Apalachicola River Slough Restoration (FL)

Phase 1

APALACHICOLA RIVERKEEPER.

COAPS

Florida Wildlife Federation

Keeping the Wild in Florida since 1936!

UF | West Florida Research and Education Center

MILTON, FL

Riparian County Stakeholder Coalition

Apalachicola National Estuarine Research Reserve

East River/Distributary Model

Collaboration between Slough Restoration project and ABSI

Jiahua Zhou PhD Candidate UF

Xu Chen PhD Research Associate at FAMU (ABSI)

Combined use of ABSI model FVCOM

Model is split from Bay model due to precision needed in the smaller distributaries

Model domain Sumatra, Brothers River, East River and Distributaries

Includes Jackson River and Lake Wimico, boundary at Gulf Co.
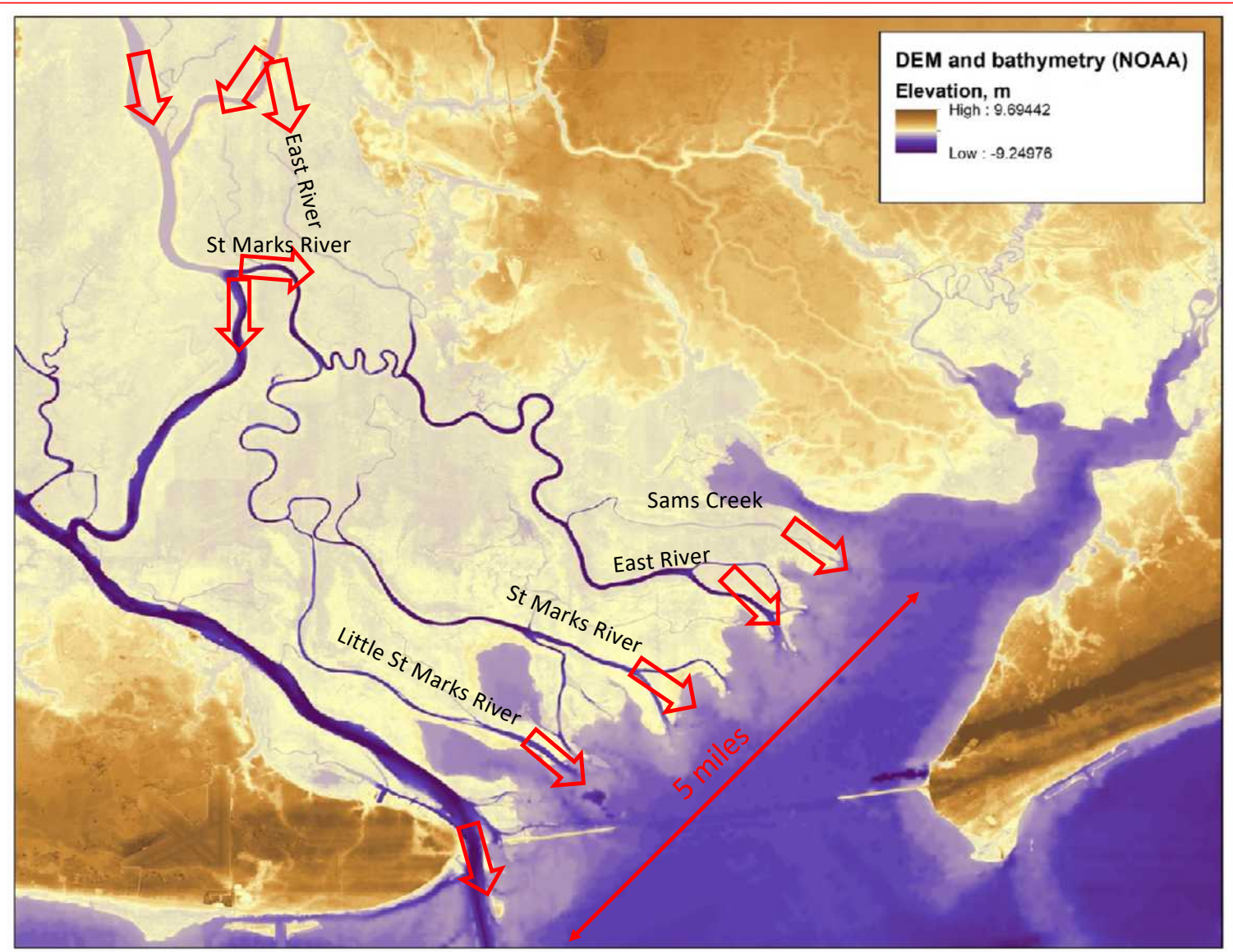
East River/Distributary Model

