CALIFORNIA WATER FIX
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DWR - 1027

DSM2 WATER QUALITY AND WATER LEVEL MODELING

TESTIMONY OVERVIEW

- **Will Cover -Changes in Water Quality (Salinity) and Water Levels Between CWF H3+ and NAA – Plotted with H3 and H4 and BA H3+**
  - **Compliance with Fish and Wildlife D-1641 Water Quality Objectives**
  - **Monthly Average Water Quality Results and Compliance with M&I and Ag D-1641 Water Quality Objectives**
  - **Water Level Probabilities**

SUMMARY OF OPINION

- Results for CWF H3+ and NAA were similar for the F&W D-1641 Suisun Marsh Objectives
- For the D-1641 San Joaquin F&W Objective
  - CWF H3+ and NAA results complied with the objective at Jersey Point and San Andreas Landing
  - CWF H3+ results at times did not comply at Prisoners Point due to higher land base salts in the San Joaquin River

SUMMARY OF OPINION (CONT)

- CWF H3+ EC results generally fall between H3 and H4
- CWF H3+ D-1641 M&I and Ag Water Quality Objectives are met the majority of the time
- Any small percentage of probability of exceedance is equal to or less than the NAA except at Emmaton which has a slightly higher probability

SUMMARY OF OPINION (CONT)

- **Exceptions to CWF H3+ falling in-between H3 and H4 occur when**
  - **Higher spring outflow requirements resulted in less exports and as a result higher interior Delta salinity (south of the SJR)**
  - **Removal of export constraints in the fall results in lower Delta Outflow and higher salinity.**
- **Water level effects for CWF H3+ are similar to H3 and H4**

TABLE 1 - D1641 WATER QUALITY OBJECTIVES FOR FISH AND WILDLIFE BENEFICIAL USES - DSM2 ANALYSIS

Compliance Location	Description	Objective Value (mmhos/cm EC) and TimePeriod	Year Types	Notes	DSM2 Results Figure Numbers
San Joaquin River at and between Jersey Point and Prisoners Point	Maximum 14-day running average of mean daily EC (mmhos/cm)	0.44 in April-May	All year types except critical	The objective also does not apply in May when the Sacramento River Index estimate is less than 8.1 MAF at 90% exceedance level. Comparisons of modeling results to the objective do not include this exception to meeting the 0.44 mmhos/cm EC objective.	Figures C6-C8
Sacramento River at Collinsville, **Montezuma Slough at National Steel,** **Montezuma Slough near Beldon's Landing**	Maximum monthly average of both daily high tide EC values (mmhos/cm)	19.0 in Oct 15.5 in Nov-Dec 12.5 in Jan 8.0 in Feb- Mar 11.0 in Apr-May	All year types		Figures C1-C3
Chadbourne Slough at Sunrise Duck Club, **Suisun Slough, 300 feet South of Volanti Slough**	Maximum monthly average of both daily high tide EC values (mmhos/cm)	19.0 in Oct 16.5 in Nov 15.5 in Dec 12.5 in Jan 8.0 in Feb-Mar 11.0 in Apr-May	All year types except for deficiency period		Figures C4-C5
	Maximum monthly average of both daily high tide EC values (mmhos/cm)	19.0 in Oct 16.5 in Nov 15.6 in Dec-Mar 14.0 in Apr 12.5 in May	Deficiency period	Deficiency period allows for higher EC value objectives.	

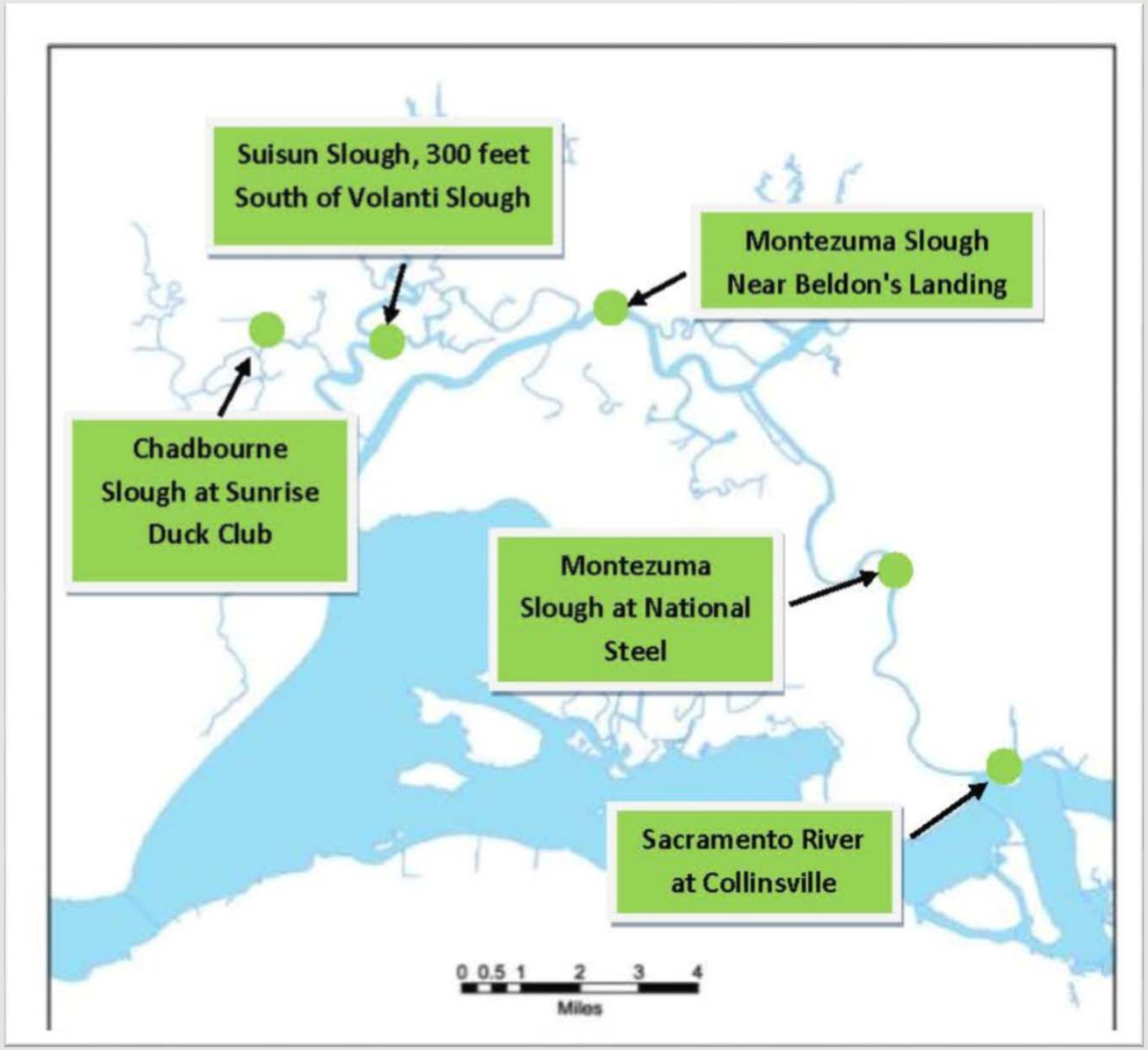
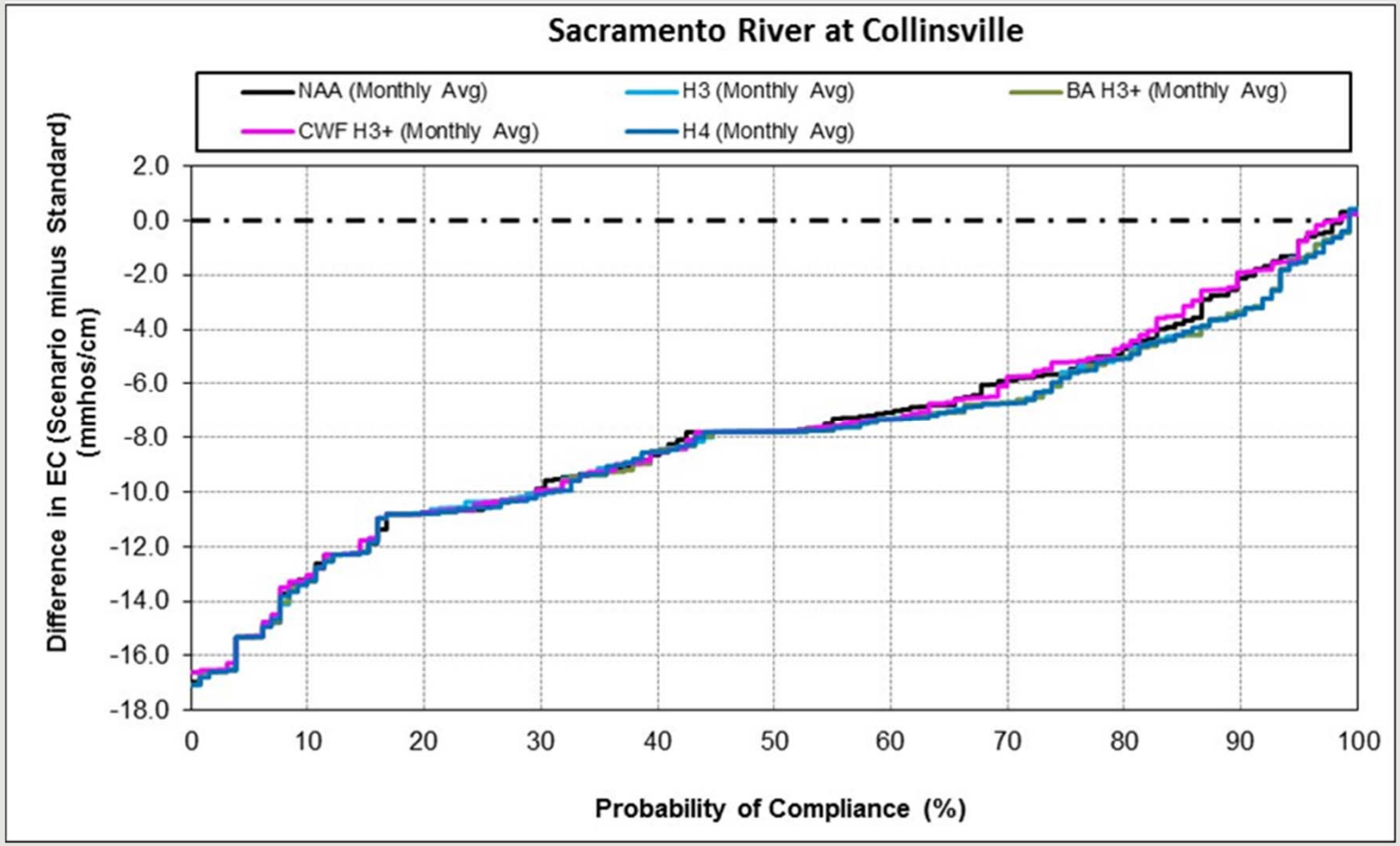


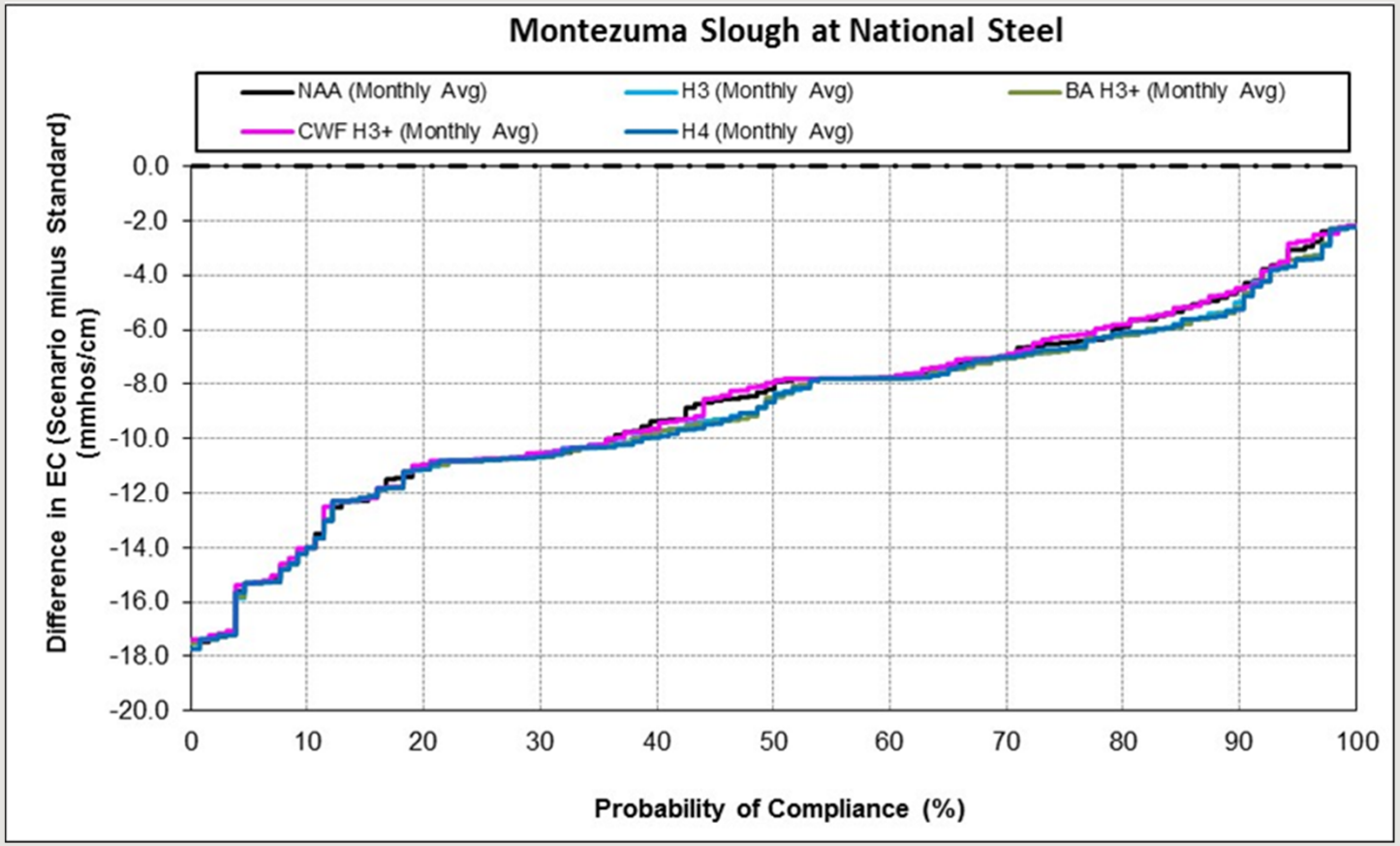
FIGURE L1: D1641 SUISUN MARSH WATER QUALITY OBJECTIVE LOCATIONS FOR FISH AND WILDLIFE BENEFICIAL USES

