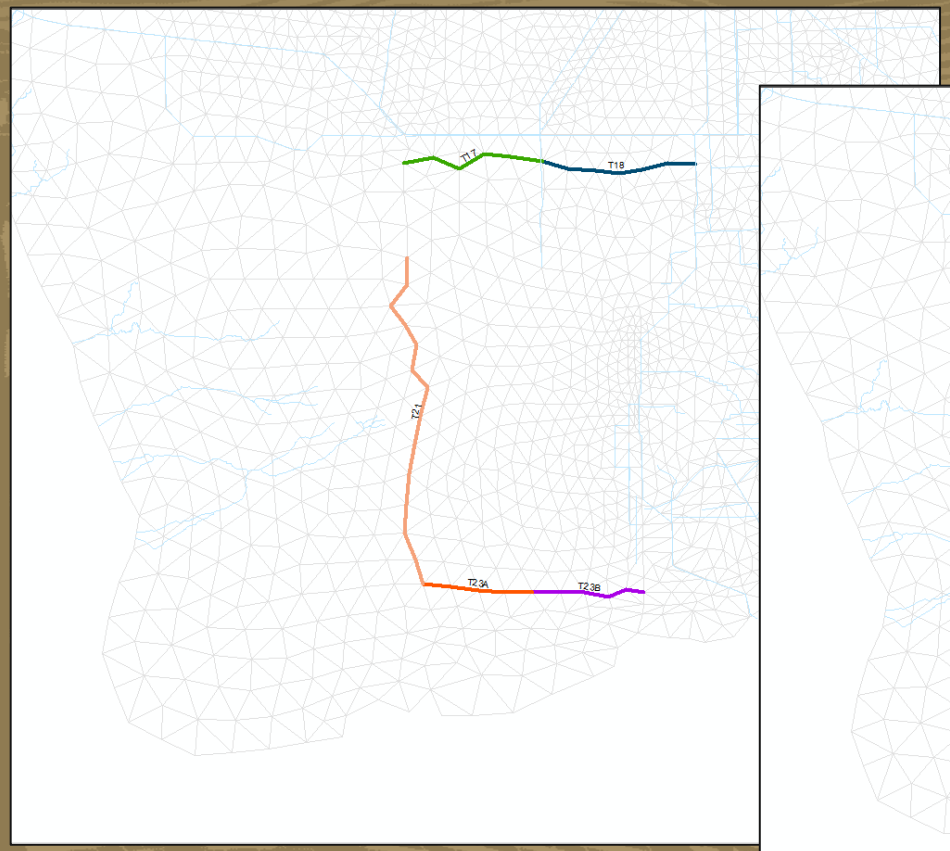
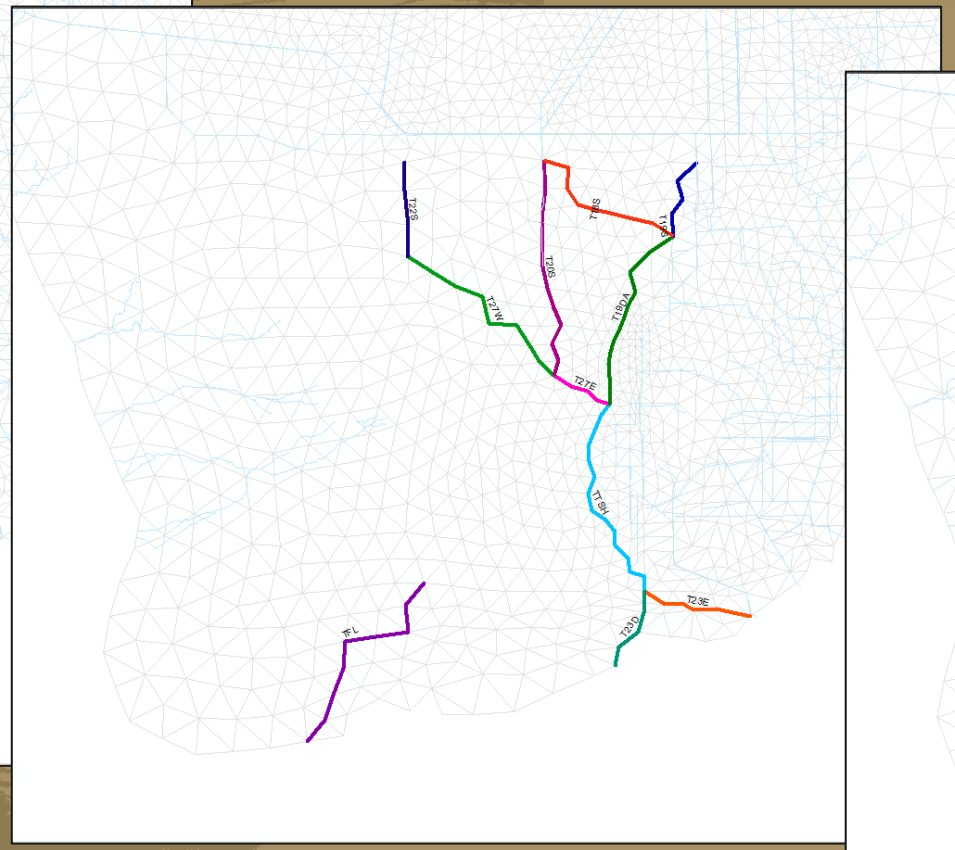
A selection of transects was assembled from three different sources.

Selected transects are all within ENP, and do not have any canals or other water management structures crossing them. Therefore the transect flows represent *all* the flow crossing the lines. *