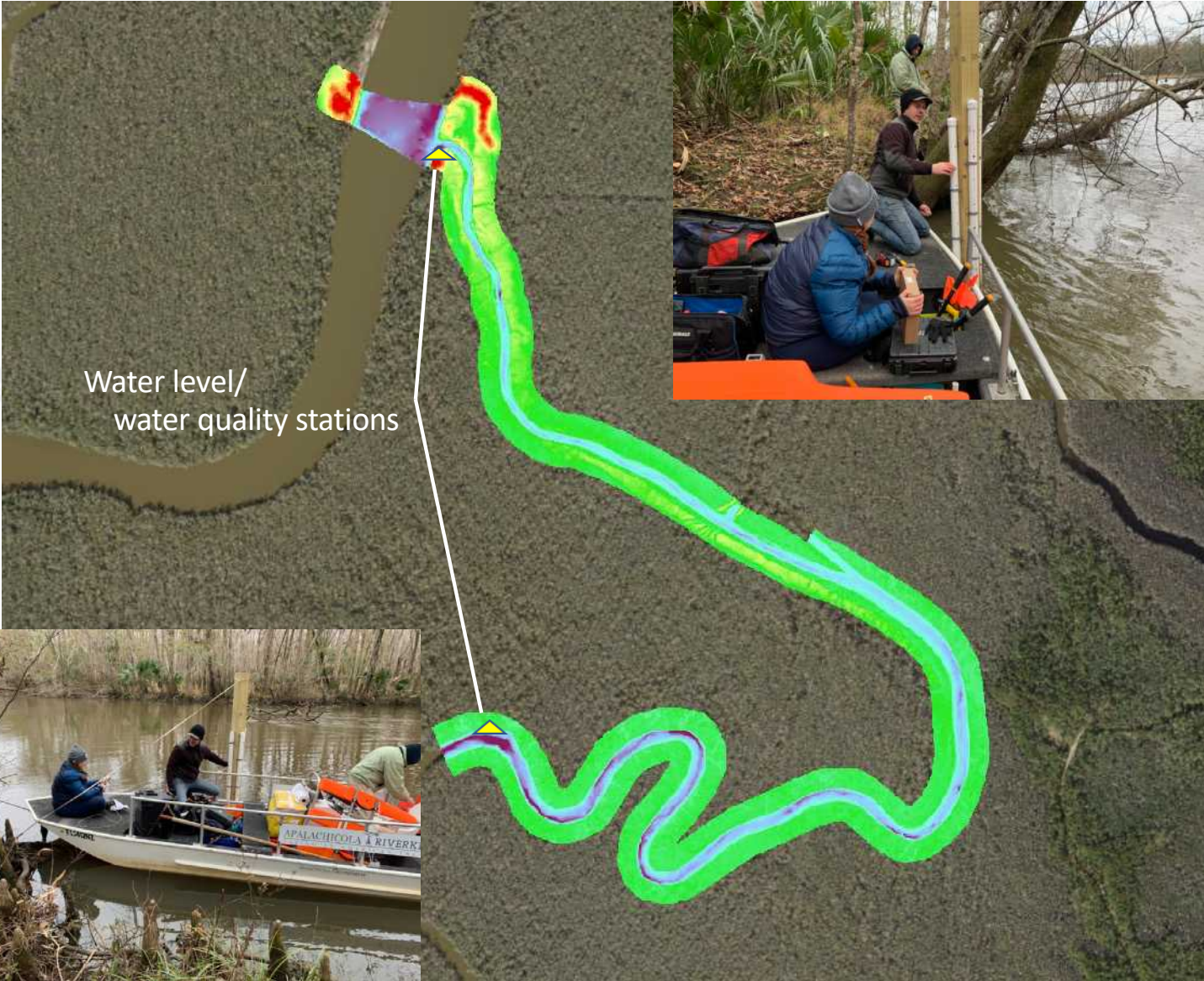Lower river boundary conditions (tide and salinity) provided by ABSI Bay Model for each of the flow conditions