FIGURE C1: D-1641 FISH AND WILDLIFE EC OBJECTIVES AT COLLINSVILLE – PROBABILITY OF MEETING D-1641



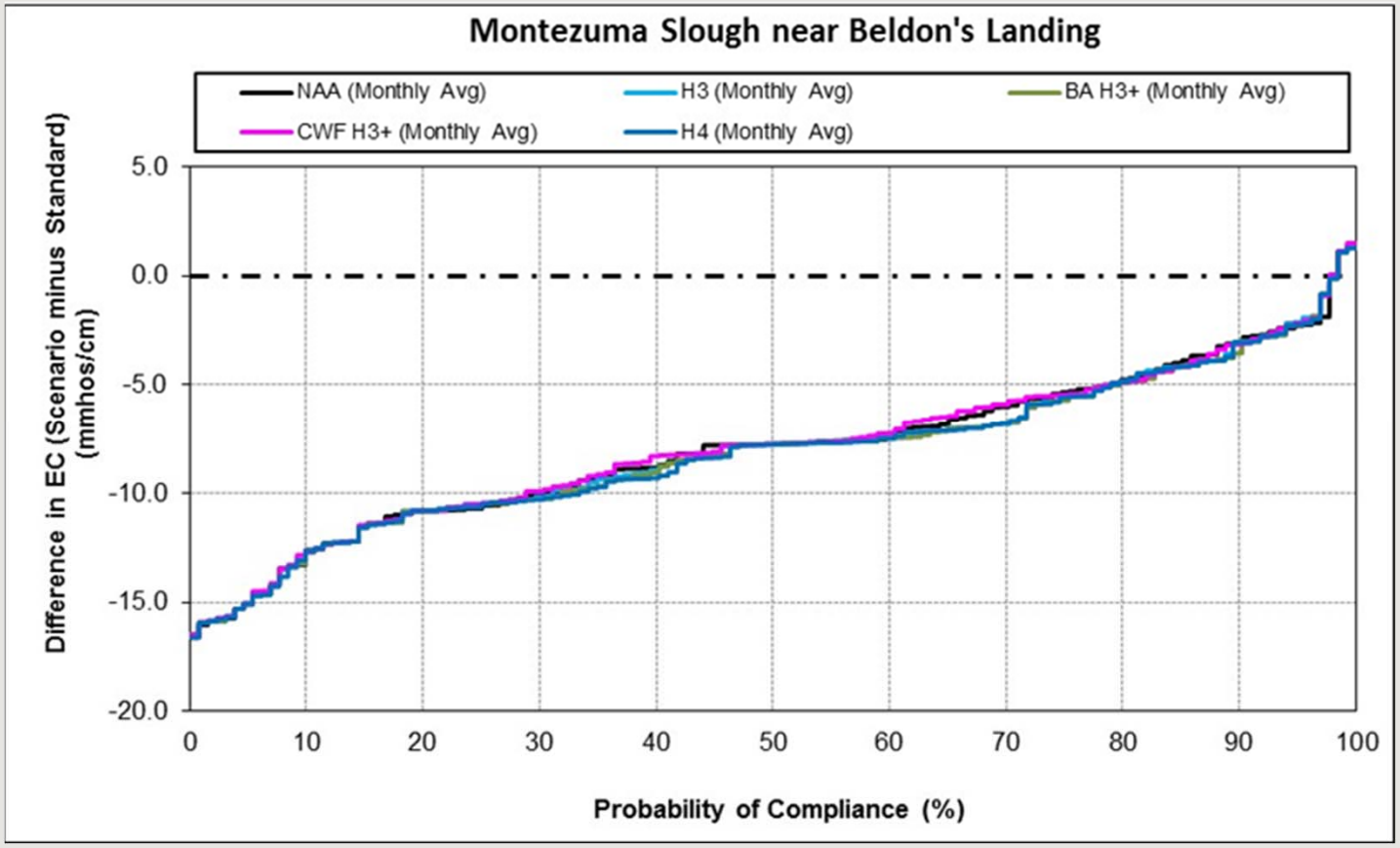
Model results are used for comparative purposes and not for predictive purposes

FIGURE C2: D-1641 FISH AND WILDLIFE EC OBJECTIVES AT MONTEZUMA SLOUGH AT NATIONAL STEEL – PROBABILITY OF MEETING D-1641



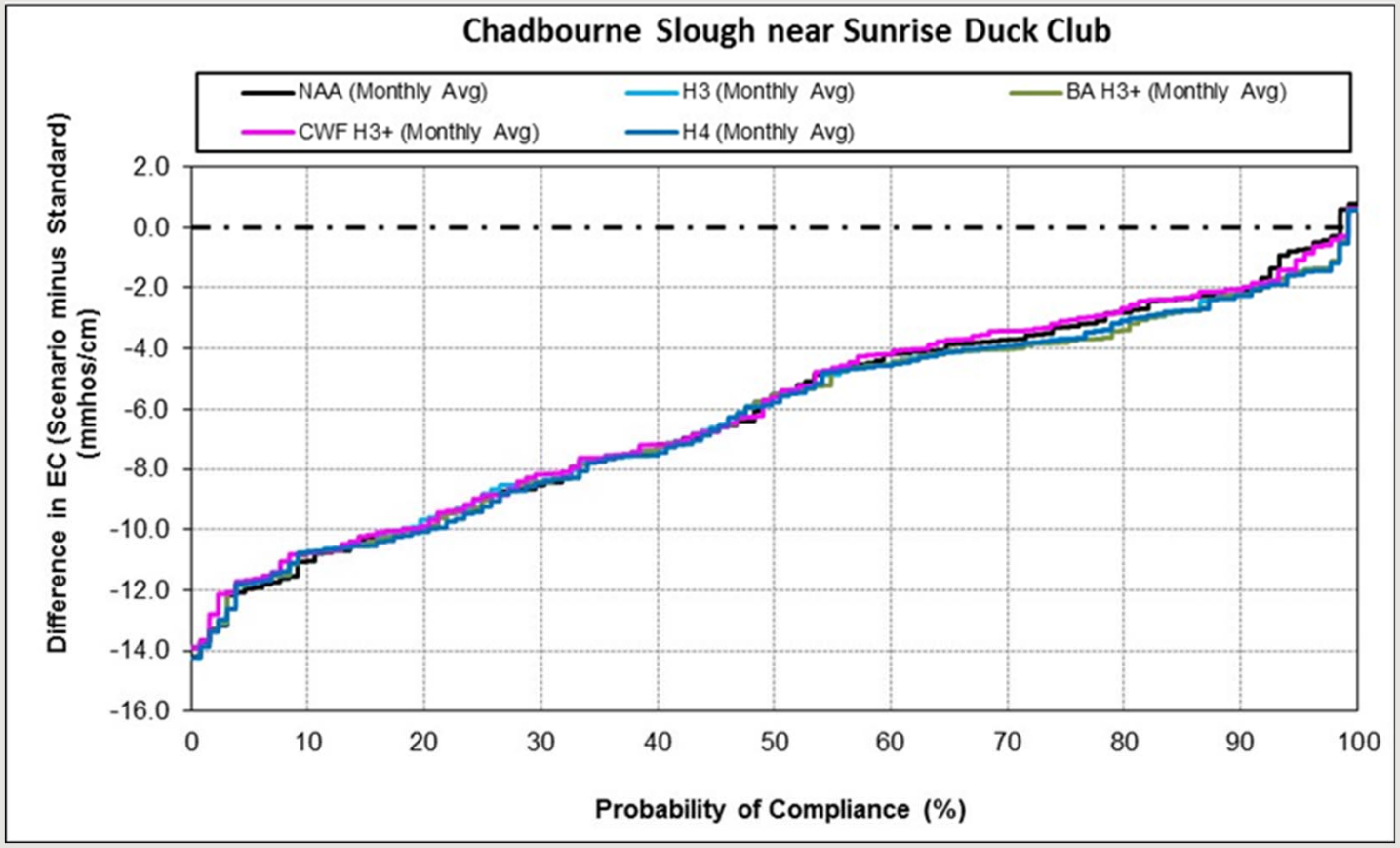
Model results are used for comparative purposes and not for predictive purposes

FIGURE C3: D-1641 FISH AND WILDLIFE EC OBJECTIVES AT MONTEZUMA SLOUGH NEAR BELDON'S LANDING – PROBABILITY OF MEETING D-1641



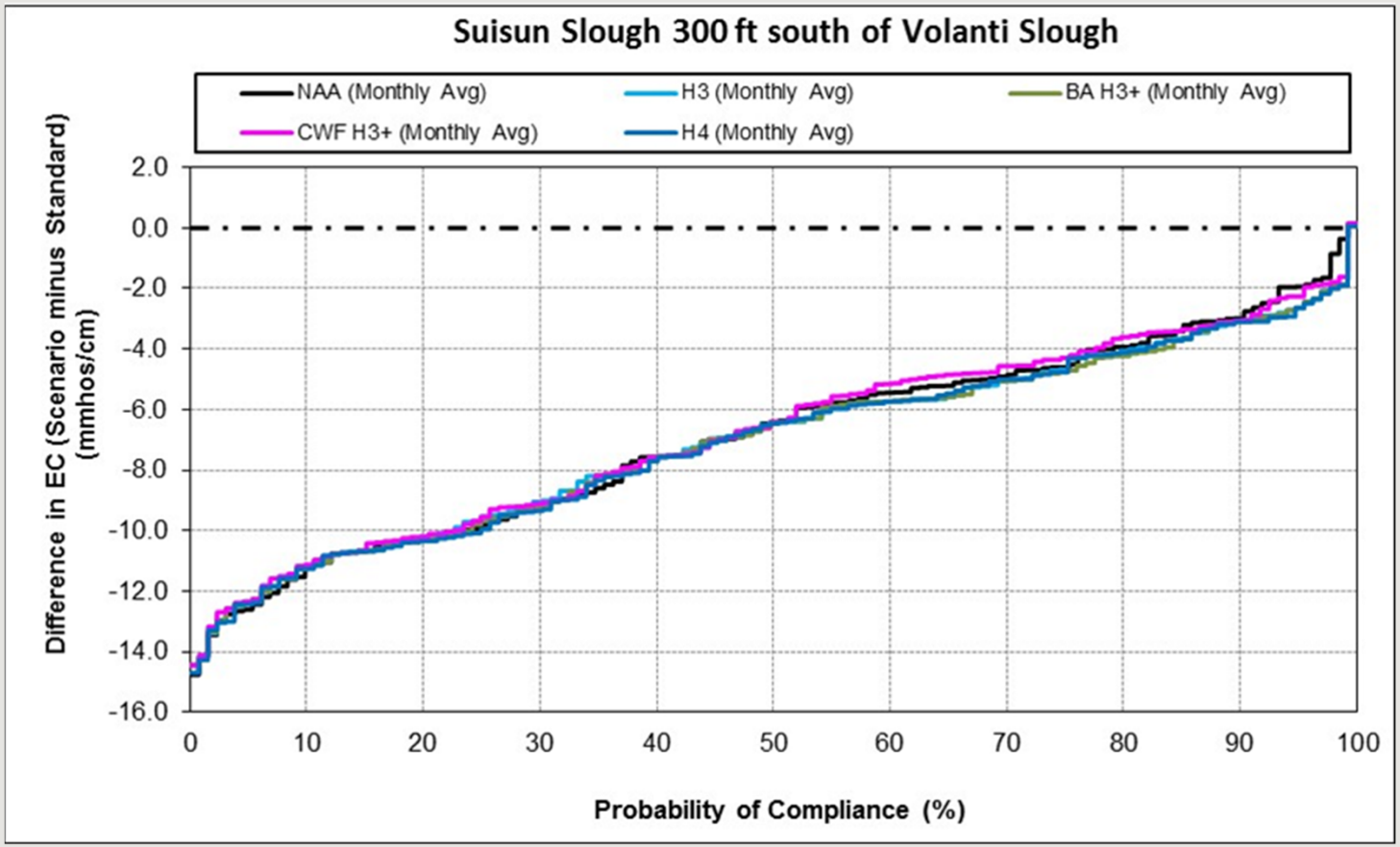
Model results are used for comparative purposes and not for predictive purposes

FIGURE C4: D-1641 FISH AND WILDLIFE EC OBJECTIVES AT CHADBOURNE SLOUGH NEAR SUNRISE DUCK CLUB – PROBABILITY OF MEETING D-1641



Model results are used for comparative purposes and not for predictive purposes

FIGURE C5: D-1641 FISH AND WILDLIFE EC OBJECTIVES AT SUISUN SLOUGH 300 FT SOUTH OF VOLANTI SLOUGH – PROBABILITY OF MEETING D-1641