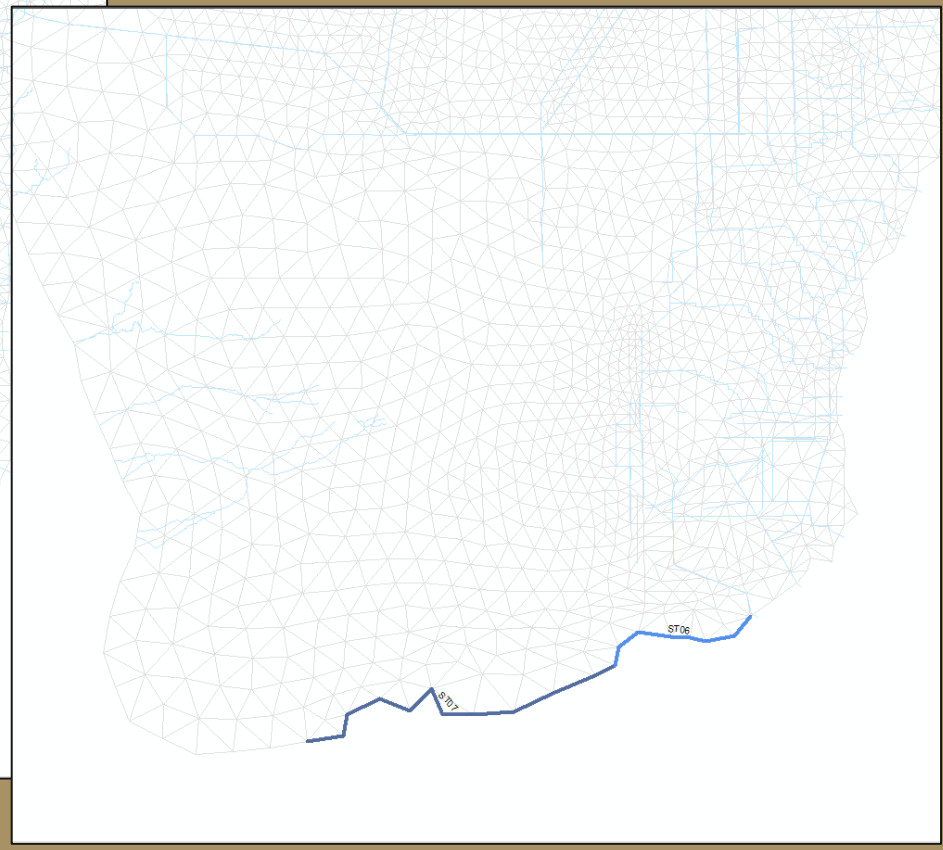
RECOVER Transects



New ENP Transects

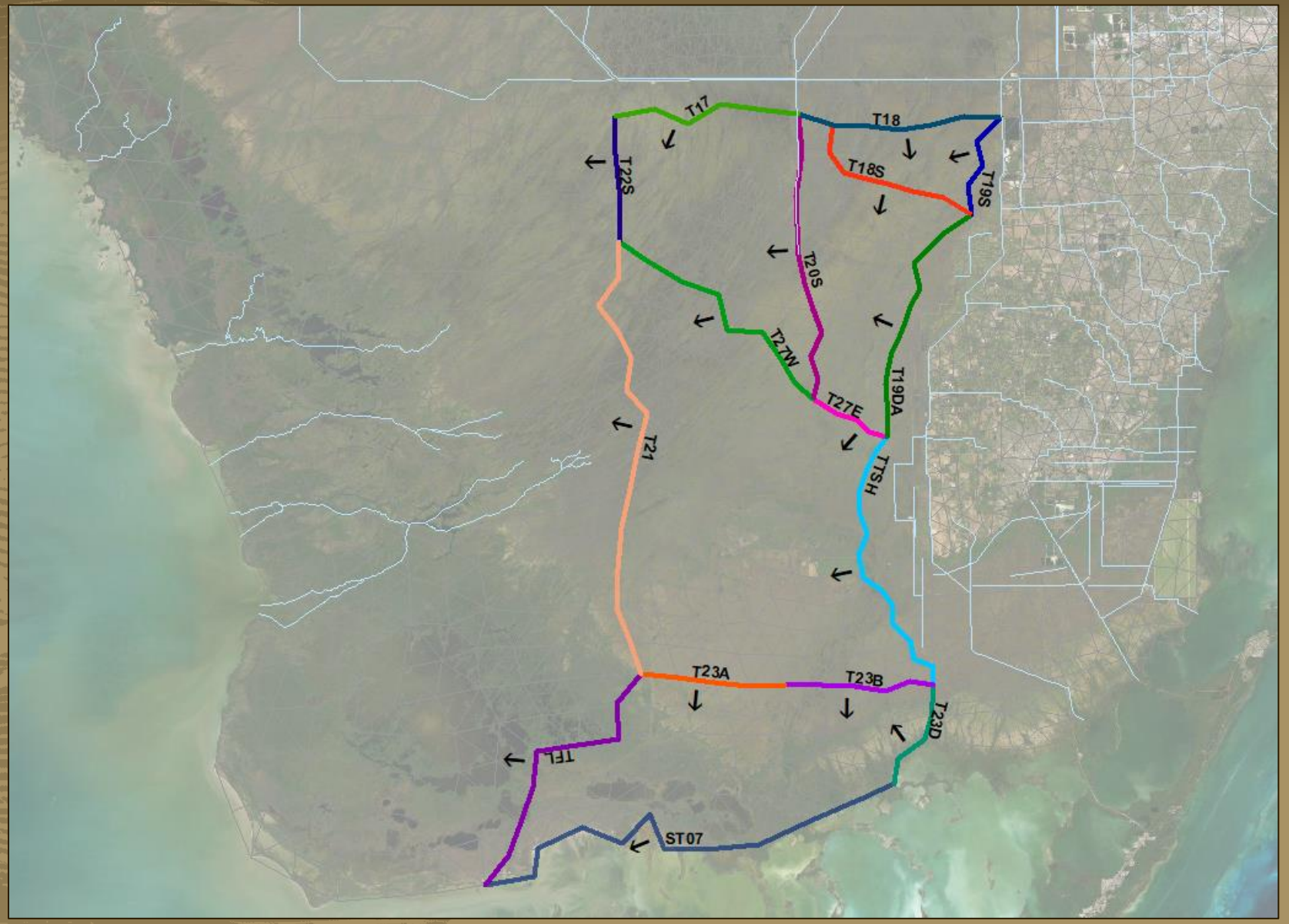


BBSEER "ST" Transects

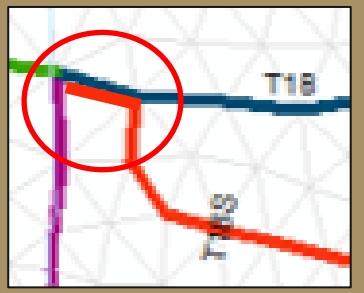


* With one exception: L67 extension between T17 and T18

The resulting set of transects intersect at their endpoints,
which allows for full accounting for flows into and out of the enclosed areas. *



* Note T18 and T18S share one cell face, which preserves the integrity of the flow calculation in this area



* After adding Precipitation, ET, and Storage

Annual Average Flow in kaf (SW + GW)

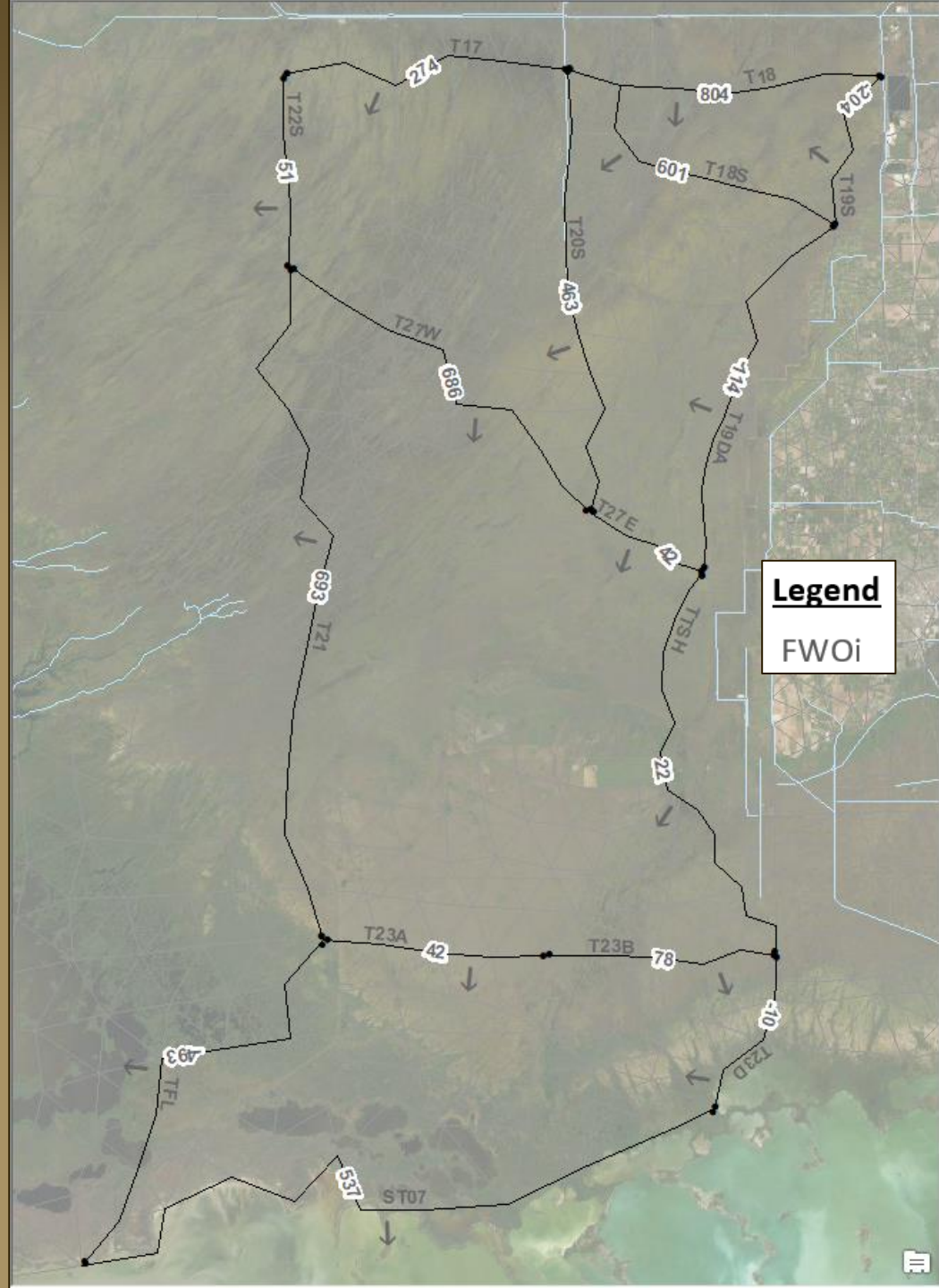
This graphic shows annual average flows in kaf (surface water plus groundwater) for the Future Without Project – Intermediate Sea Level Rise alternative (FWOi).

The gray arrows show the direction of *positive* flow for each transect.

Negative values indicate flow direction was in the *opposite* direction as shown in the arrows.

For example, the T17 transect (upper left) had an annual average flow of 274 kaf in FWOi.

The T19S transect (upper right) had -204 kaf of flow, indicating that 204 kaf/yr flowed from *west* to *east* across the T19S transect on average in FWOi.



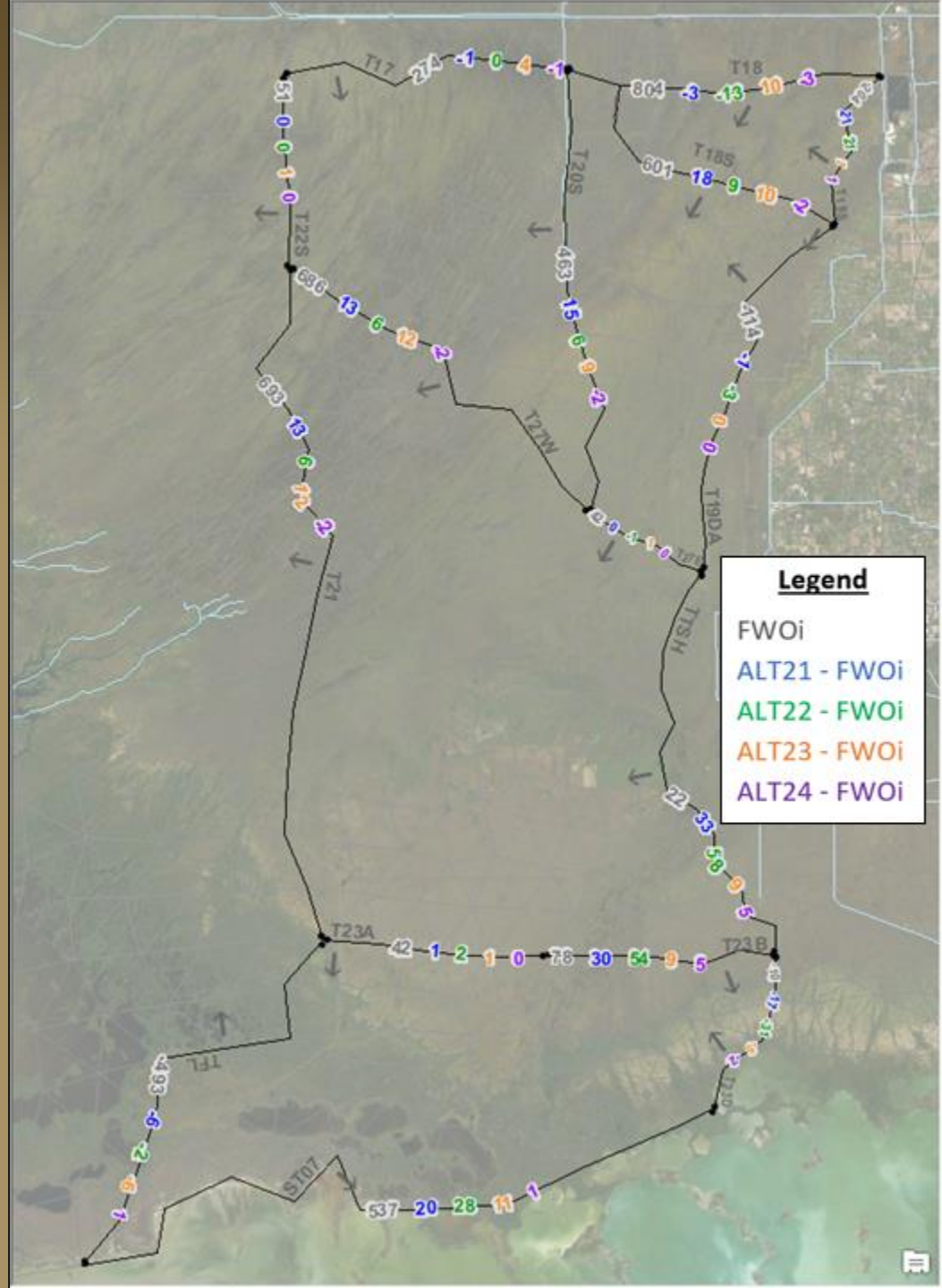
Annual Average Flow in kaf (SW + GW)