Model use:

* Slough Restoration – looking at changes in flow in East River with restoration of the top 2 miles
* ABSI estuarine model – characterizing the quantity and location of freshwater discharges into East Bay relative to total Apalachicola River flows

mesh topo-bathy

DEM and bathymetry (NOAA)

Elevation, m

High : 9.69442

Low : -9.24976

East River

St Marks River

Sams Creek

East River

St Marks River
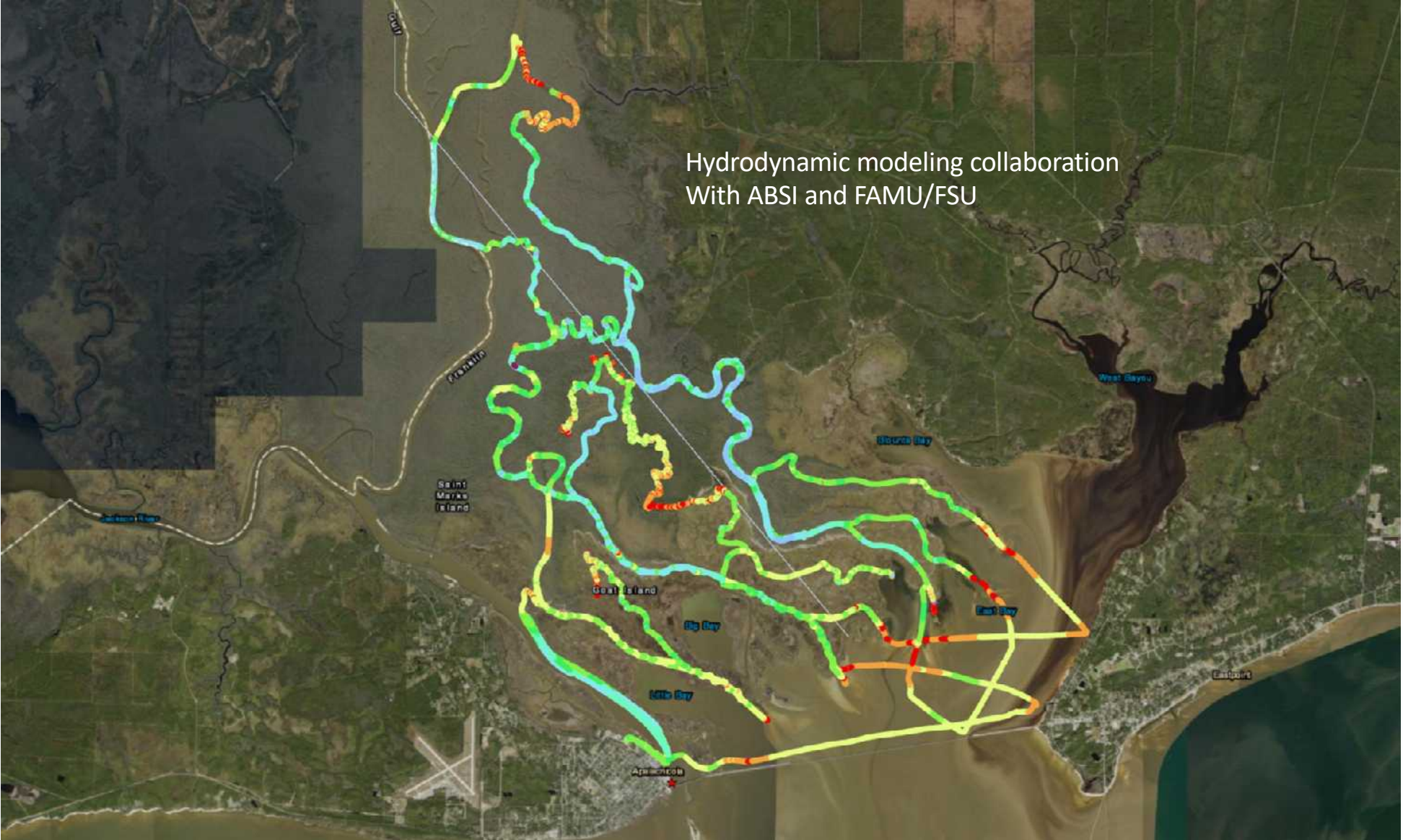
Little St Marks River

5 miles

Water level/
water quality stations

Hydrodynamic modeling collaboration