Model results are used for comparative purposes and not for predictive purposes

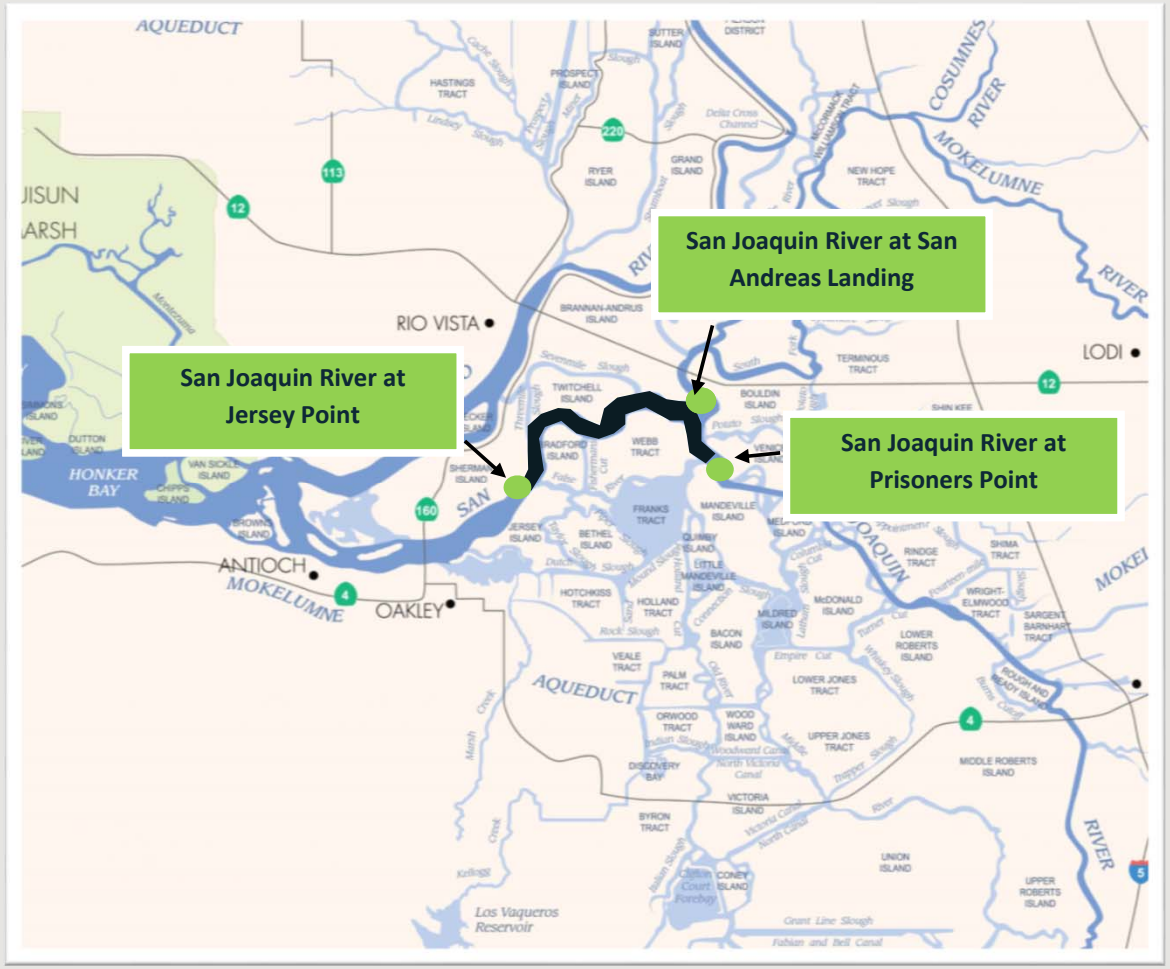
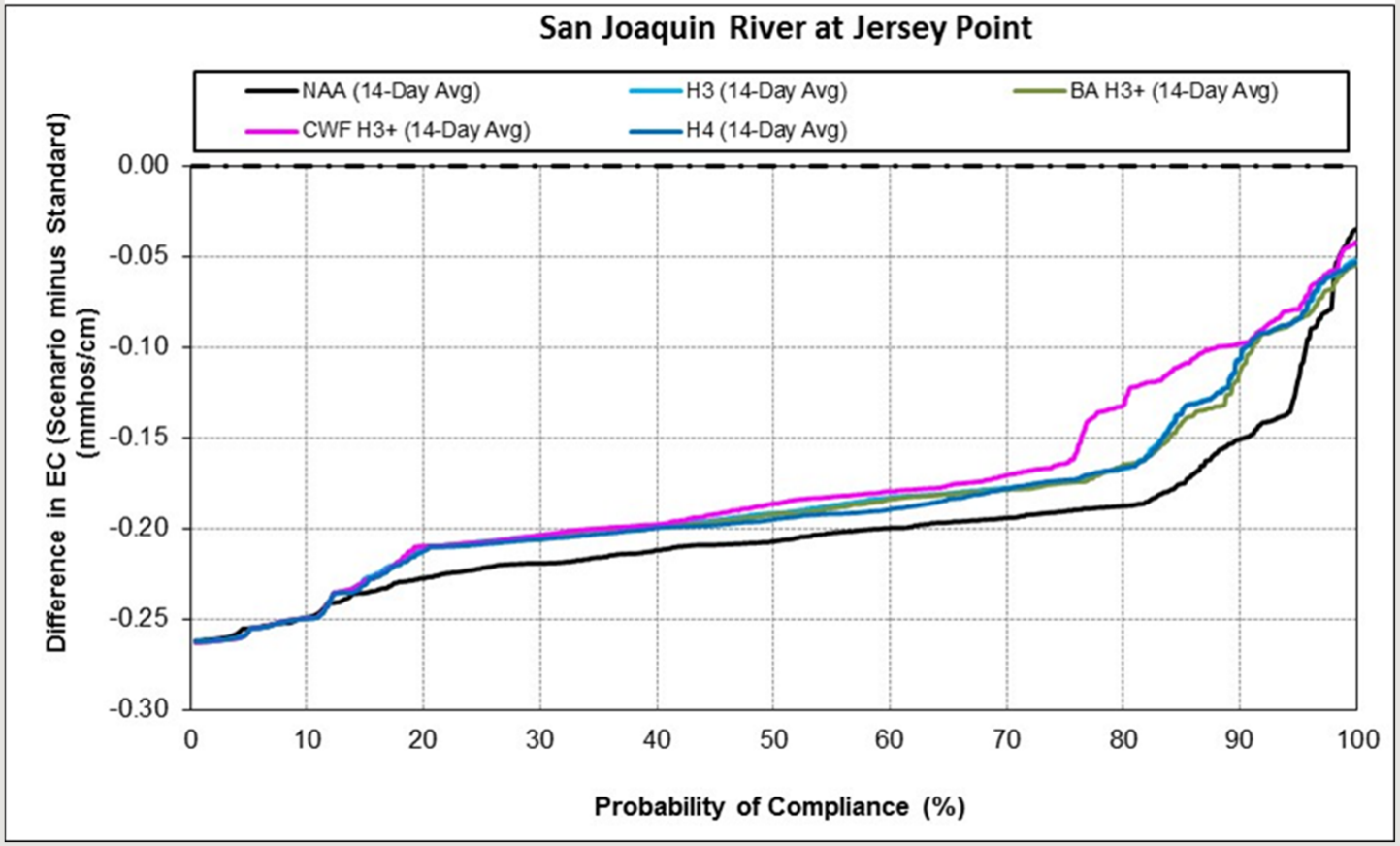


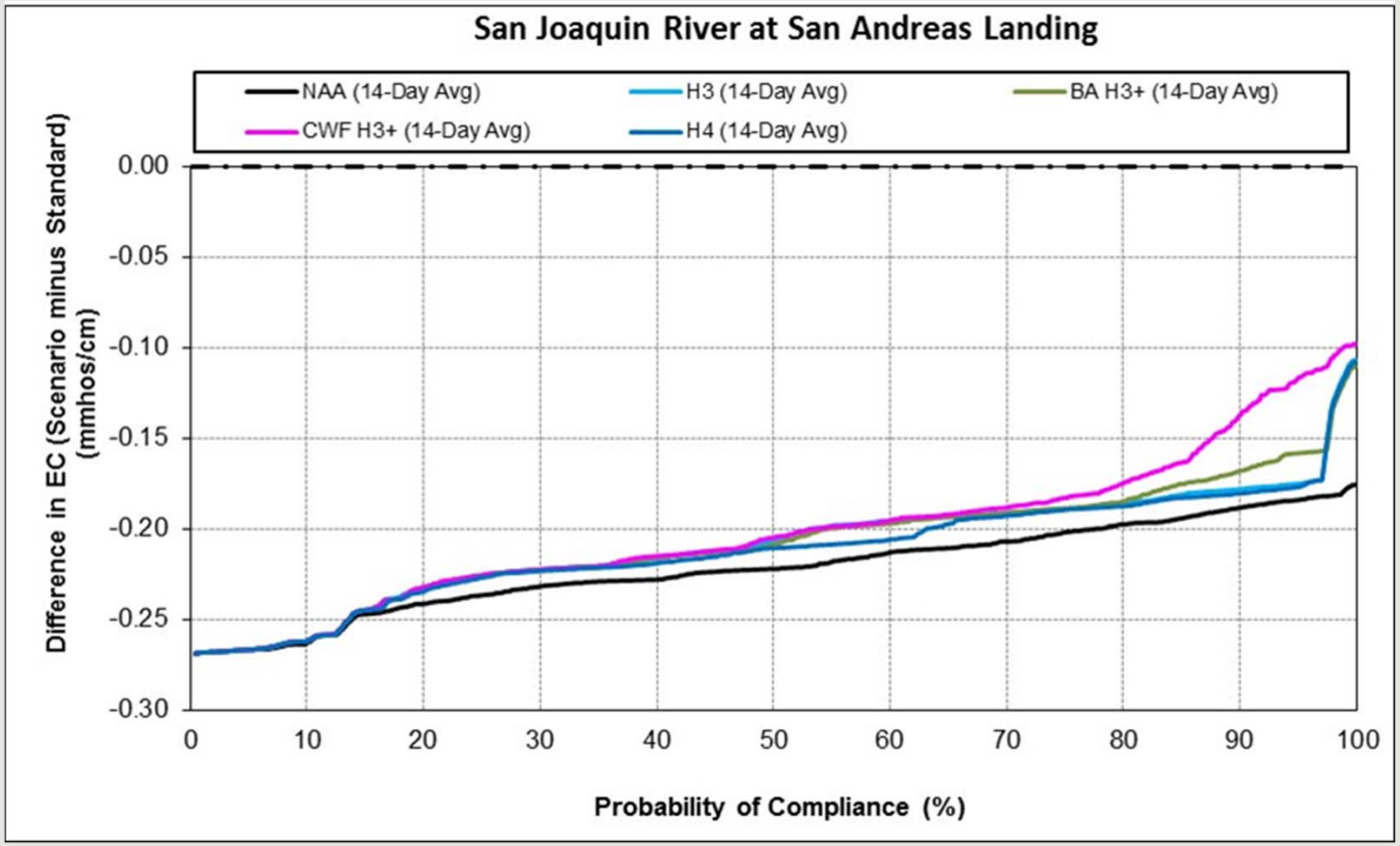
FIGURE L2: LOCATION OF THE SEGMENT OF THE SAN JOAQUIN RIVER BETWEEN JERSEY POINT AND PRISONERS POINT – D-1641 WATER QUALITY OBJECTIVES FOR FISH AND WILDLIFE BENEFICIAL USES

FIGURE C6: D-1641 FISH AND WILDLIFE EC OBJECTIVE AT JERSEY POINT – PROBABILITY OF MEETING D-1641



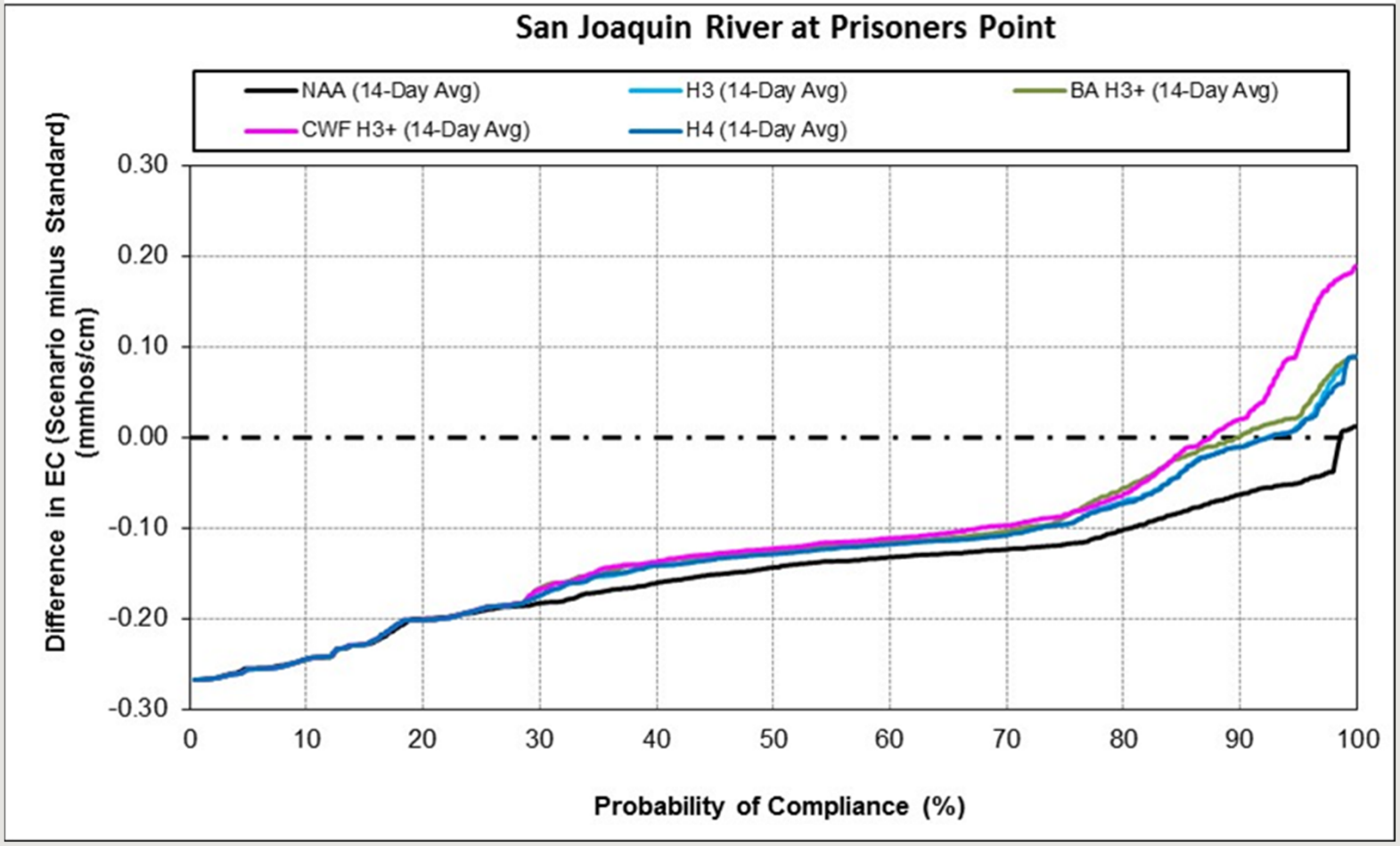
Model results are used for comparative purposes and not for predictive purposes

FIGURE C7: D-1641 FISH AND WILDLIFE EC OBJECTIVE AT SAN ANDREAS LANDING – PROBABILITY OF MEETING D-1641



Model results are used for comparative purposes and not for predictive purposes

FIGURE C8: D-1641 FISH AND WILDLIFE EC OBJECTIVE AT THE SAN JOAQUIN RIVER AT PRISONERS POINT – PROBABILITY OF MEETING D-1641