This graphic shows the same Annual average FWOi flows as the previous graphic, but adds extra values shown in color.

The colored values show each alternative's ***difference*** from FWOi values.

For example, Transect 17 had 274 kaf/yr of flow in FWOi, and had 1 kaf/yr less than that (273 kaf/yr) for Alts 21 and 24.

Alt 23 saw 4 more kaf/yr of flow than FWOi, with a total flow of 278 kaf/yr.



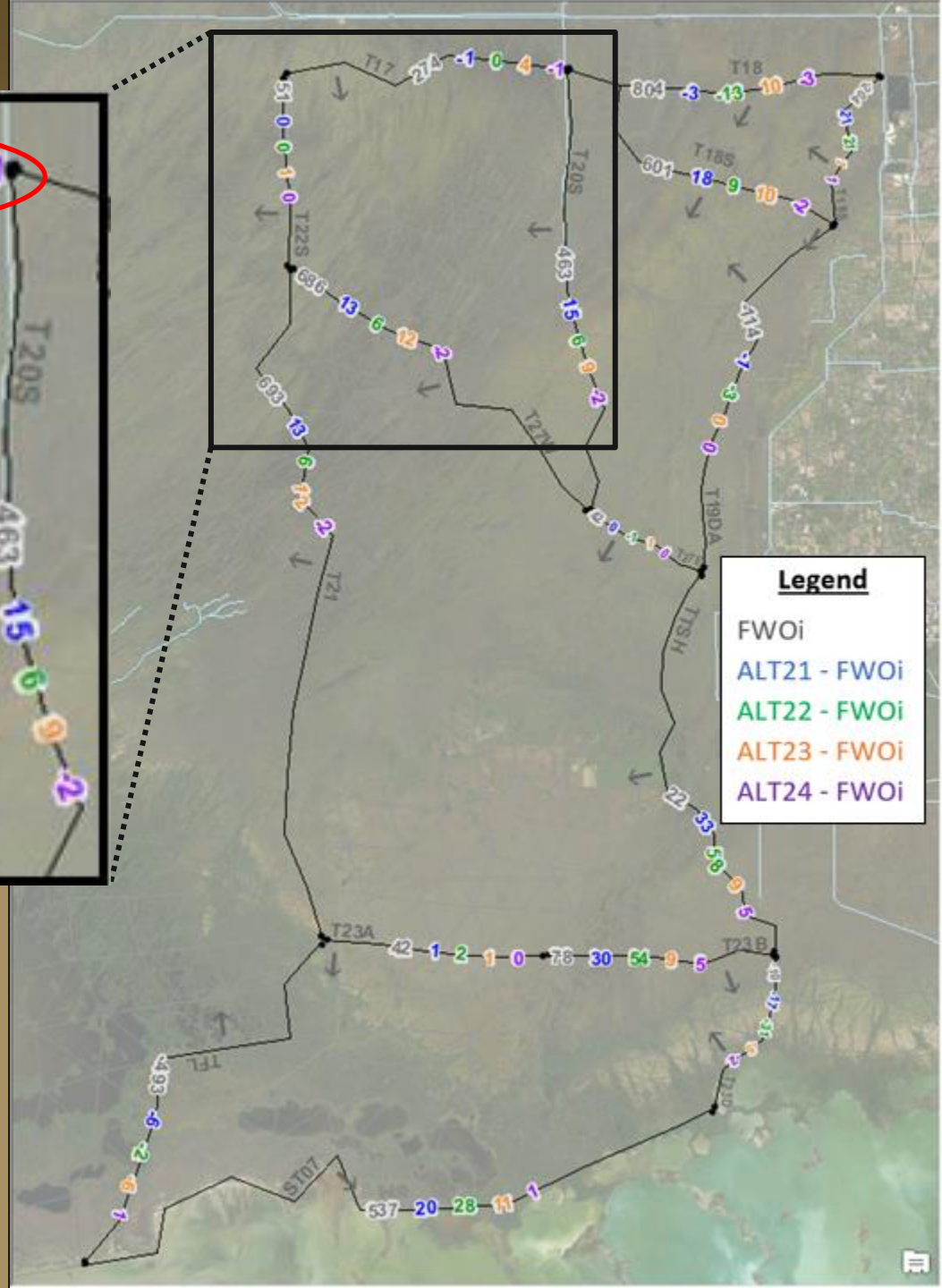
Annual Average Flow in kaf (SW + GW)

- Northwest Shark River Slough

For Northwest Shark River Slough transect T17, FWOi shows 274 kaf per year of flow into the slough.

Alts 21-24 range from reducing the flow by 1 kaf/yr to increasing the flow by 4 kaf/yr, compared to FWOi.

The largest reduction (-1 kaf/yr in Alt 21 and Alt 24) is not a large enough magnitude to be of concern when looking at annual total flow.

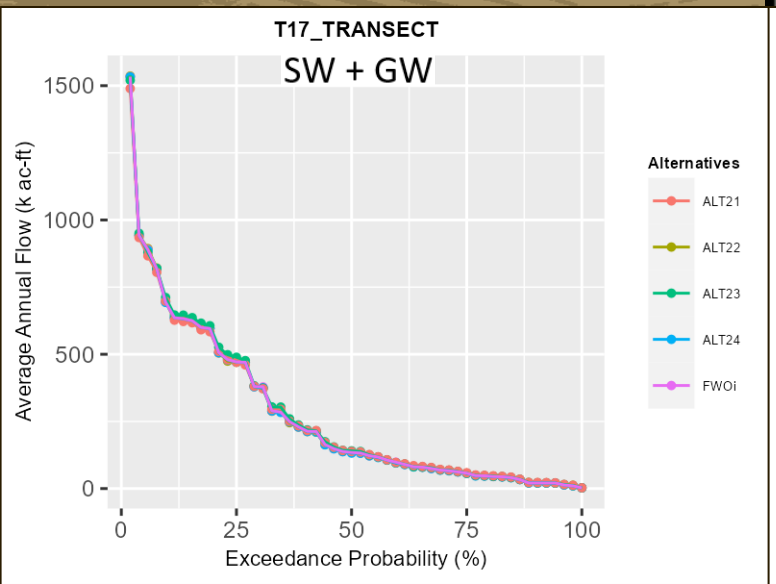


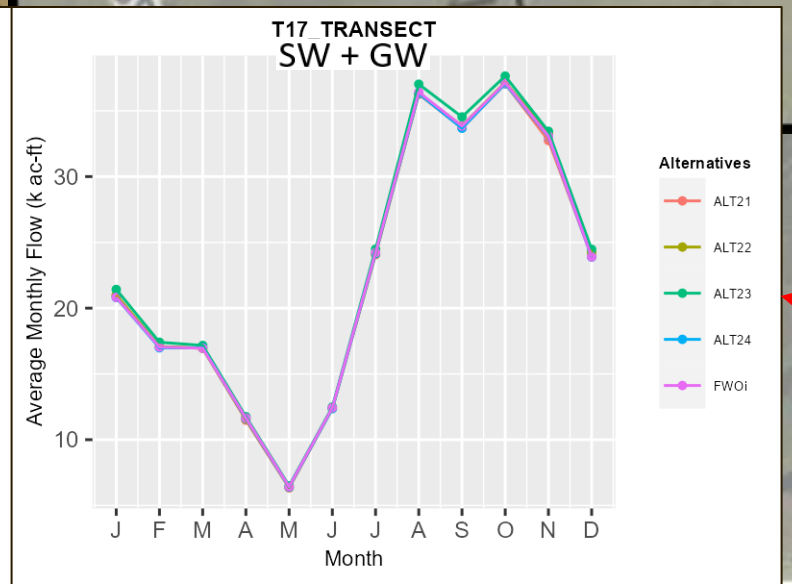
Annual Average Flow in kaf (SW + GW)