With ABSI and FAMU/FSU

Cross-section profile #9
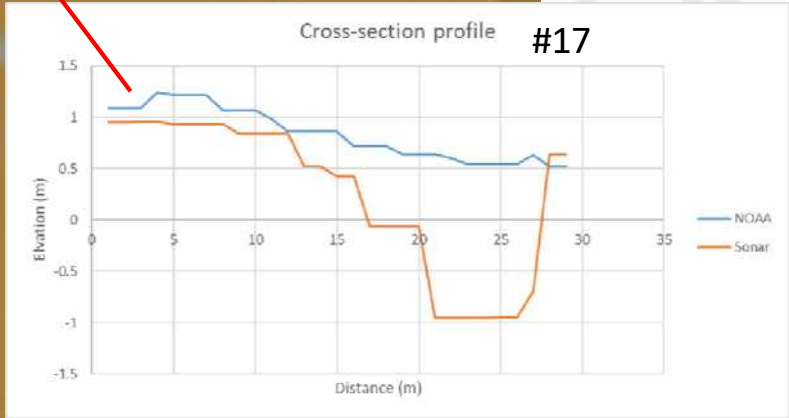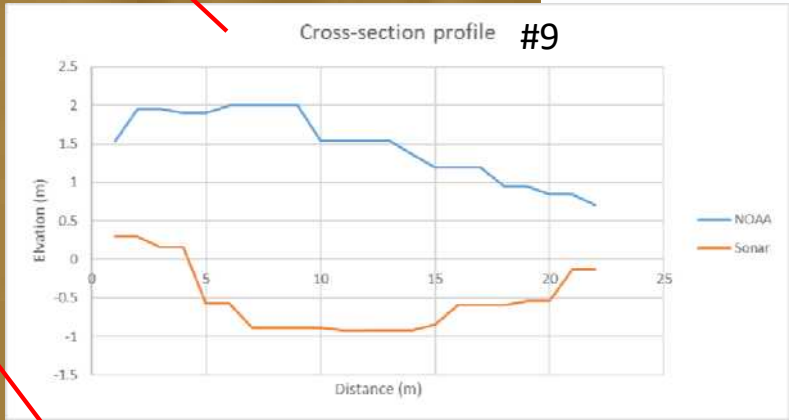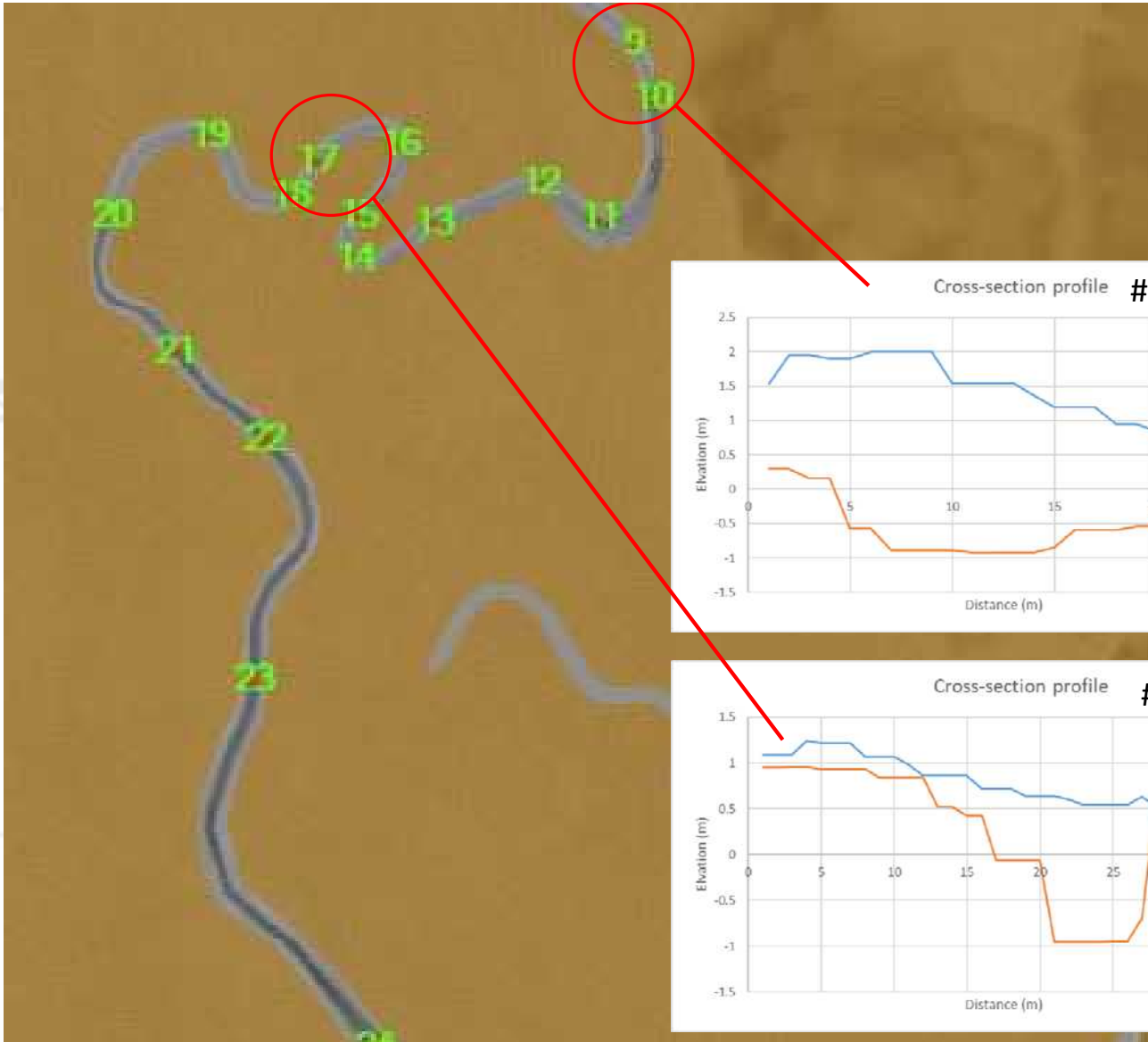
Cross-section profile #17

Table 2. The comparison of freshwater flow before and after the Slough Restoration plan

Before/After	Head of East River (m³/s)	APM	LSM	STM	ERS	ERN
Low	0.57/0.90	81.0%*/80.9%	1.3%/1.2%	5.8%/5.8%	11.7%/11.8%	0.2%/0.2%
Medium	5.06/6.98	76.7%/76.4%	1.6%/1.6%	7.4%/7.4%	13.7%/14.0%	0.6%/0.6%
High	15.79/20.85	72.7%/72.6%	2.0%/2.0%	8.5%/8.5%	15.9%/16.1%	0.9%/0.9%
Extreme	18.66/23.60	71.3%/71.2%	3.9 %/3.9%	10.1%/10.1%	13.6%/13.7%	1.1%/1.1%

* The percentages were calculated referring the summarized flow of the five exits.

Flows (Before/After)		Percent Increase in flow after dredging
Low	5900 cfs	58%
Medium	12,500 cfs	38%
High	33,760 cfs	32%
Extreme	77,020 cfs	26%

At low to medium flows 20% of flow is distributed from the river to East Bay
At medium to high flows 30% is to the bay

Over half the flow is distributed to upper East Bay through the East River

Change of Percentage of Total Flow