Model results are used for comparative purposes and not for predictive purposes

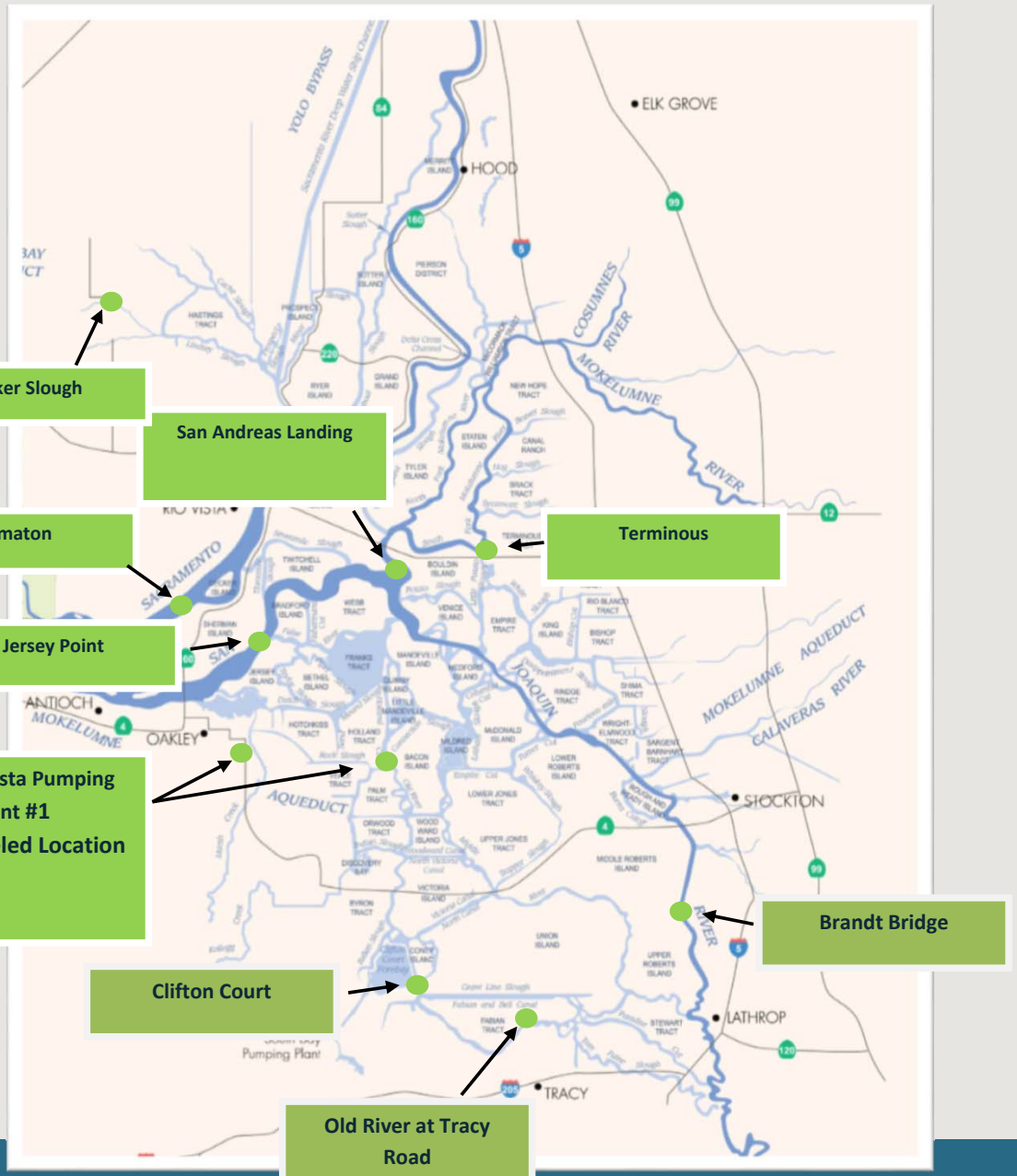
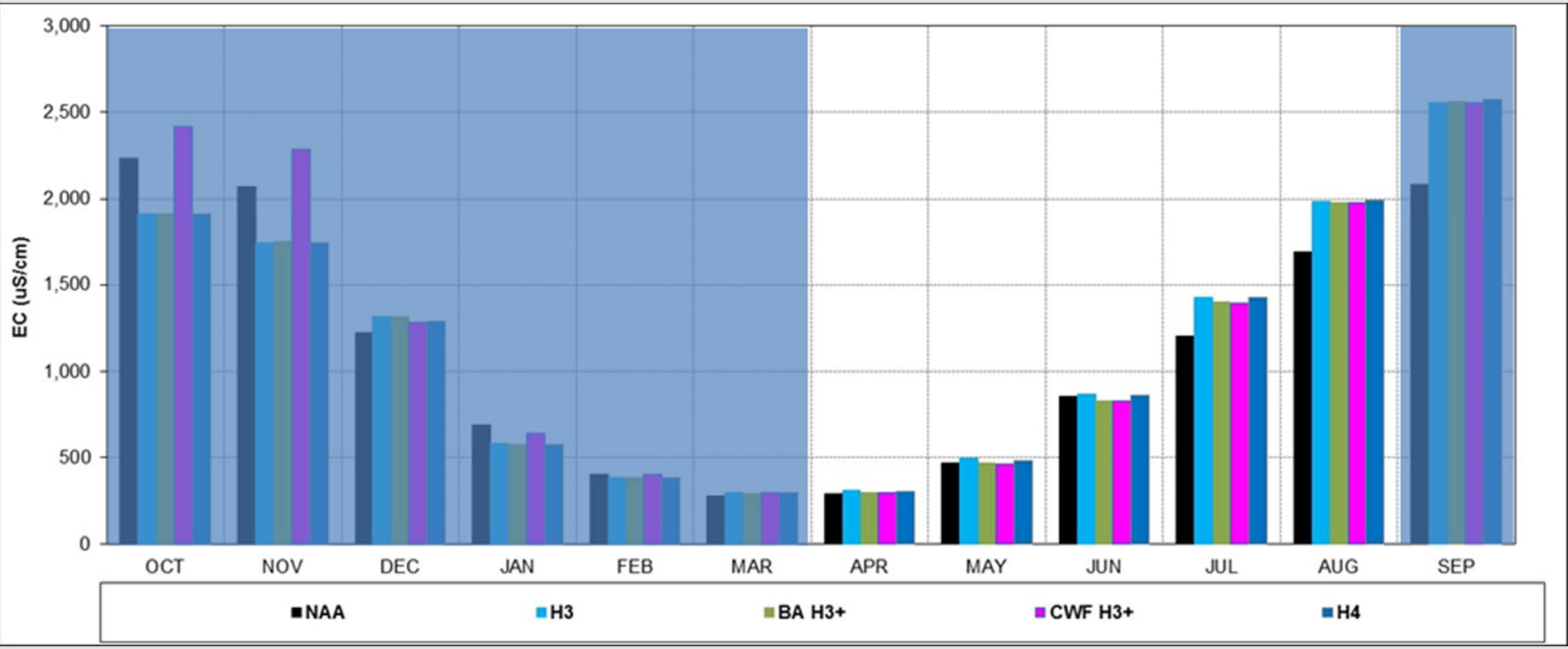


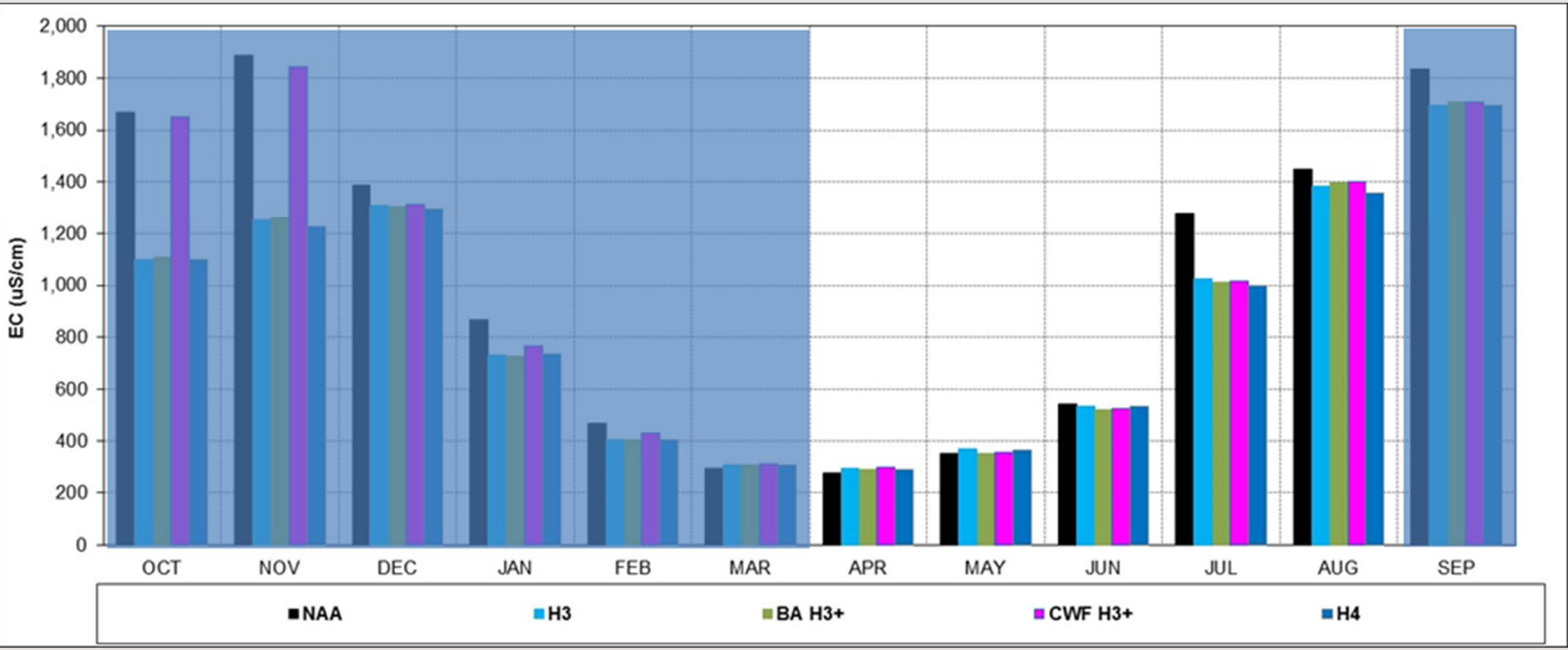
FIGURE L3: LOCATIONS OF M&I AND AGRICULTURAL WATER QUALITY RESULTS

FIGURE EC1: MONTHLY AVERAGE EC AT EMMATON



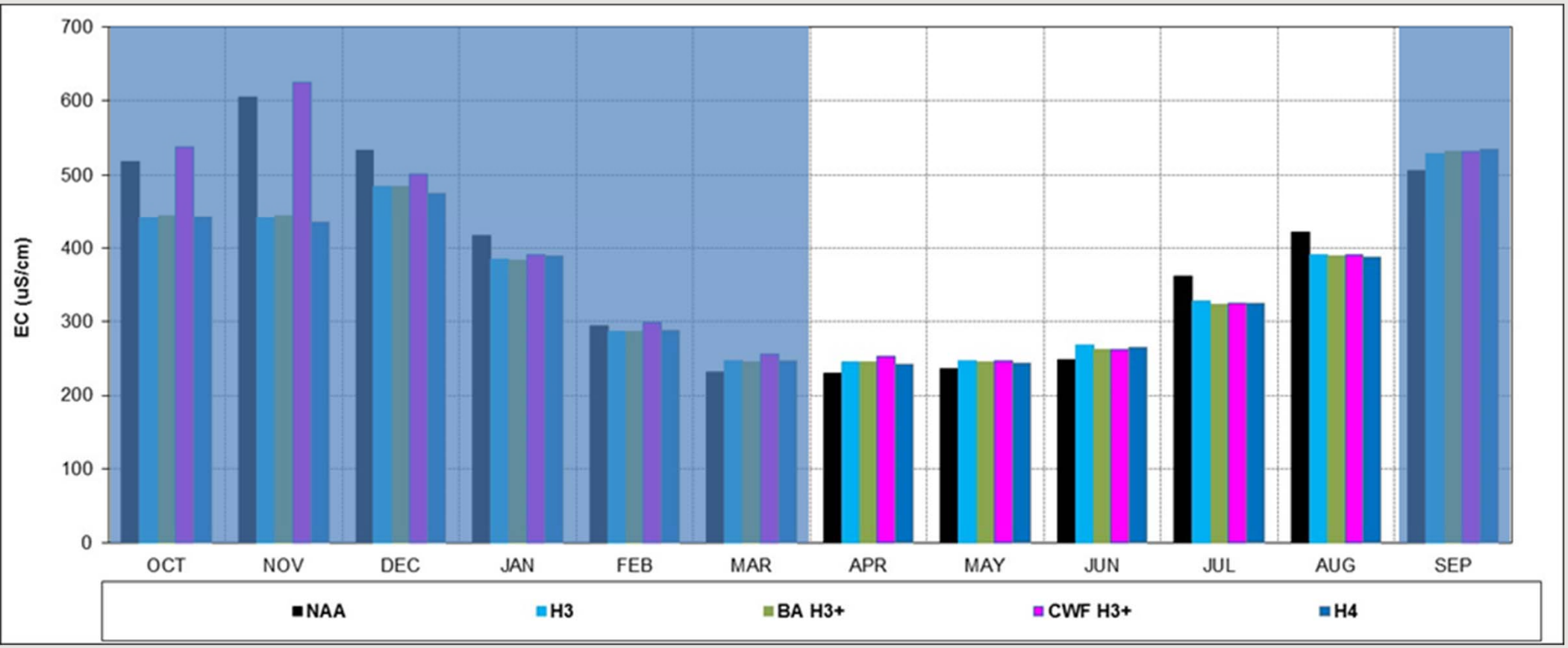
Model results are used for comparative purposes and not for predictive purposes

FIGURE EC2: MONTHLY AVERAGE EC AT JERSEY POINT



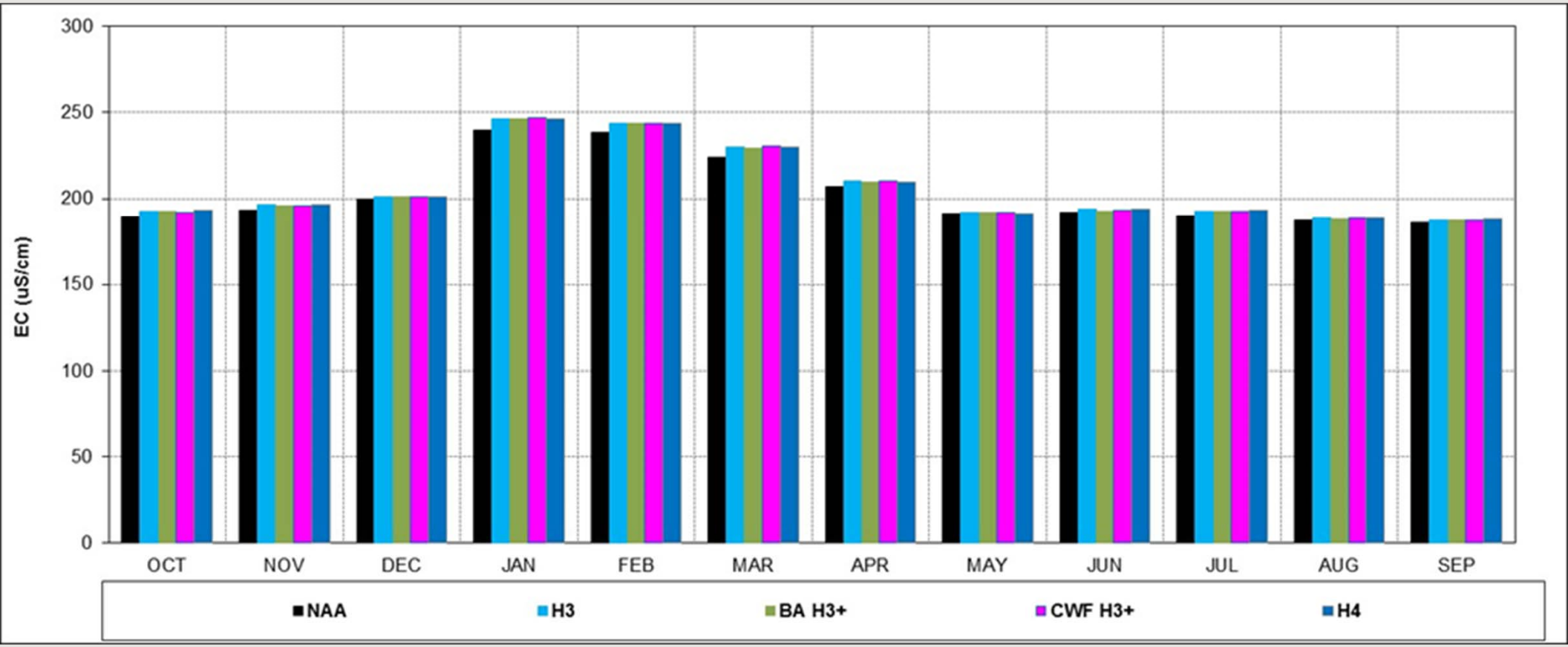
Model results are used for comparative purposes and not for predictive purposes