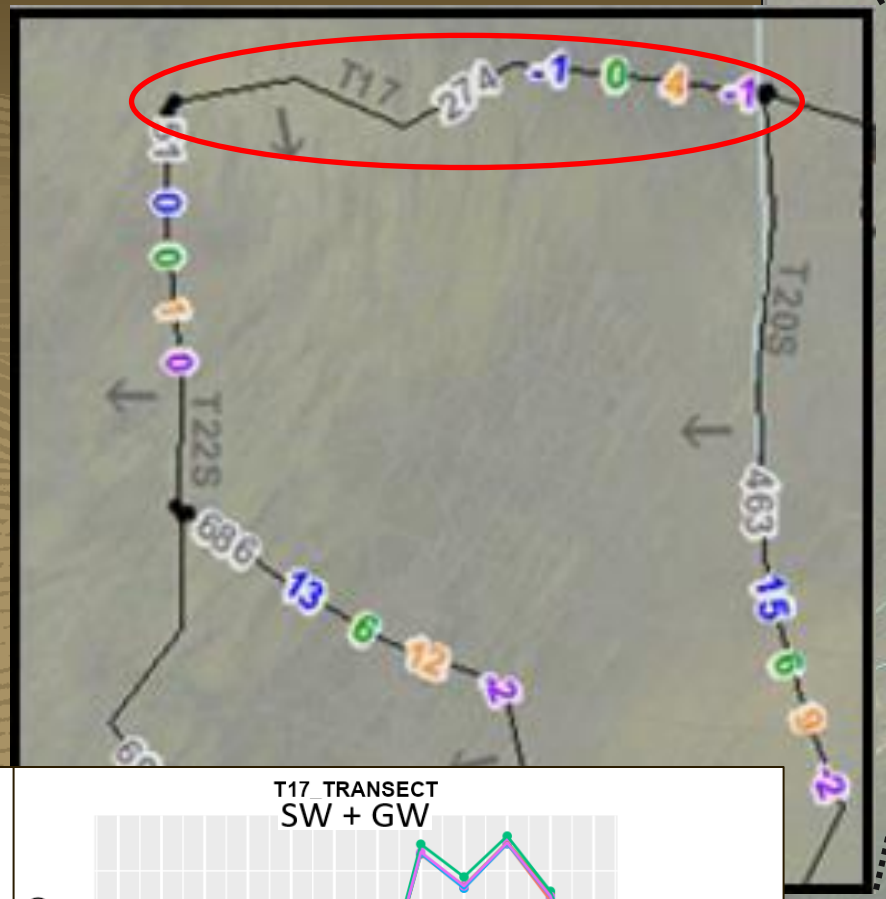
- Northwest Shark River Slough

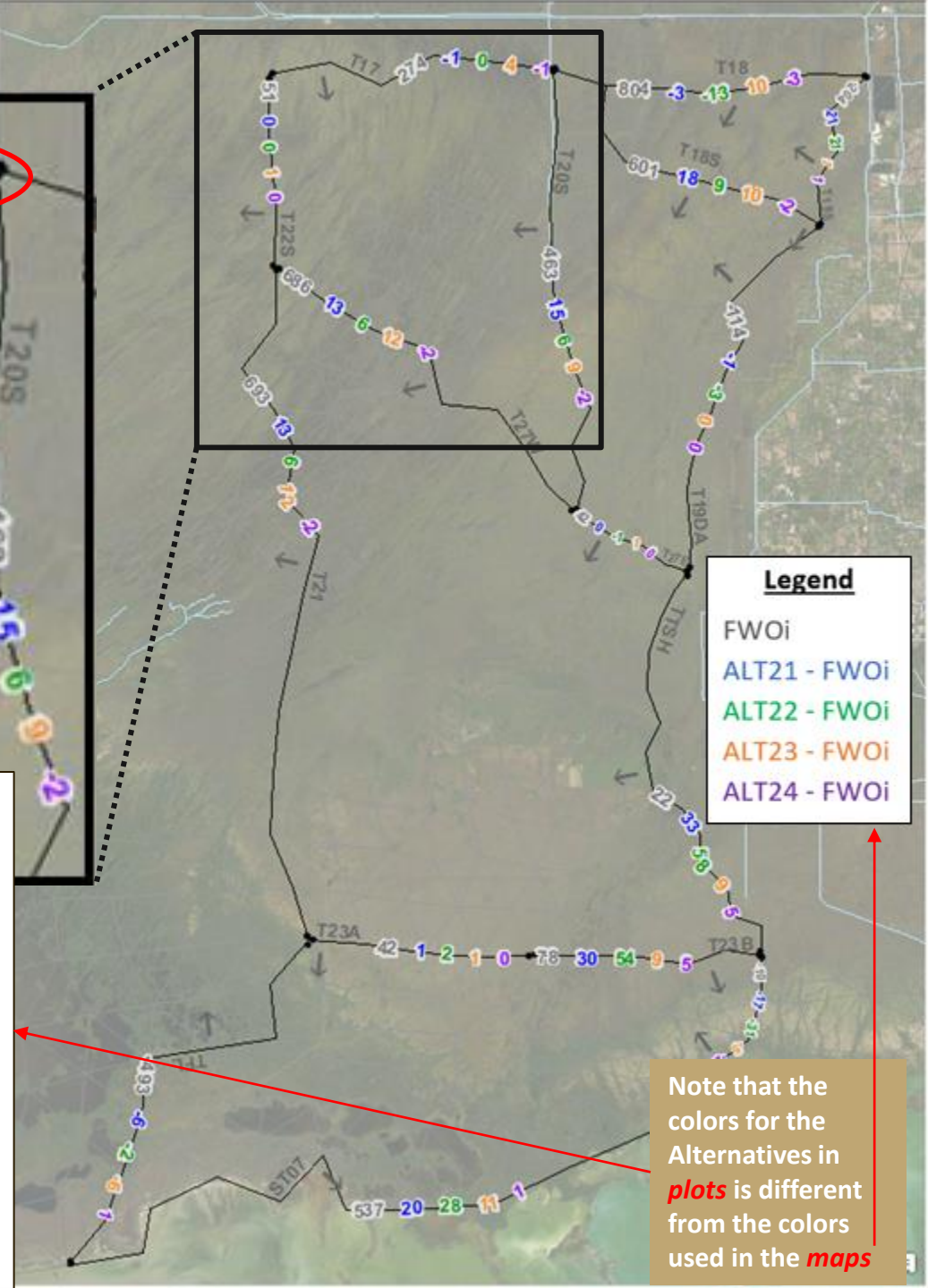
The Exceedance Probability plot for the T17 Transect (lower left) shows that there are not significant decreases in flow during dry years.

The Average Monthly Flow plot (lower middle) for the T17 Transect shows that there are not significant decreases in flow during the dry months.