FIGURE EC3: MONTHLY AVERAGE EC AT SAN ANDREAS LANDING



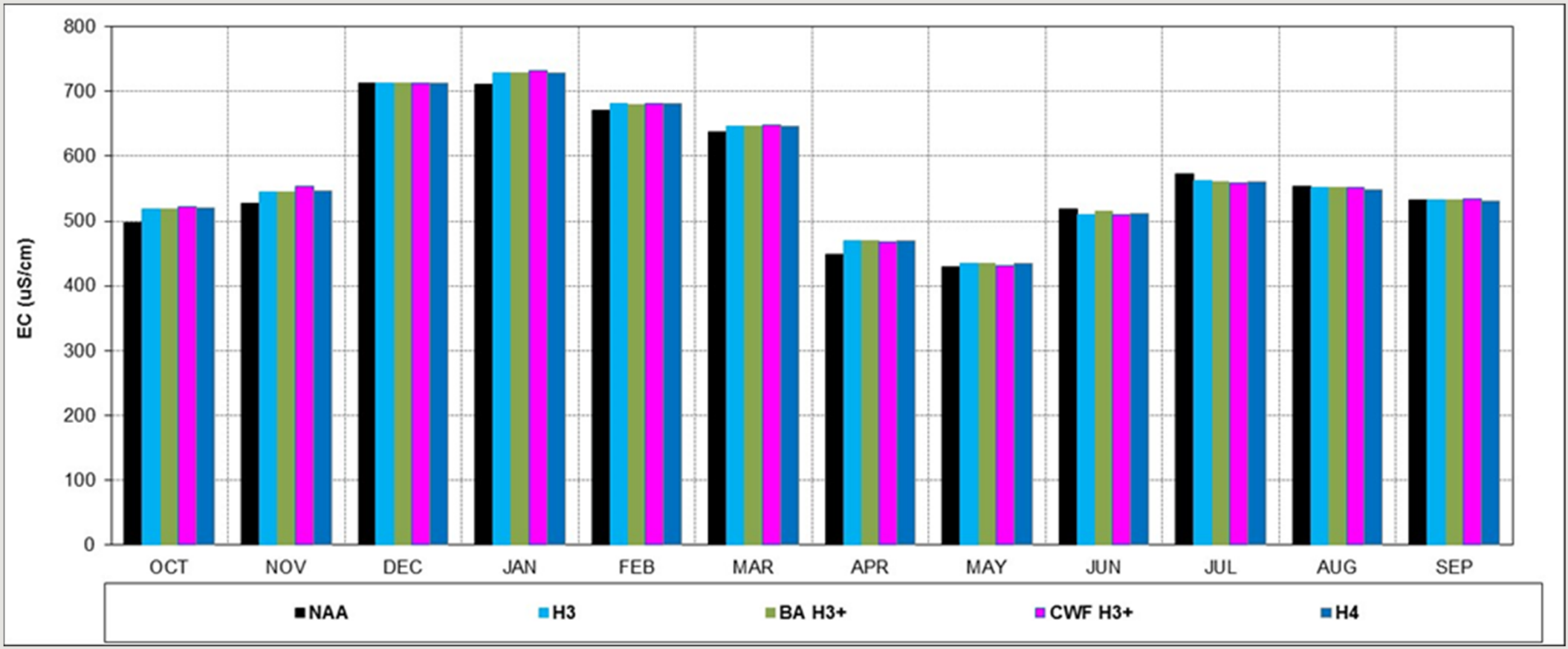
Model results are used for comparative purposes and not for predictive purposes

FIGURE EC4: MONTHLY AVERAGE EC AT SOUTH FORK MOKELUMNE RIVER AT TERMINOUS



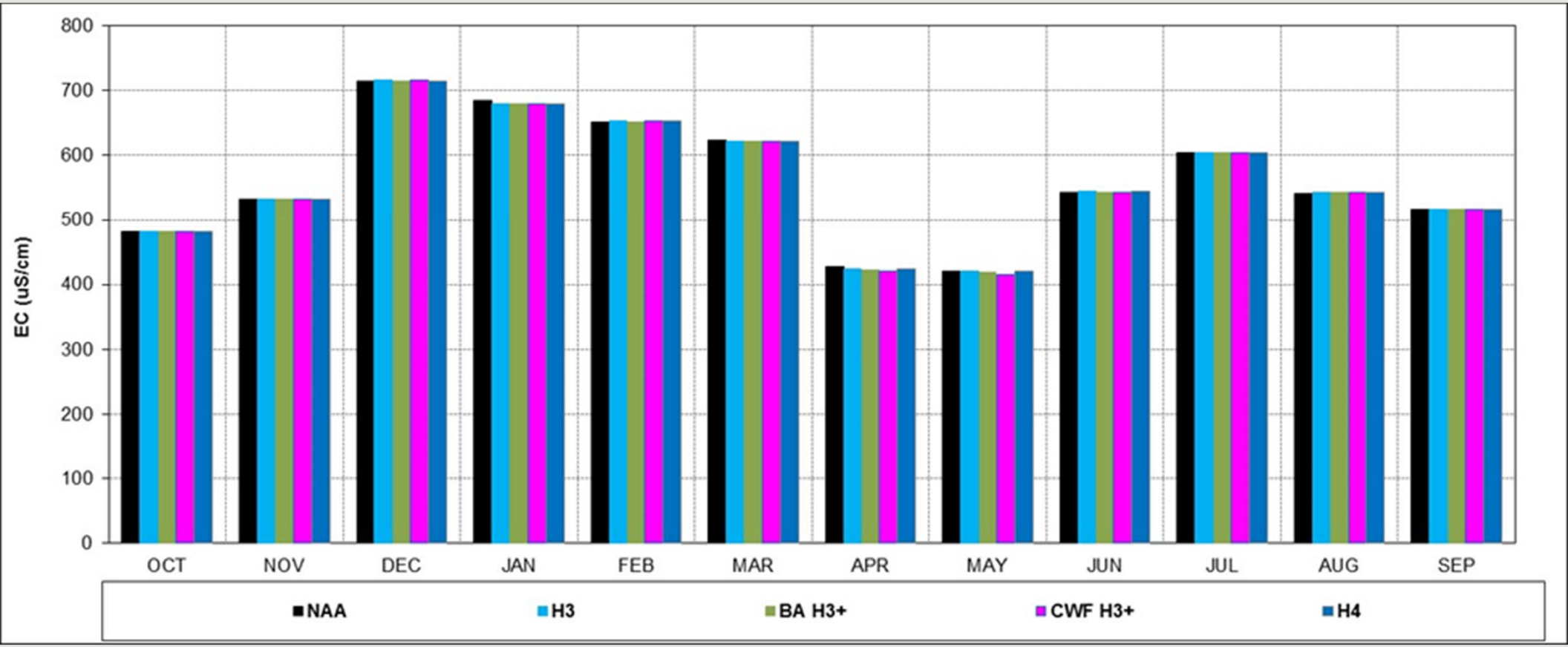
Model results are used for comparative purposes and not for predictive purposes

FIGURE EC5: MONTHLY AVERAGE EC AT OLD RIVER AT TRACY ROAD



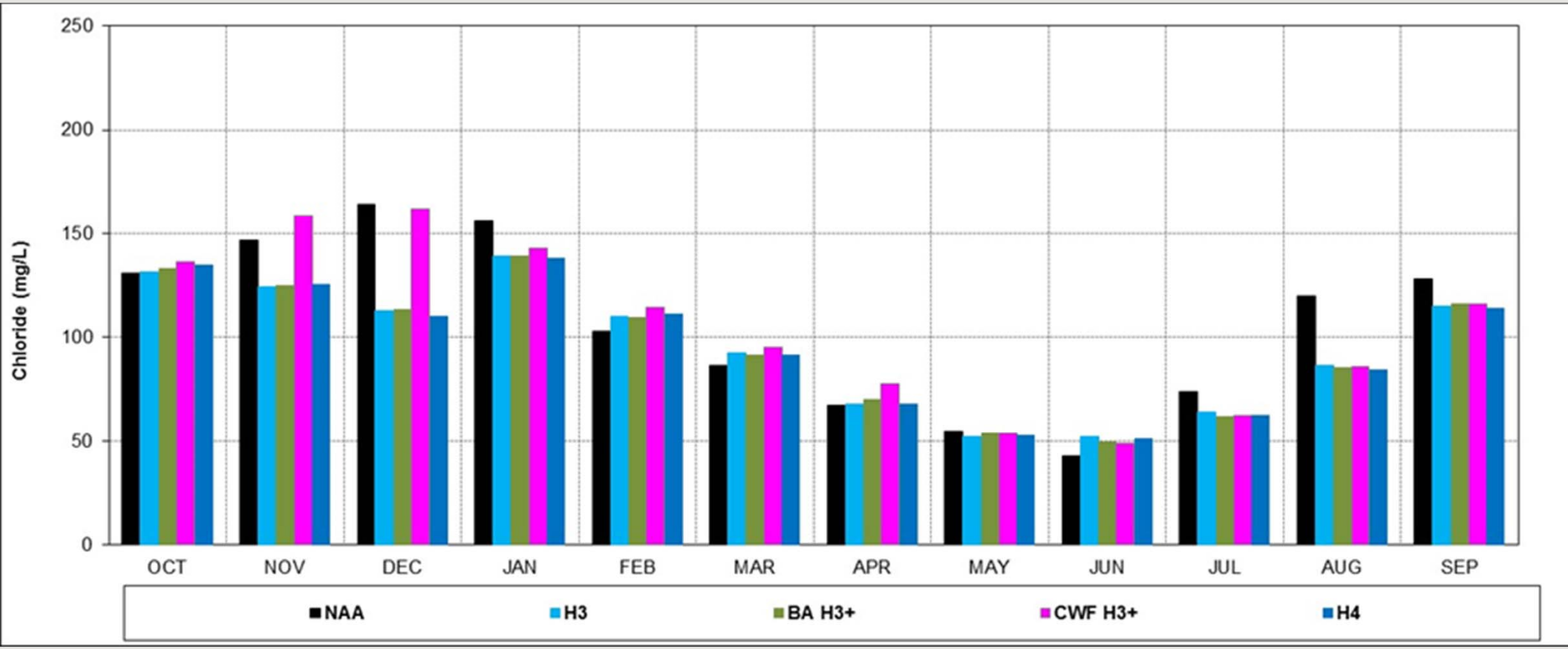
Model results are used for comparative purposes and not for predictive purposes

FIGURE EC6: MONTHLY AVERAGE EC AT SAN JOAQUIN RIVER AT BRANDT BRIDGE



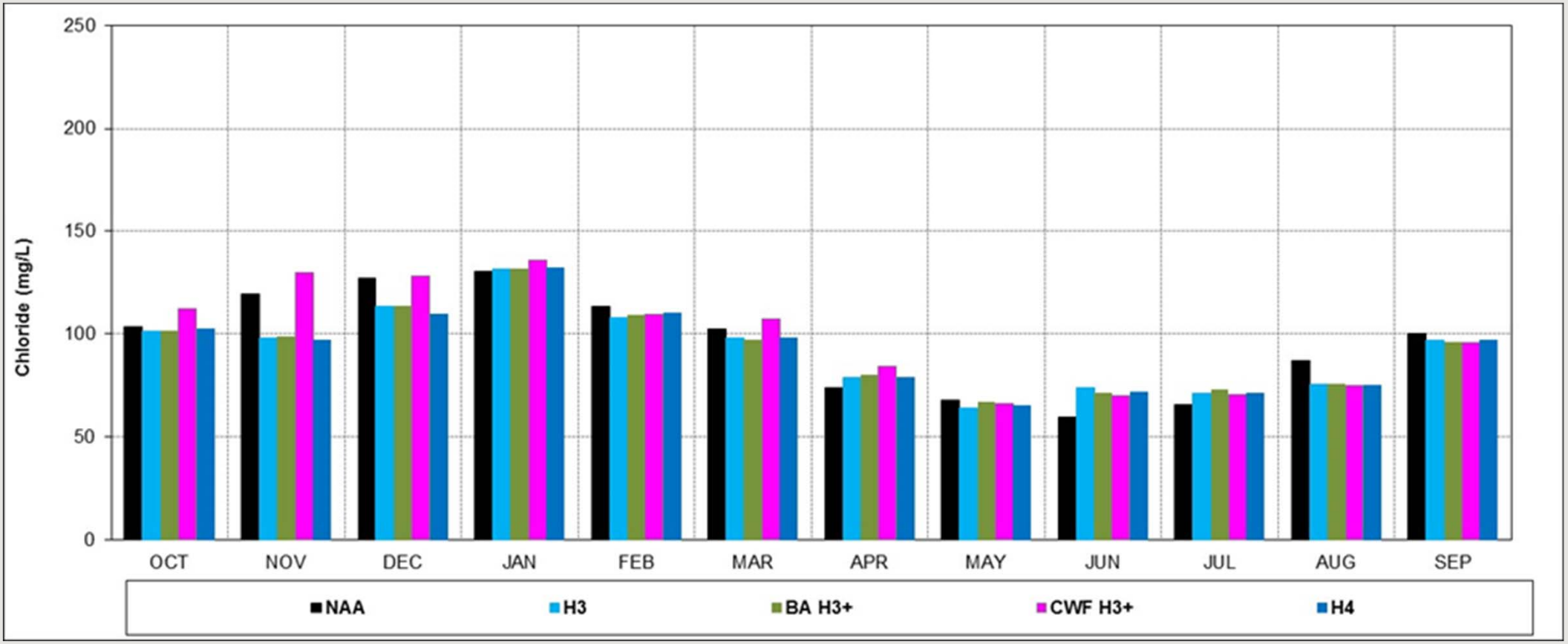
Model results are used for comparative purposes and not for predictive purposes

FIGURE CL1: MONTHLY AVERAGE CHLORIDE CONCENTRATION AT CONTRA COSTA CANAL



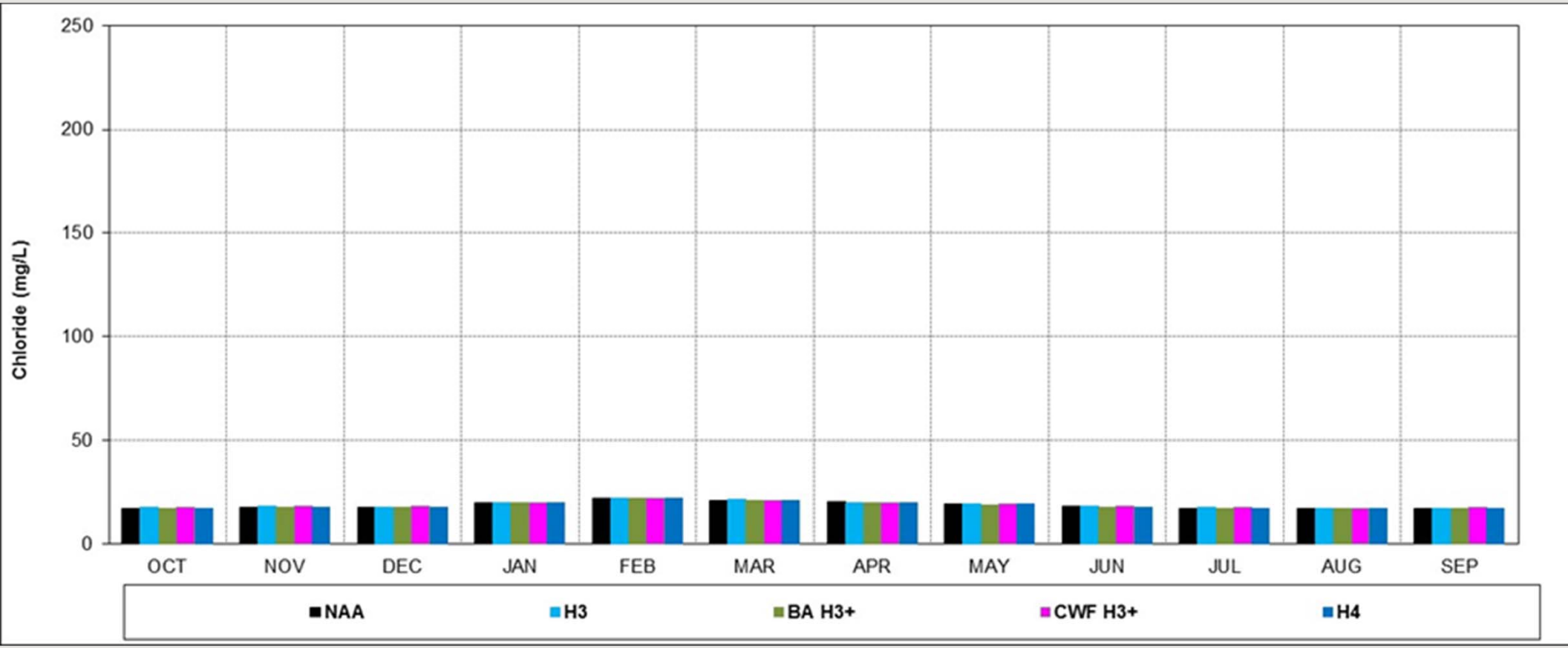
Model results are used for comparative purposes and not for predictive purposes

FIGURE CL2: MONTHLY AVERAGE CHLORIDE CONCENTRATION AT OLD RIVER AT CLIFTON COURT



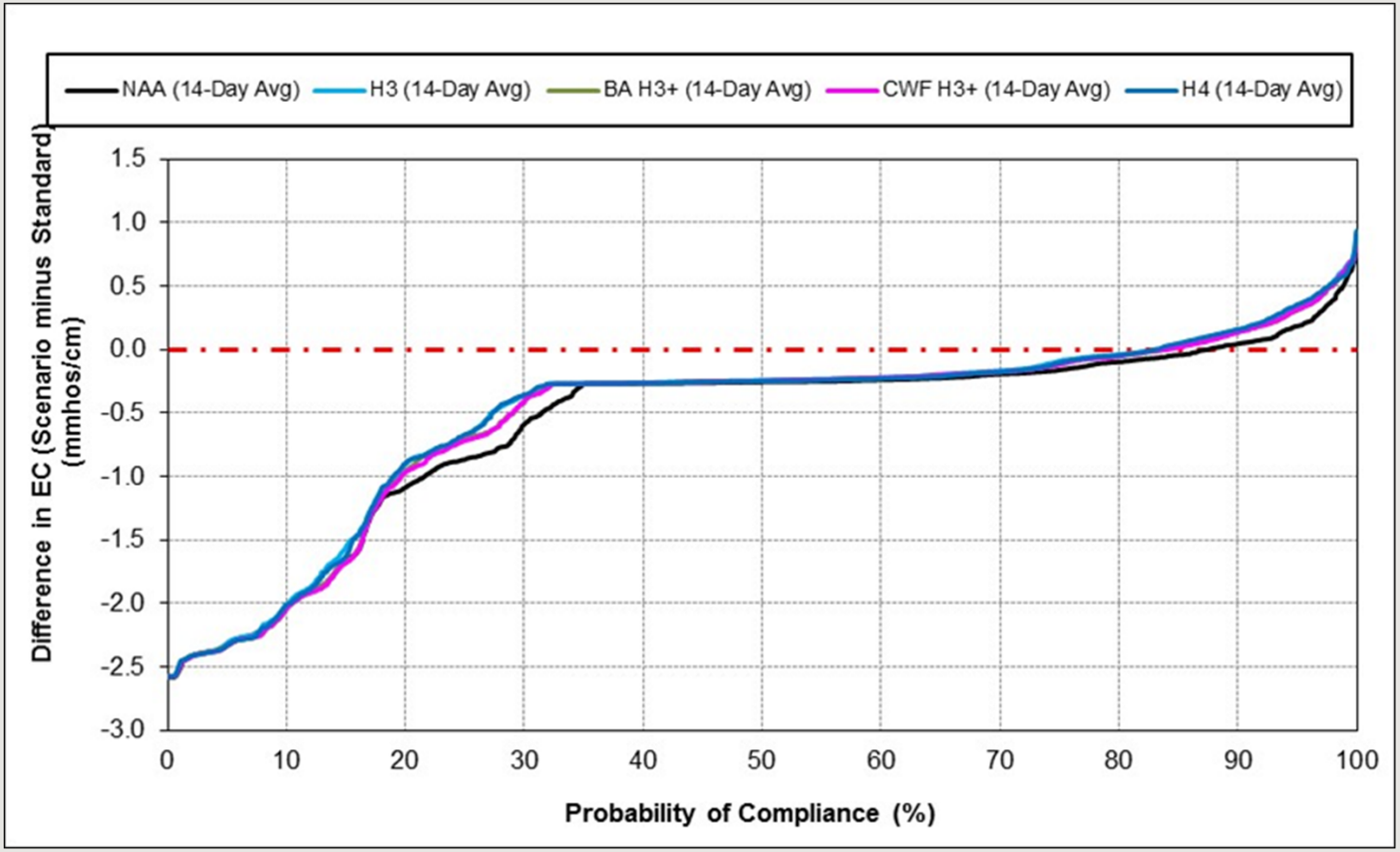
Model results are used for comparative purposes and not for predictive purposes

FIGURE CL3: MONTHLY AVERAGE CHLORIDE CONCENTRATION AT BARKER SLOUGH



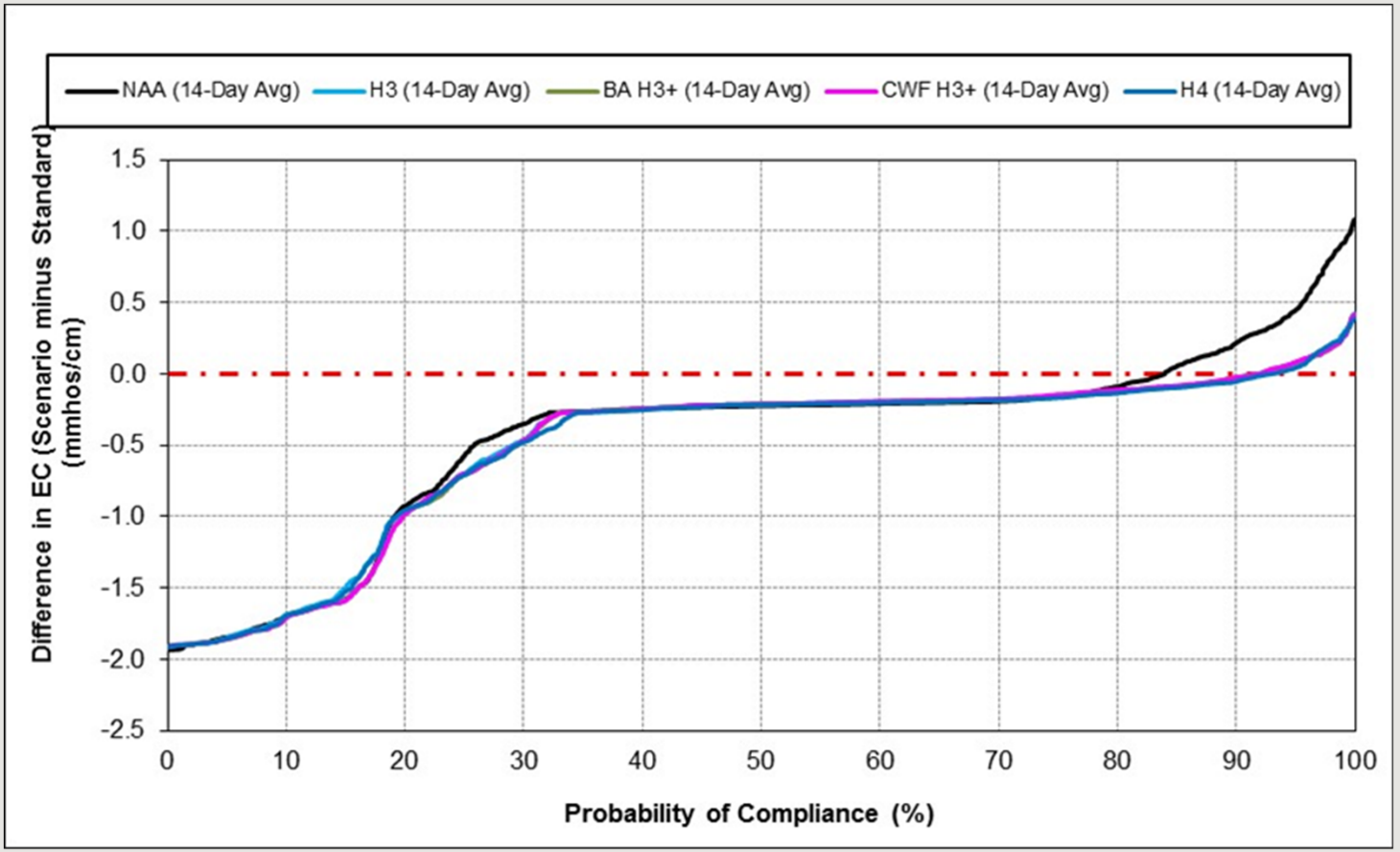
Model results are used for comparative purposes and not for predictive purposes