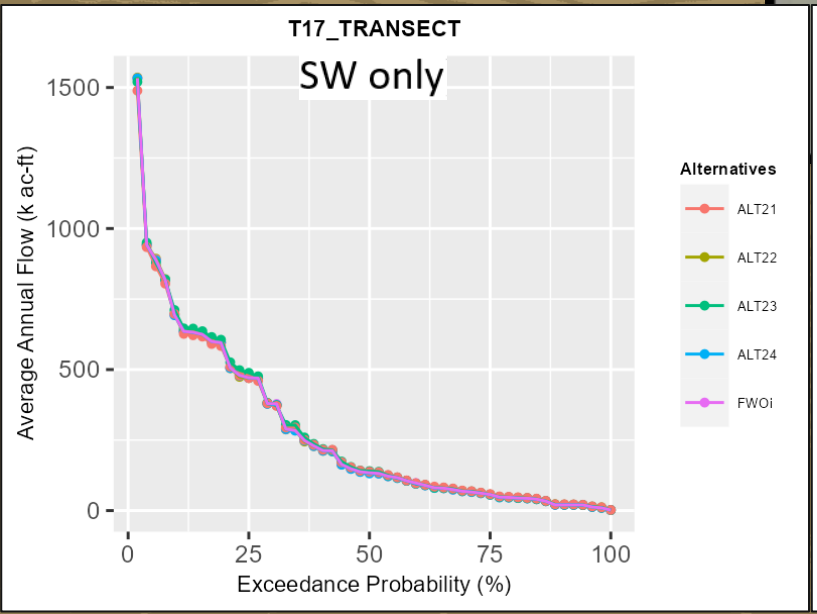


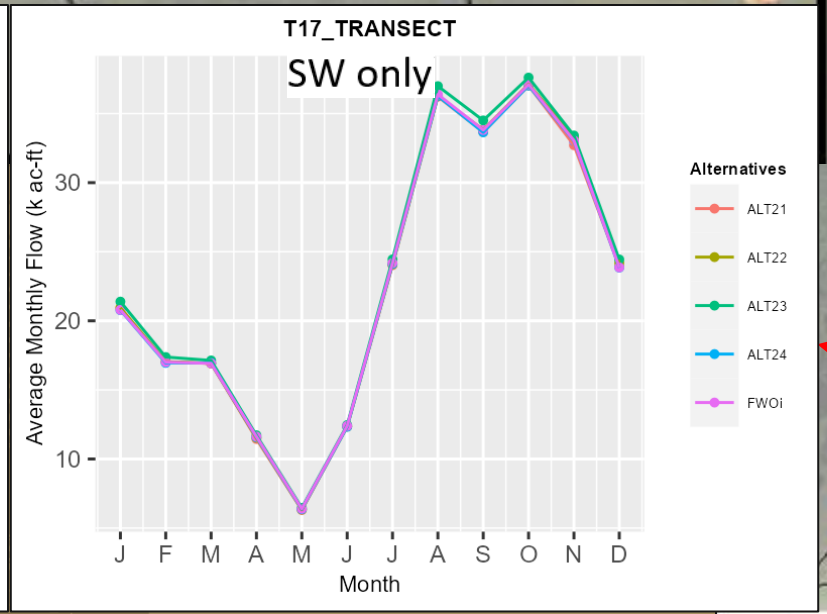


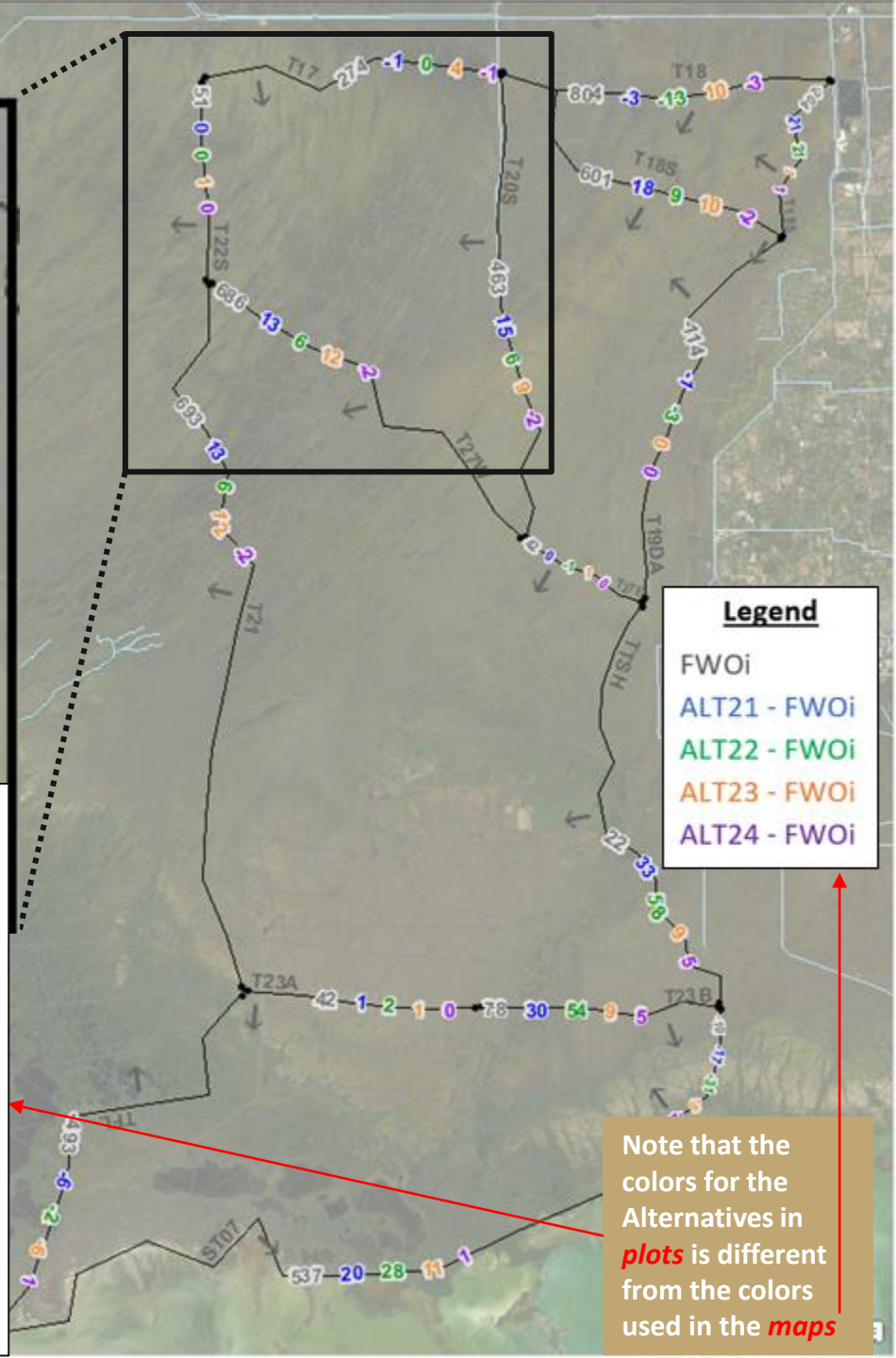
Annual Average Flow in kaf (SW only)

- Northwest Shark River Slough

Surface water plots also show no significant decreases in flow compared to FWOi







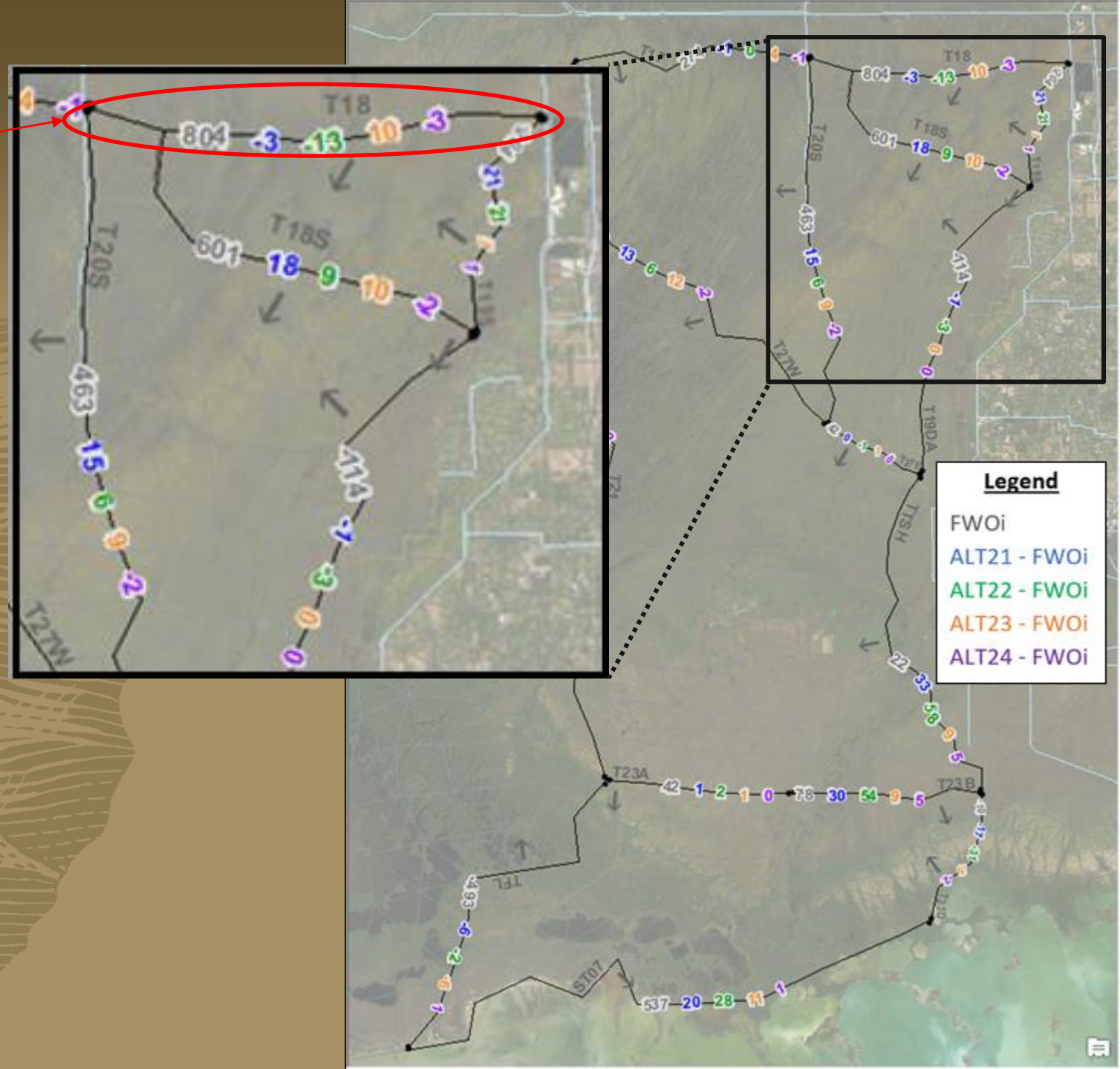
Annual Average Flow in kaf (SW + GW)

- Northeast Shark River Slough

T18_Transect

For Northeast Shark River Slough, FWOi shows 804 kaf per year of flow into the slough.

Alts 21-24 range from reducing the flow by 13 kaf/yr to increasing the flow by 10 kaf/yr, compared to FWOi.