FIGURE C9: D-1641 AGRICULTURAL EC OBJECTIVE AT EMMATON – PROBABILITY OF MEETING D-1641



Model results are used for comparative purposes and not for predictive purposes

FIGURE C10: D-1641 AGRICULTURAL EC OBJECTIVE AT JERSEY POINT – PROBABILITY OF MEETING D-1641



Model results are used for comparative purposes and not for predictive purposes

FIGURE C11: D-1641 AGRICULTURAL EC OBJECTIVE AT SAN ANDREAS LANDING –PROBABILITY OF MEETING D-1641

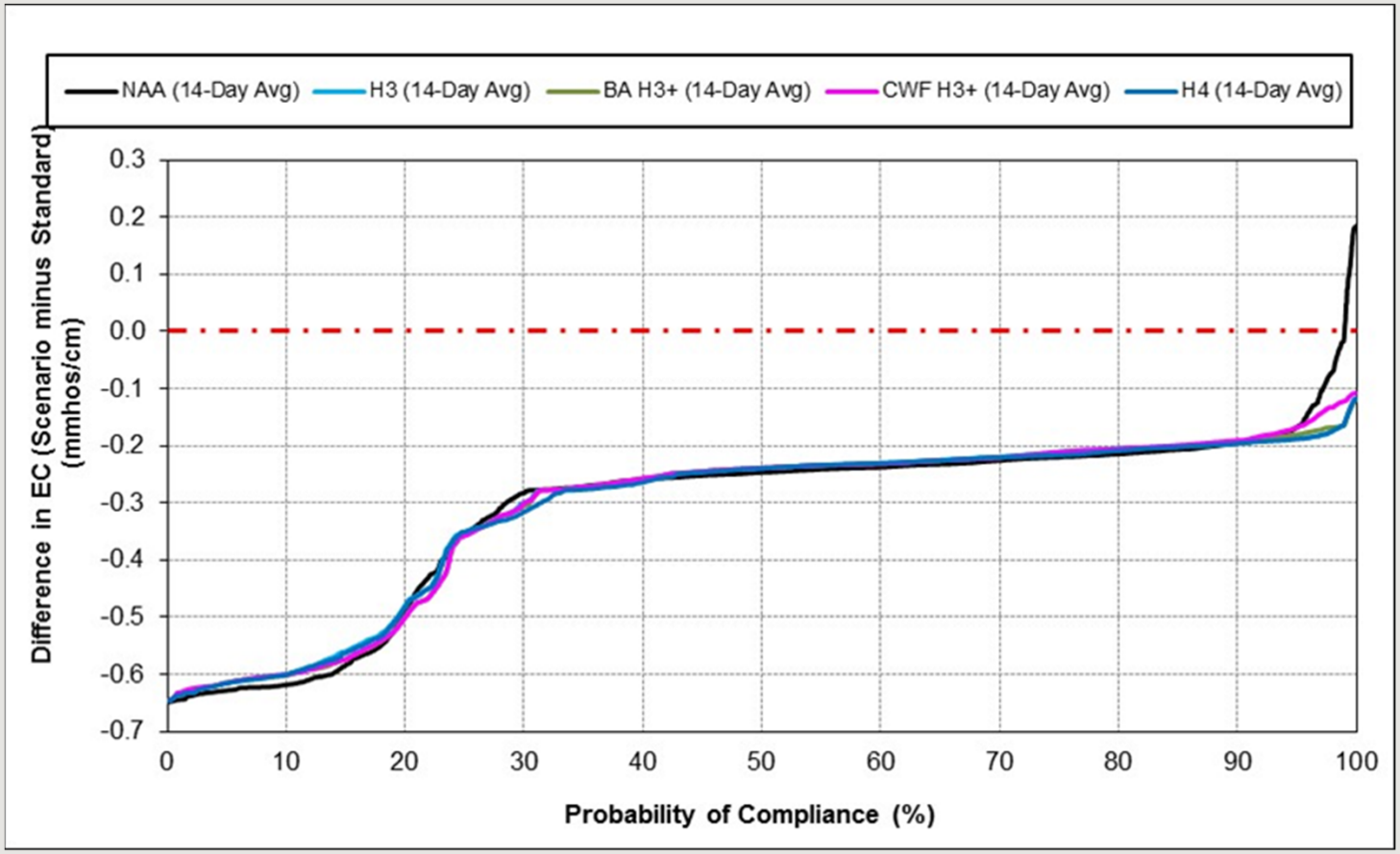


FIGURE C12: D-1641 AGRICULTURAL EC OBJECTIVE AT SOUTH FORK MOKELUMNE RIVER AT TERMINOUS – PROBABILITY OF MEETING D-1641

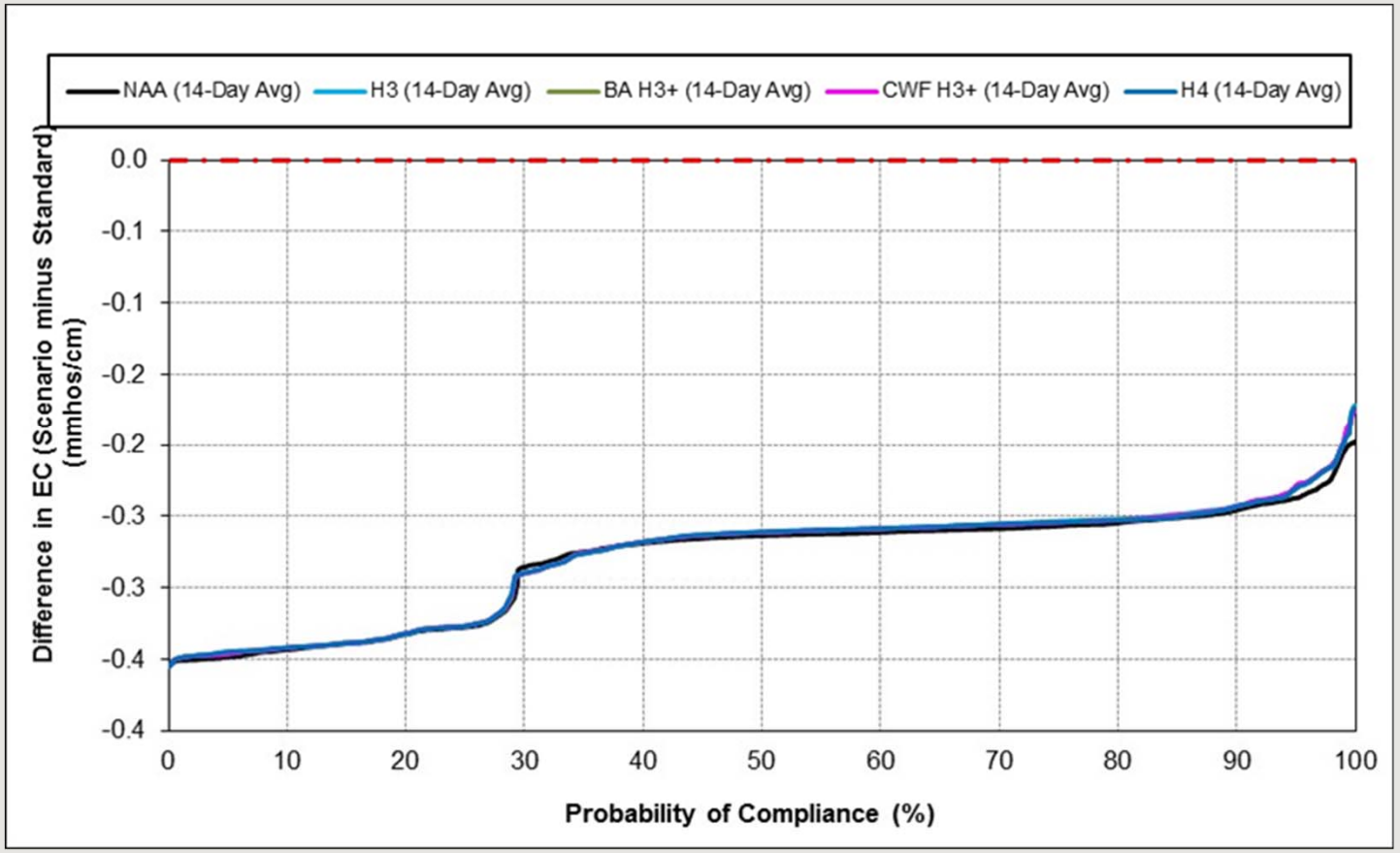
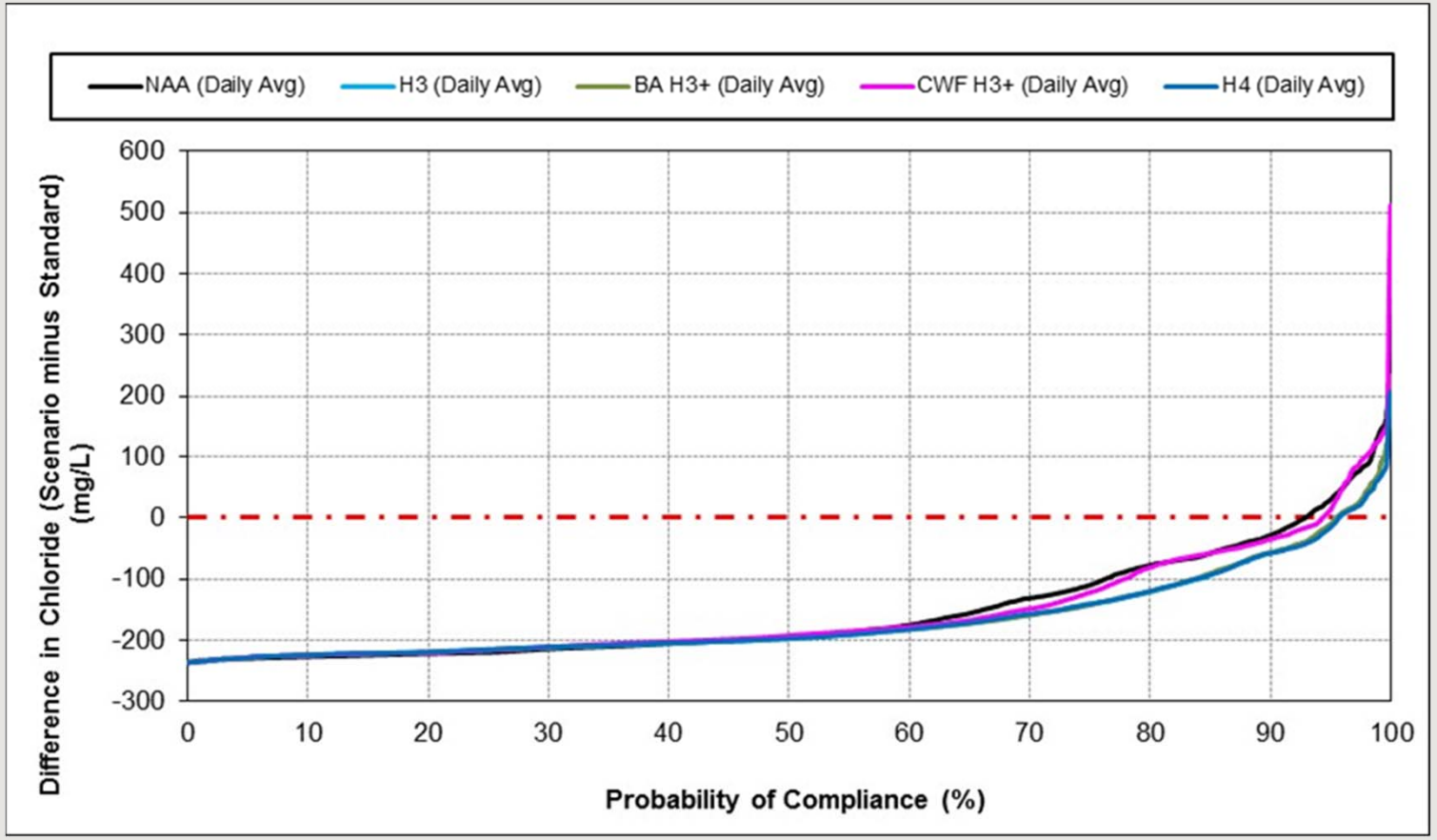
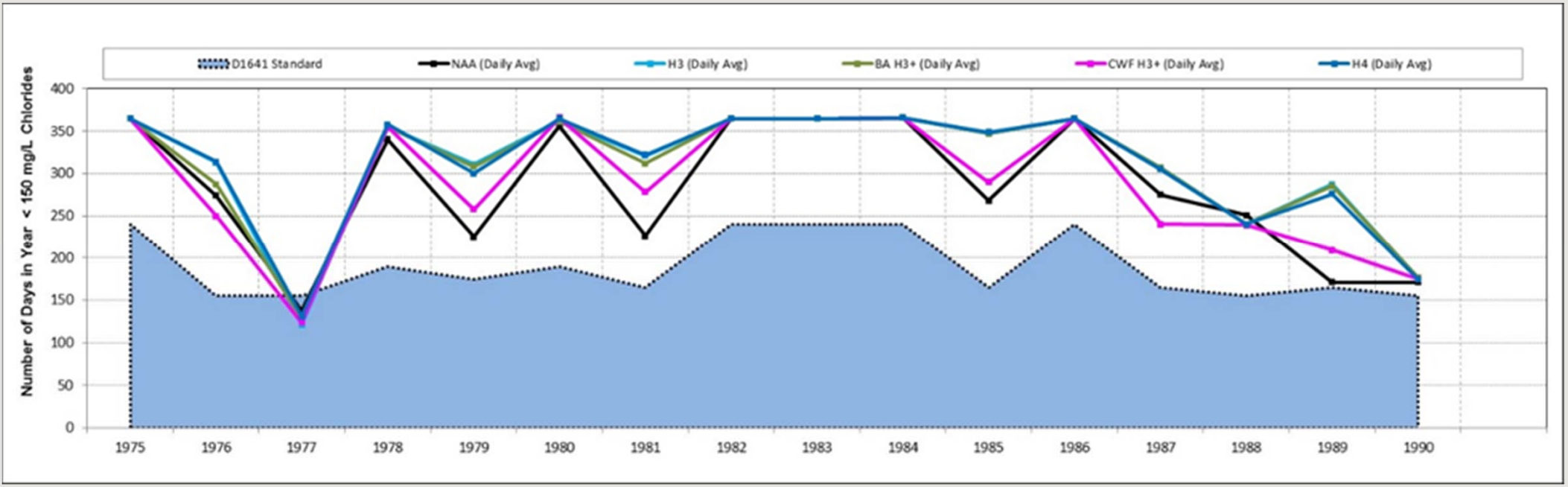


FIGURE C13: D-1641 250 MG/L CHLORIDE OBJECTIVE AT CONTRA COSTA CANAL PUMPING PLANT 1 – PROBABILITY OF MEETING D-1641



Model results are used for comparative purposes and not for predictive purposes

FIGURE C14: D-1641 NUMBER OF DAYS IN A YEAR MEETING THE MEAN DAILY CONCENTRATION
150 MG/L CHLORIDE OBJECTIVE AT CONTRA COSTA CANAL PUMPING PLANT 1



Model results are used for comparative purposes and not for predictive purposes

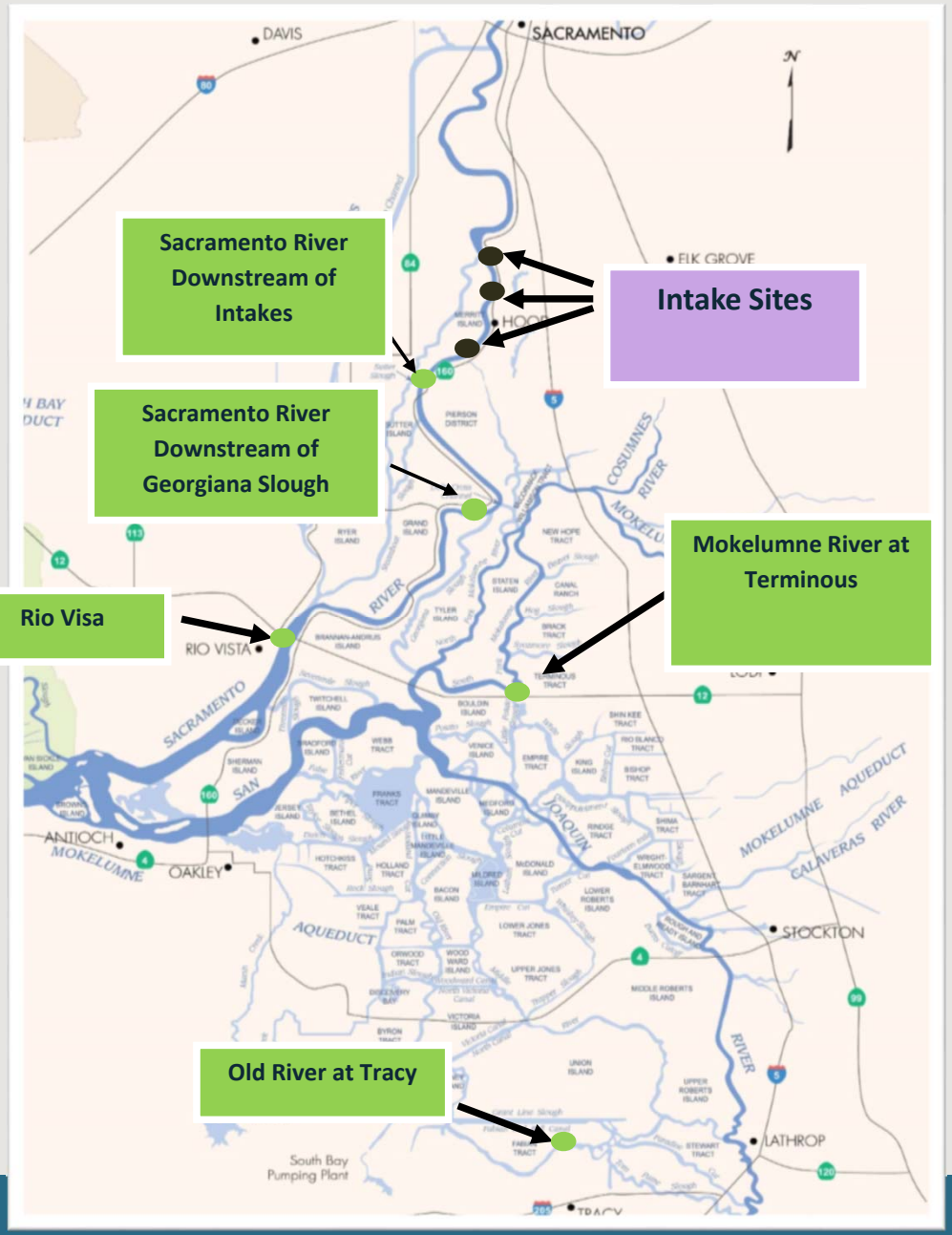
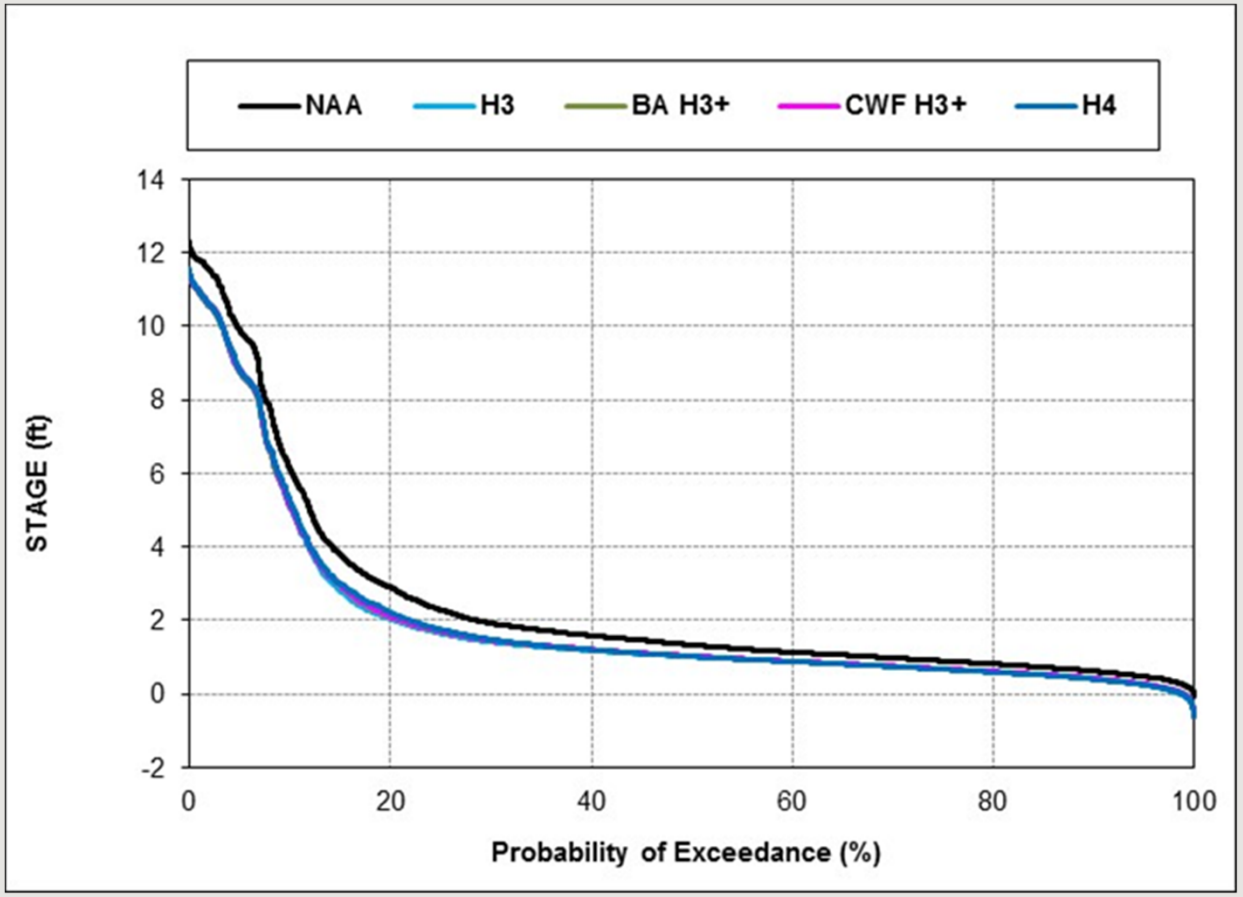