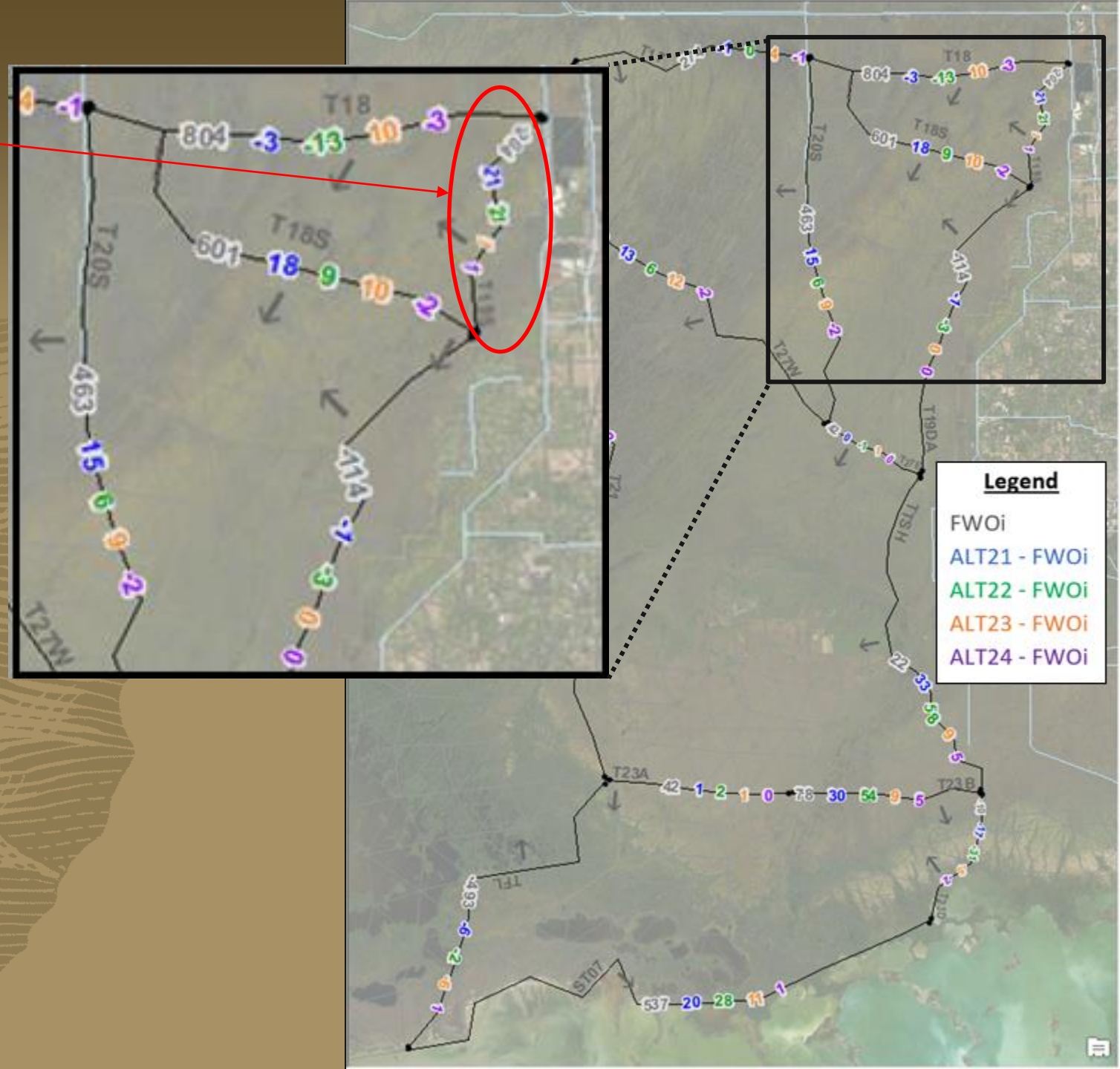
Annual Average Flow in kaf (SW + GW)

- Northeast Shark River Slough

T19S_Transect

The T19S transect flow for FWOi is -204 kaf/yr, meaning that 204 kaf/yr seeps **out** of Everglades National Park to the east in this area.

Each of the alternatives **decrease** the seepage out of the park, by 1-21 kaf/yr.



Annual Average Flow in kaf (SW + GW)

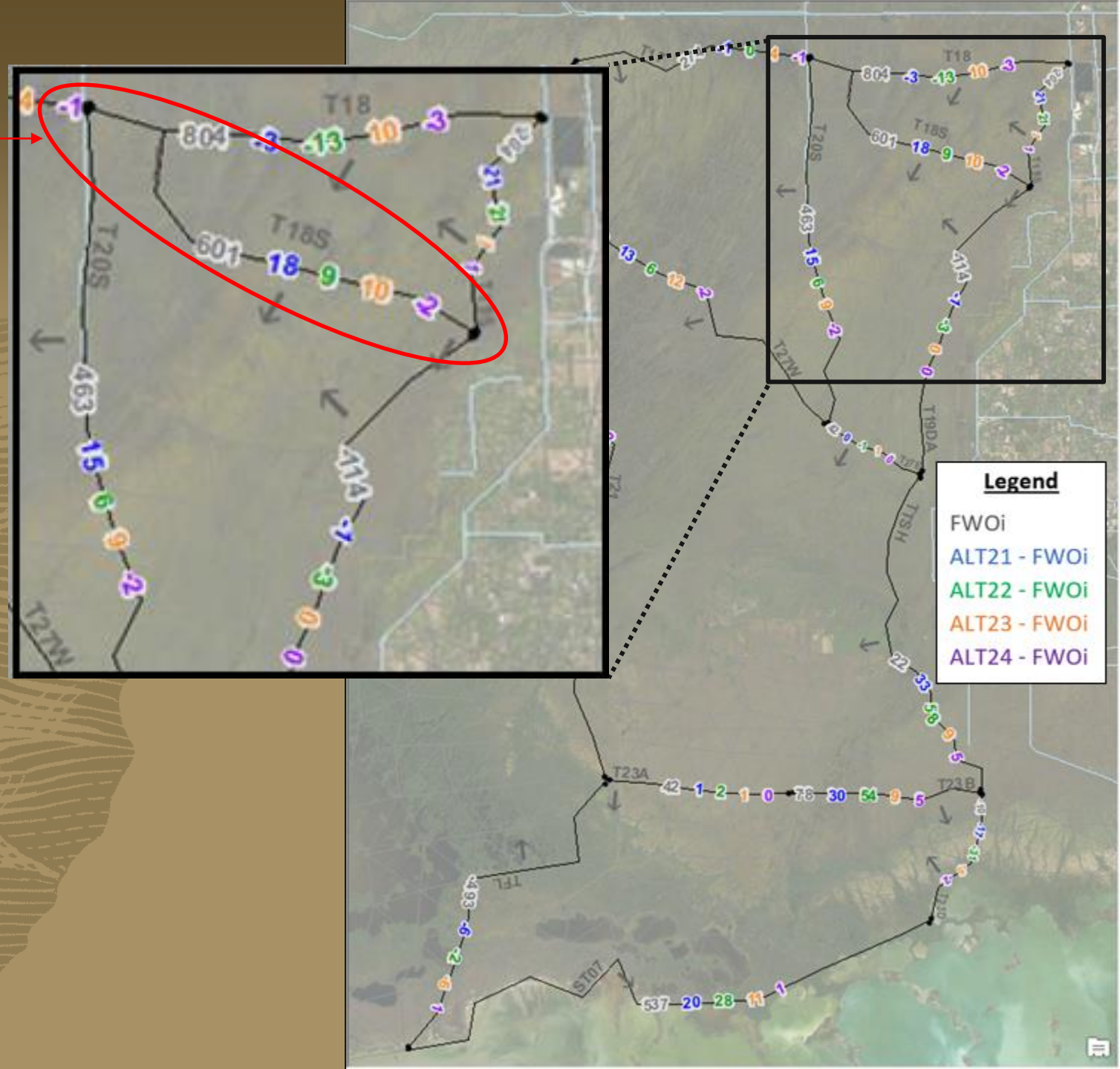
- Northeast Shark River Slough

T18S_Transect

The T18S transect flow for FWOi is 601 kaf/yr.

Alternatives 21-23 increase the amount of water being delivered deeper into the slough, and Alternative 24 delivers 2 kaf/yr less down the slough.

Because T18S has less *recirculated* flows counted in its flow totals, it can give a clearer indication of how much water is being delivered deeper into the slough than the T18 values.



Annual Average Flow in kaf (SW + GW)

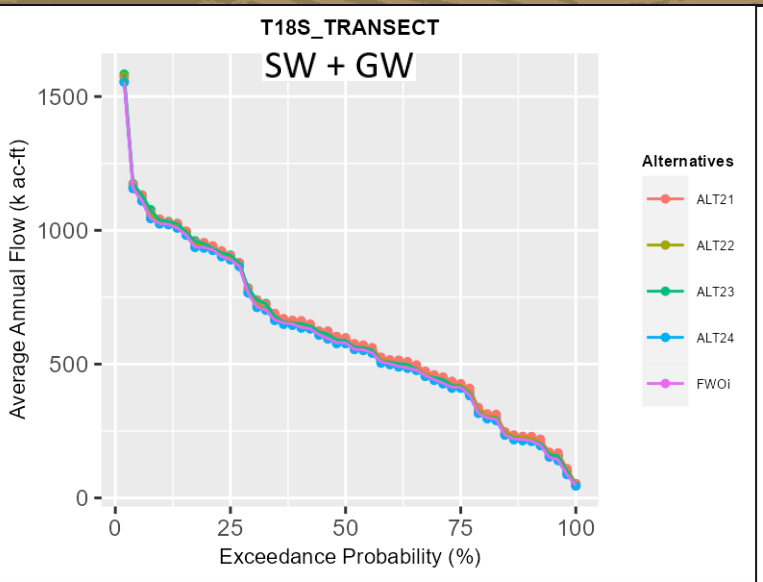
- Northeast Shark River Slough

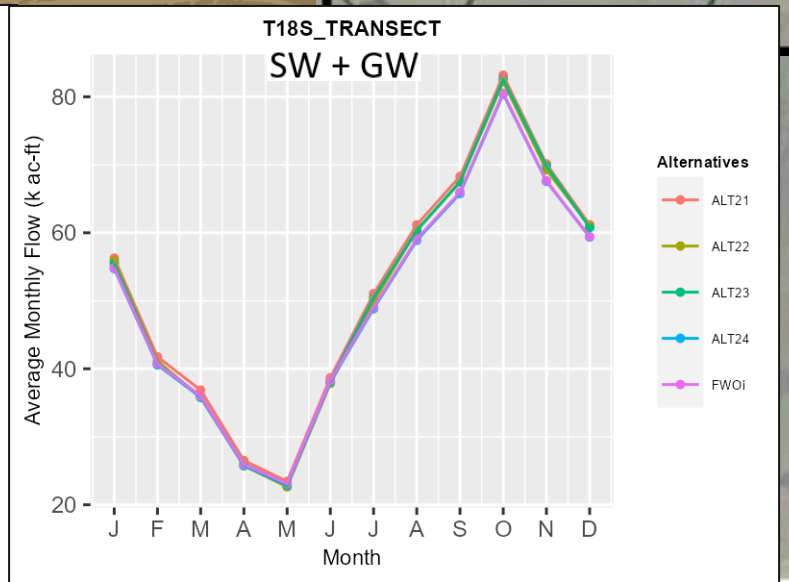
T18S_Transect

The Exceedance Probability plot for the T18S Transect (lower left) shows that there are not significant decreases in flow during dry years.

The Average Monthly Flow plot (lower middle) for the T18S Transect shows that there are not significant decreases in flow during the dry months.

Surface water plots show similar behavior.



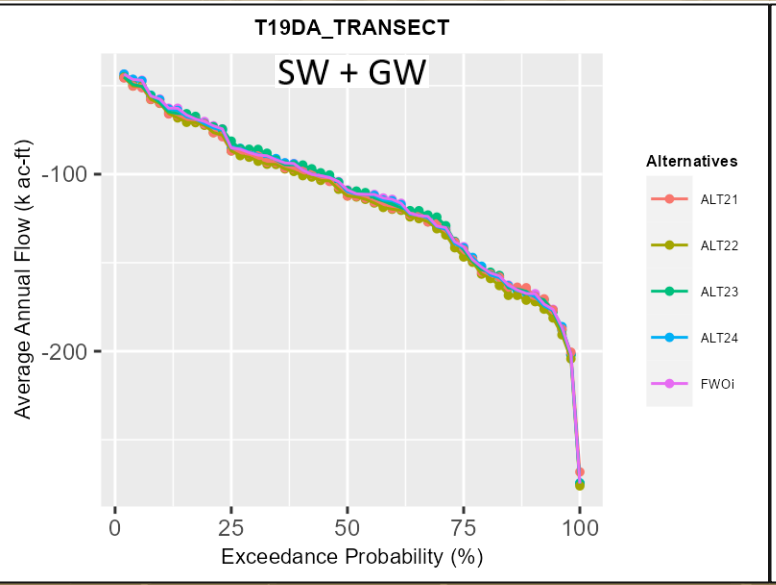


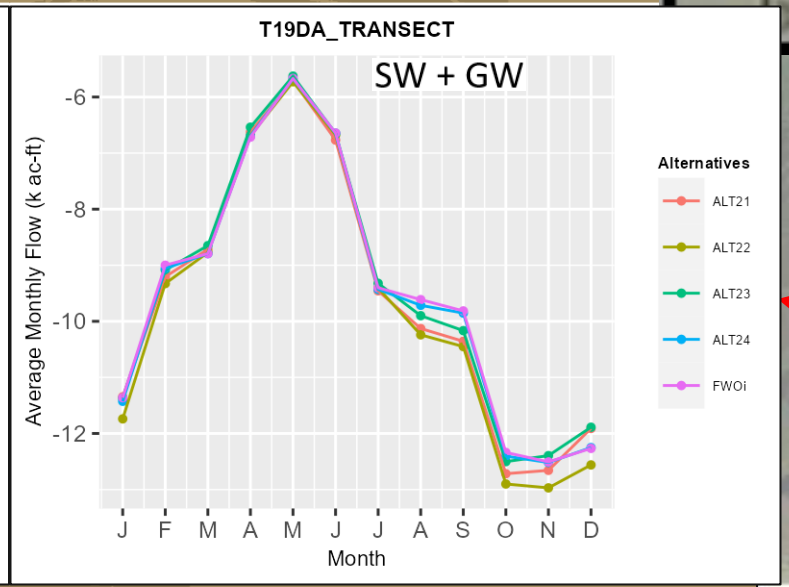
Annual Average Flow in kaf (SW only)

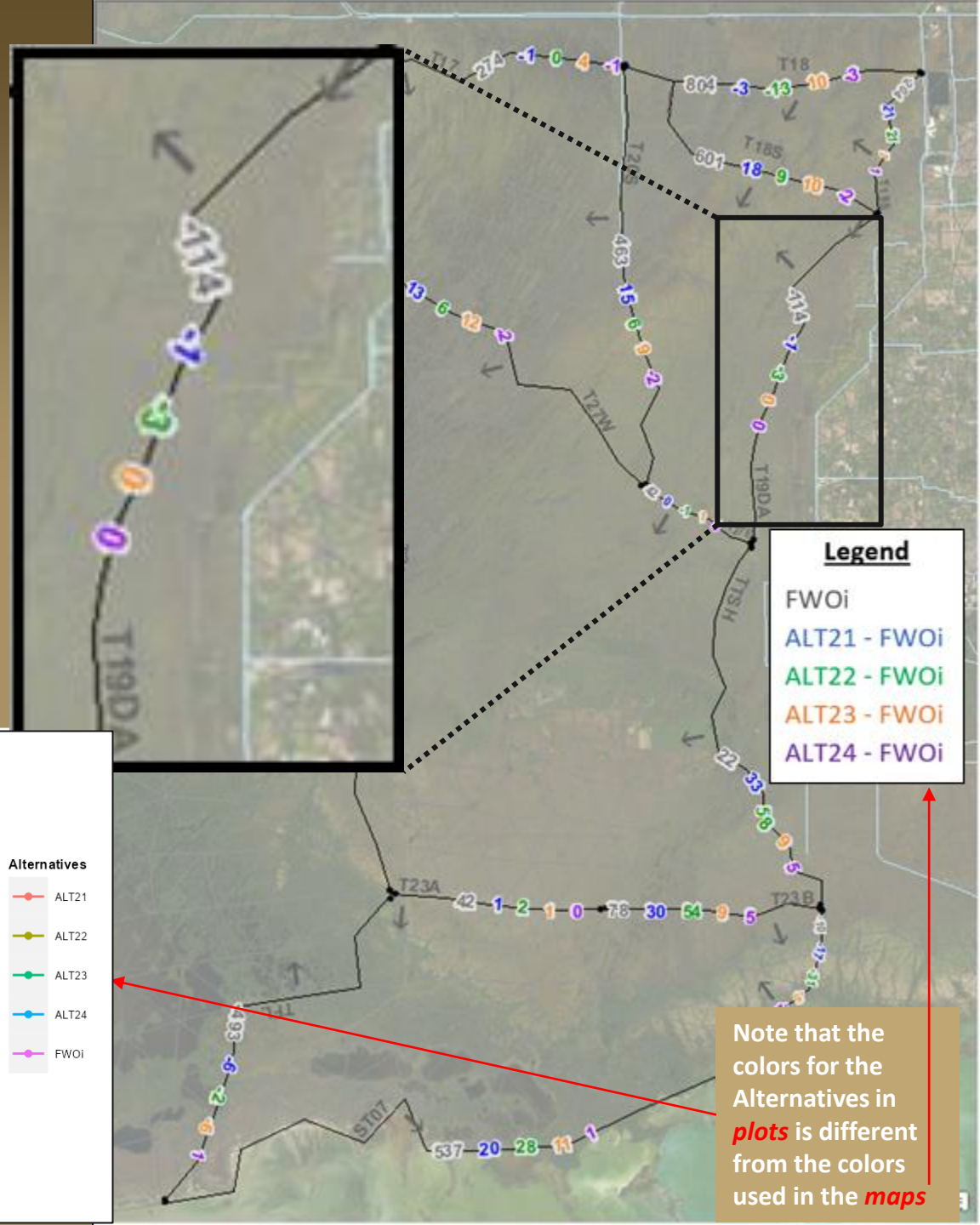
- Northeast Shark River Slough

The T19DA transect flow for FWOi is -114 kaf/yr, indicating that 114 kaf/yr leaves the park across this transect, or moves to the extreme eastern edge of the park. Alternatives 21 and 22 increase the amount of flow lost through this area, and Alts 23 and 24 show no change.

The exceedance and monthly average plots show that all alternatives loose more water along this transect, and mostly in the dry season.