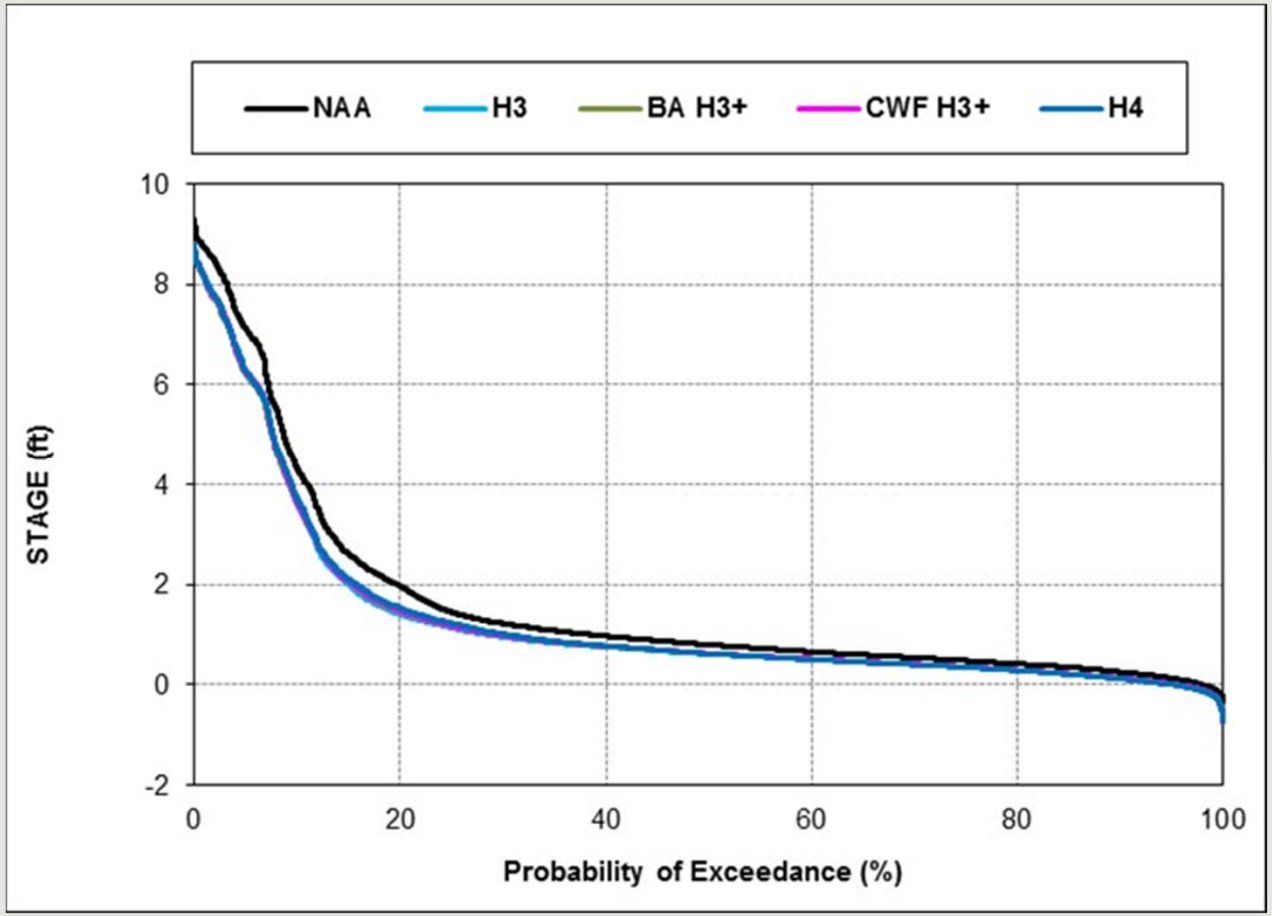
FIGURE L4: LOCATIONS OF WATER LEVEL RESULTS

FIGURE W1: PROBABILITY OF EXCEEDANCE FOR DAILY MINIMUM STAGE AT SACRAMENTO RIVER DOWNSTREAM FROM THE THREE PROPOSED INTAKES



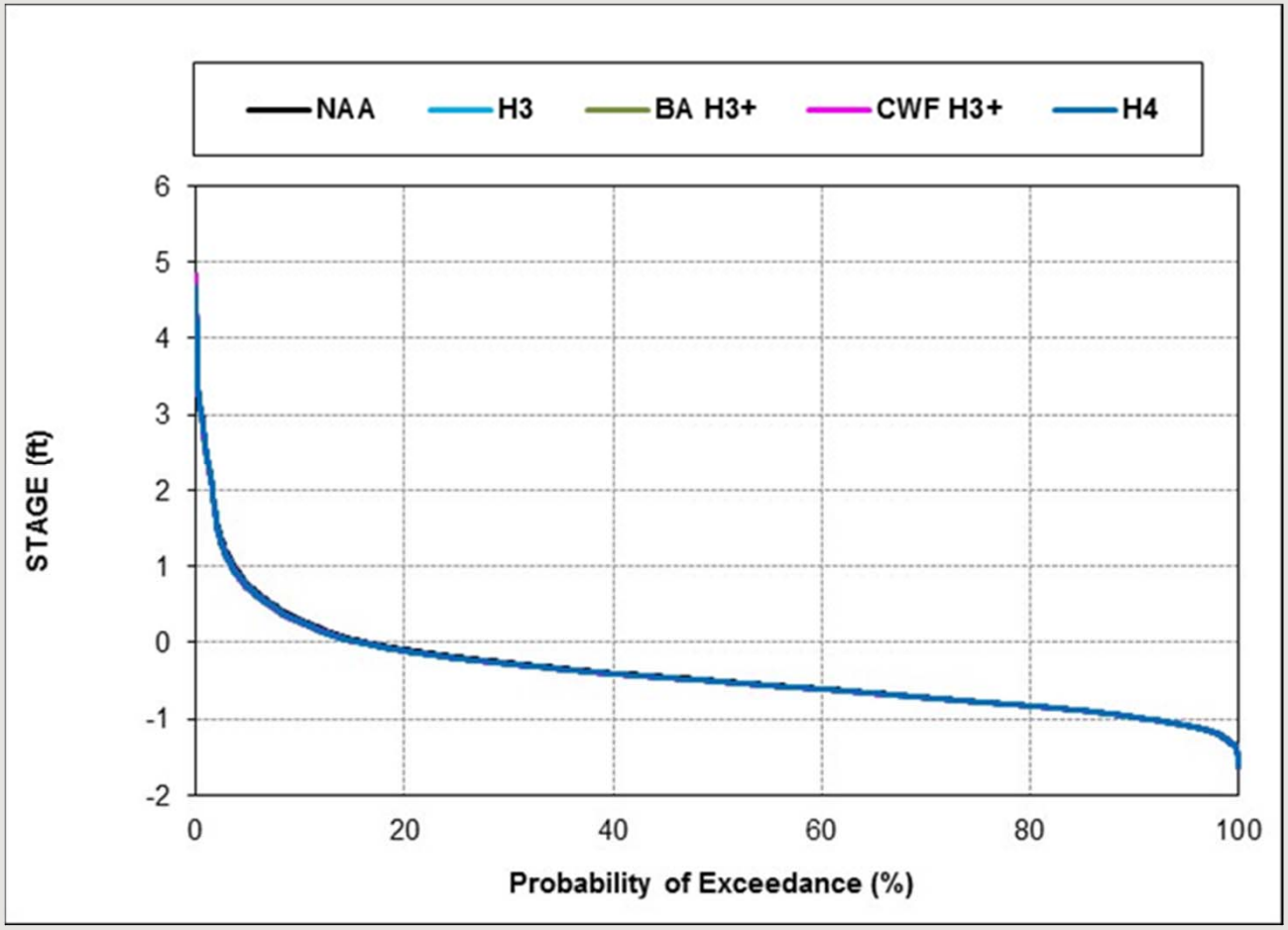
Model results are used for comparative purposes and not for predictive purposes

FIGURE W2: PROBABILITY OF EXCEEDANCE FOR DAILY MINIMUM STAGE AT SACRAMENTO RIVER DOWNSTREAM OF GEORGIANA SLOUGH



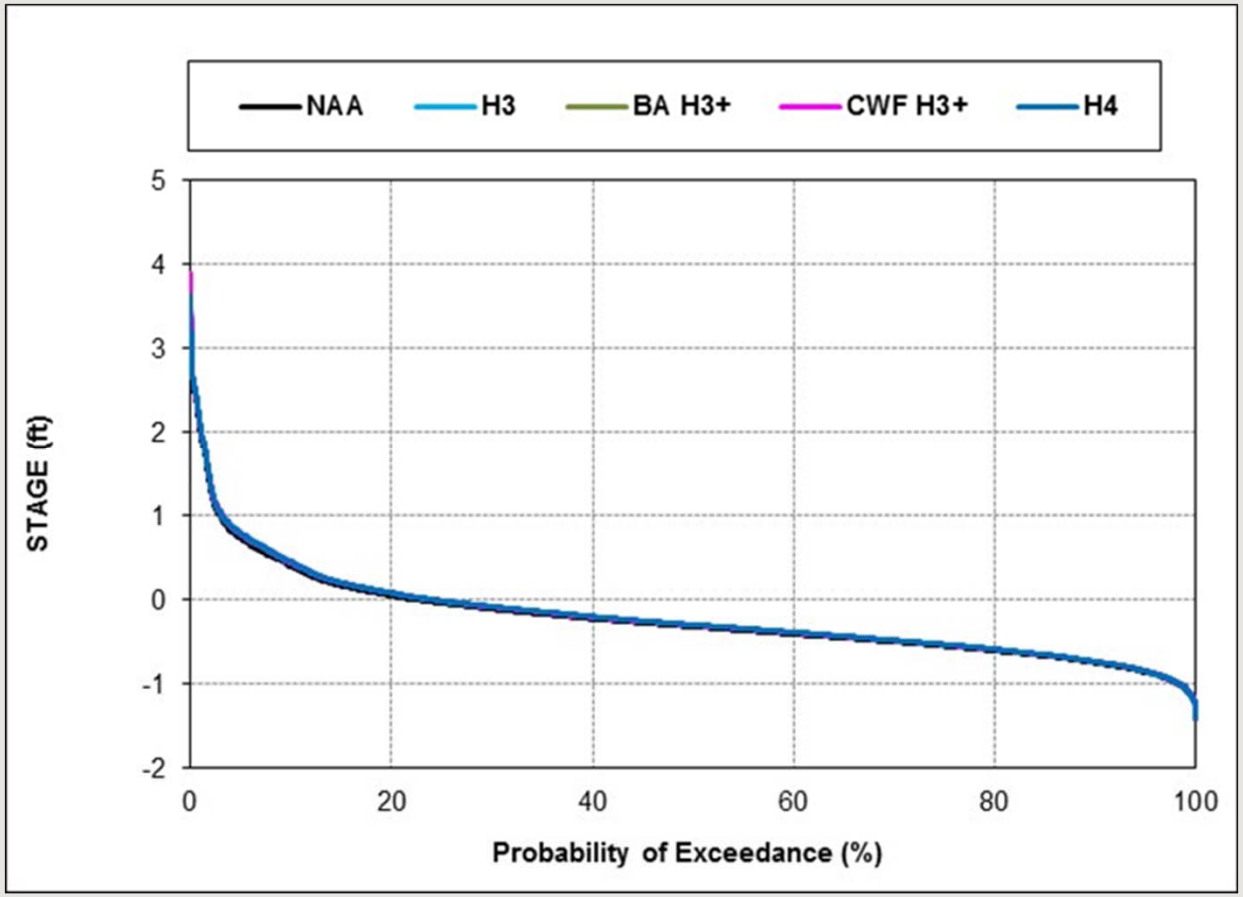
Model results are used for comparative purposes and not for predictive purposes

FIGURE W3: PROBABILITY OF EXCEEDANCE FOR DAILY MINIMUM STAGE AT SACRAMENTO RIVER AT RIO VISTA



Model results are used for comparative purposes and not for predictive purposes

FIGURE W4: PROBABILITY OF EXCEEDANCE FOR DAILY MINIMUM STAGE AT MOKELUMNE RIVER AT TERMINOUS



Model results are used for comparative purposes and not for predictive purposes

FIGURE W5: PROBABILITY OF EXCEEDANCE FOR DAILY MINIMUM STAGE AT OLD RIVER AT TRACY ROAD