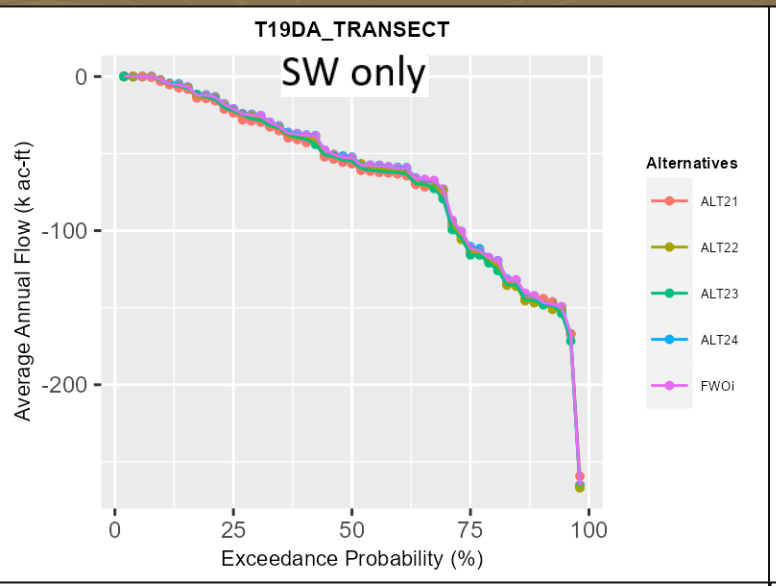


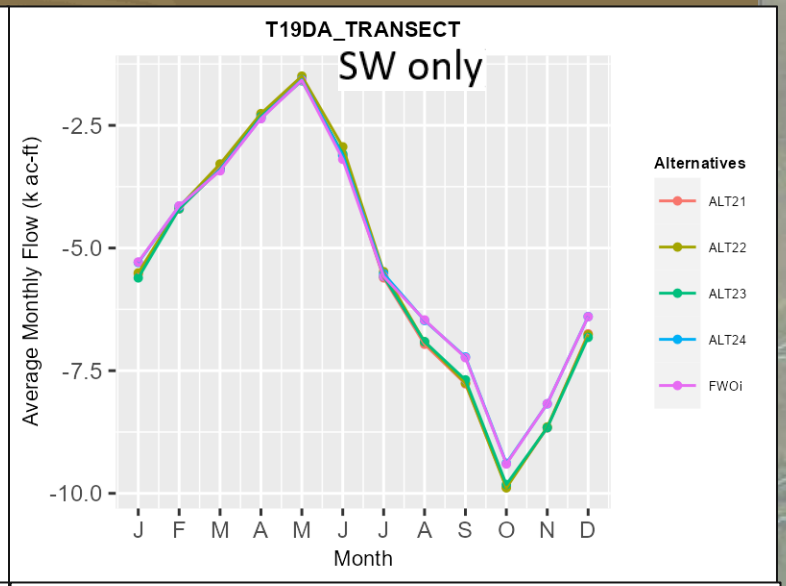


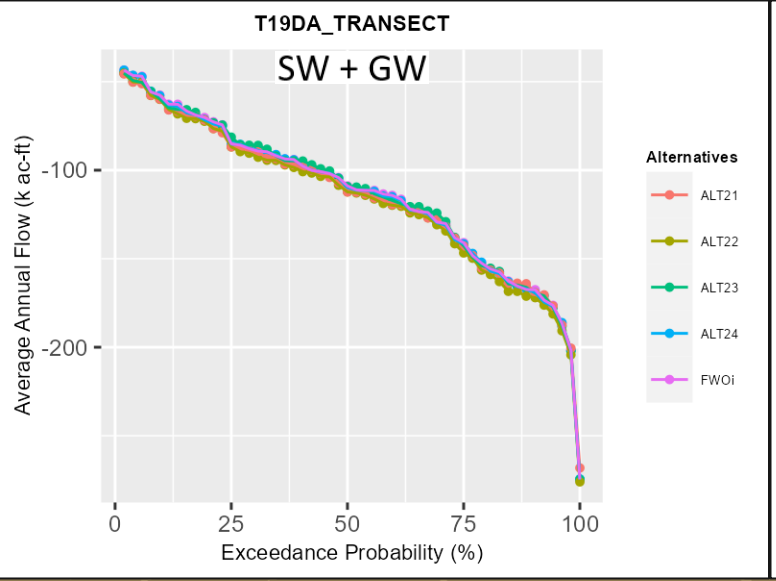
Annual Average Flow in kaf

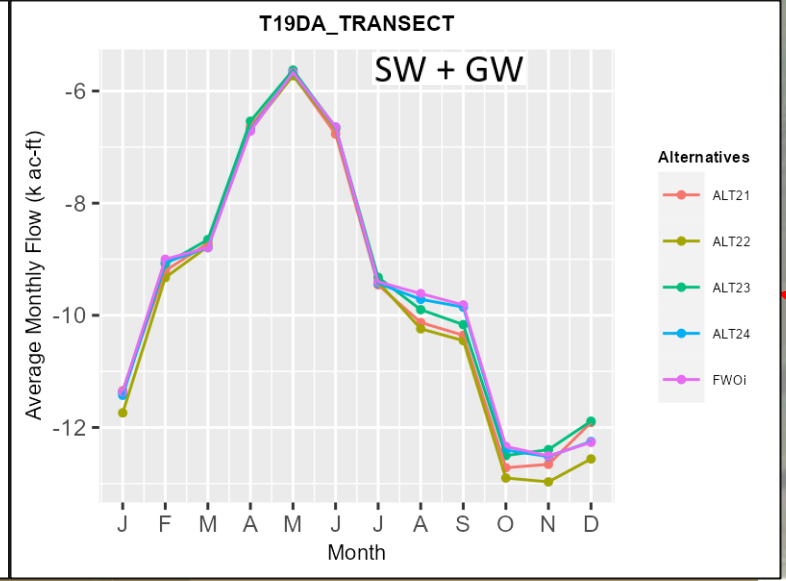
- Northeast Shark River Slough

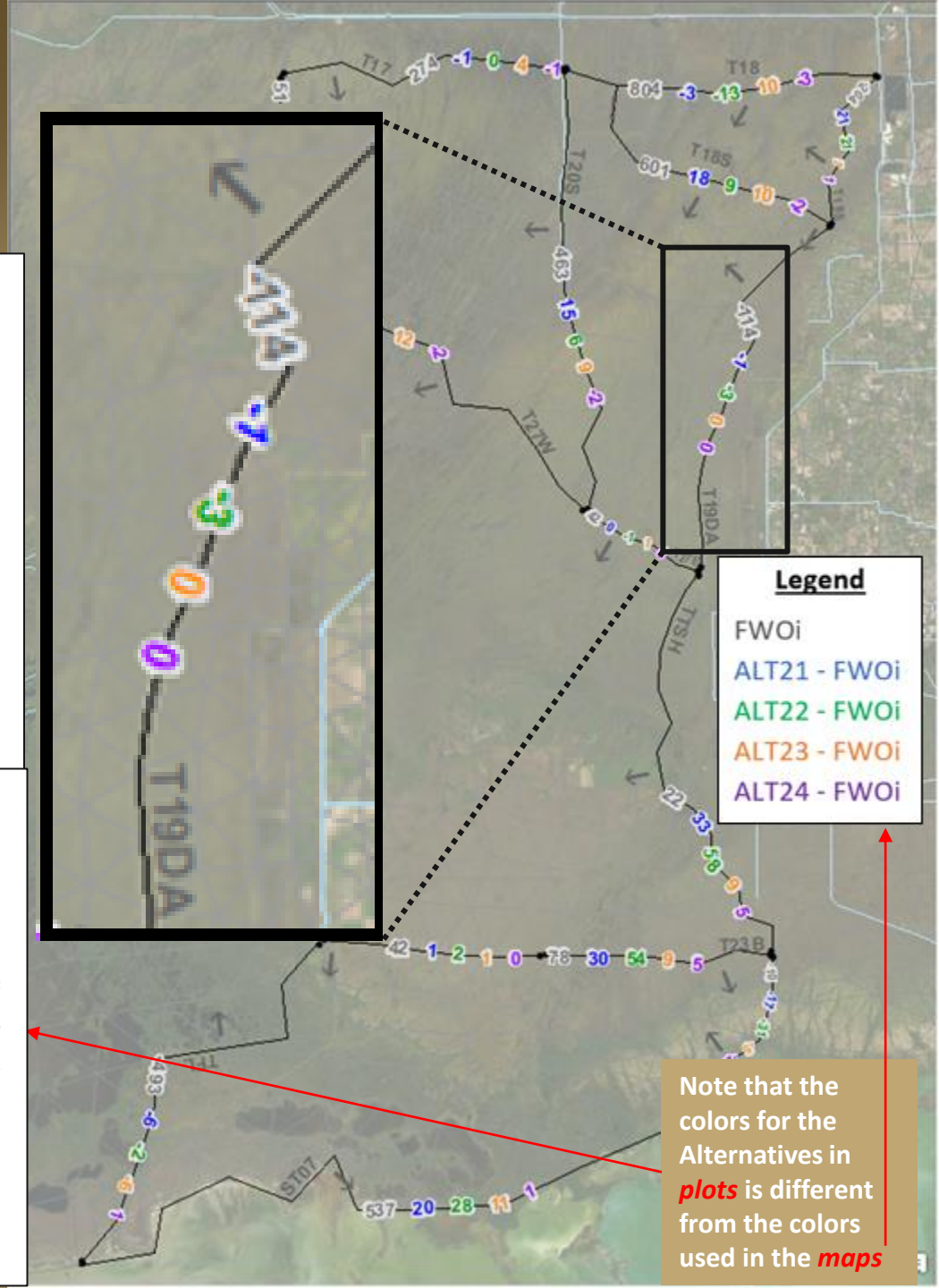
Surface water flow values for T19DA show different monthly distributions. (The reasons for this were not pursued here.)











Annual Average Flow in kaf (SW + GW)

- Taylor Slough Headwaters

The TTSH transect flow for FWOi is 22 kaf/yr. All the alternatives increase the amount of flow through this area compared to FWOi by 5 to 58 kaf/yr.

These increased flows can be seen propagating southward through the T23B transect, and to the T23D and ST07 transects.

Surface water flow values show a similar trend.