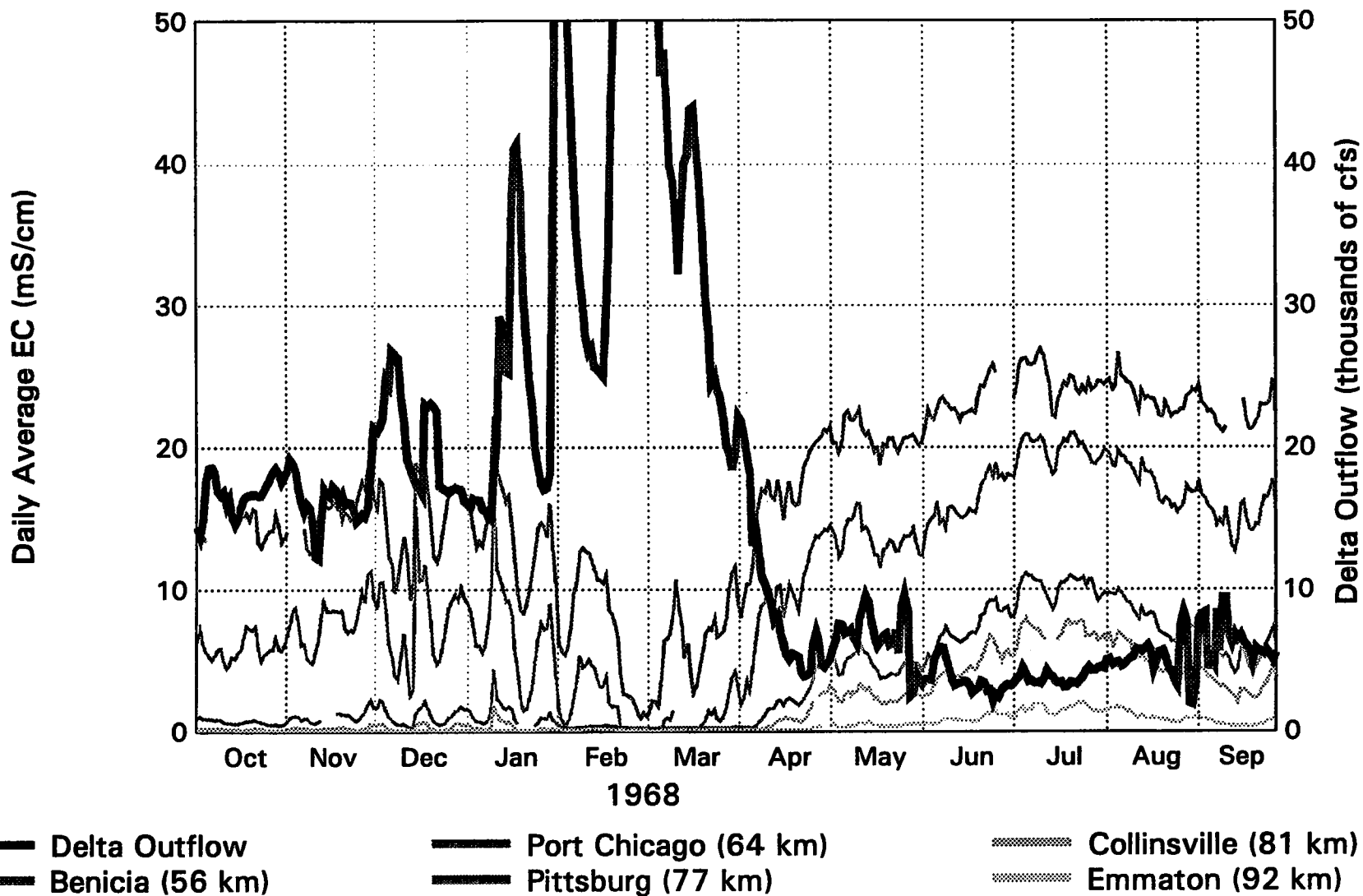
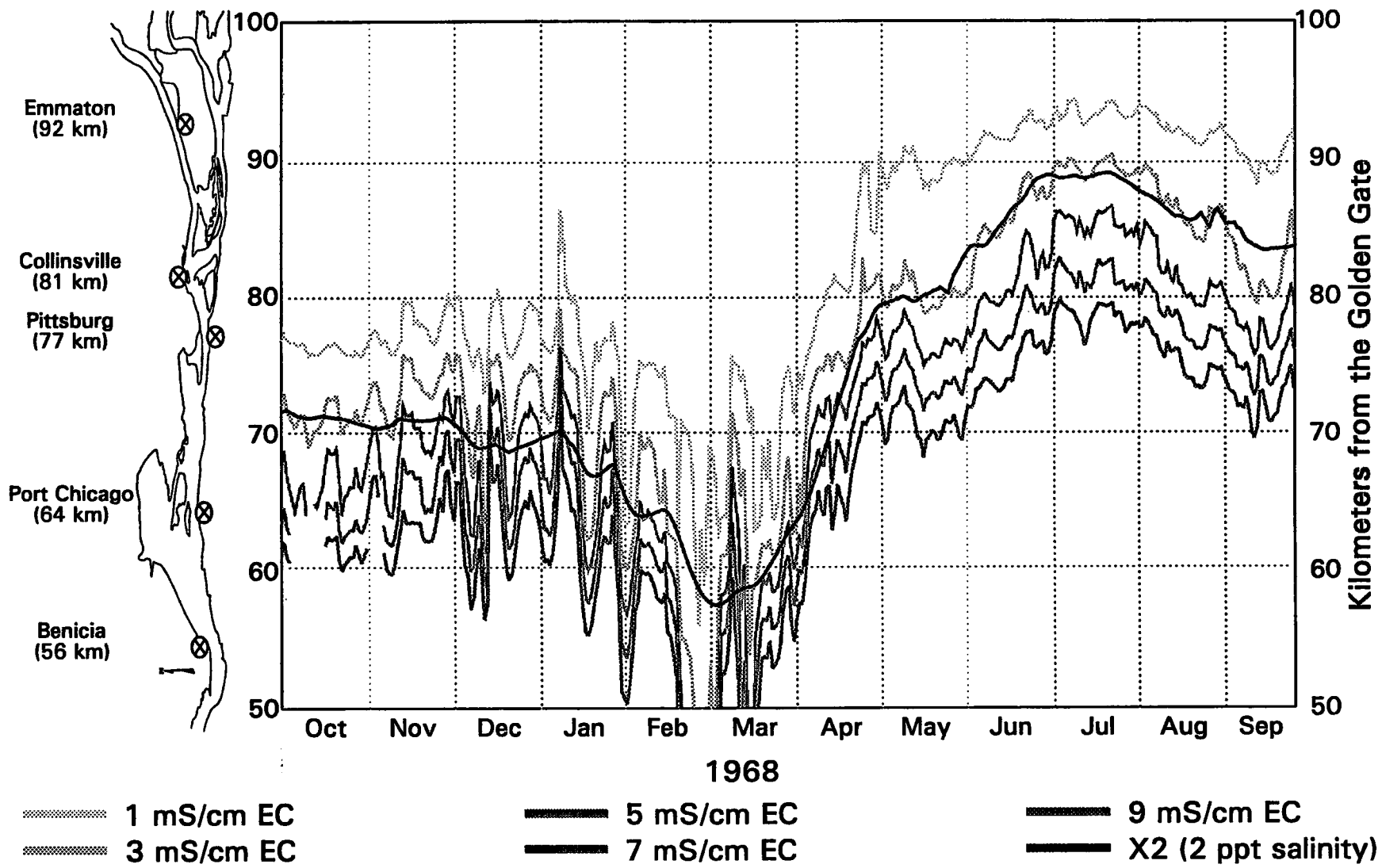


**Sacramento - San Joaquin Delta Daily Data Atlas of
Mean Daily Electrical Conductivity,
Estimated Delta Outflow,
Location of Salinity Gradient and
Estimated X2 Position
for Water Years 1968 to 1993**

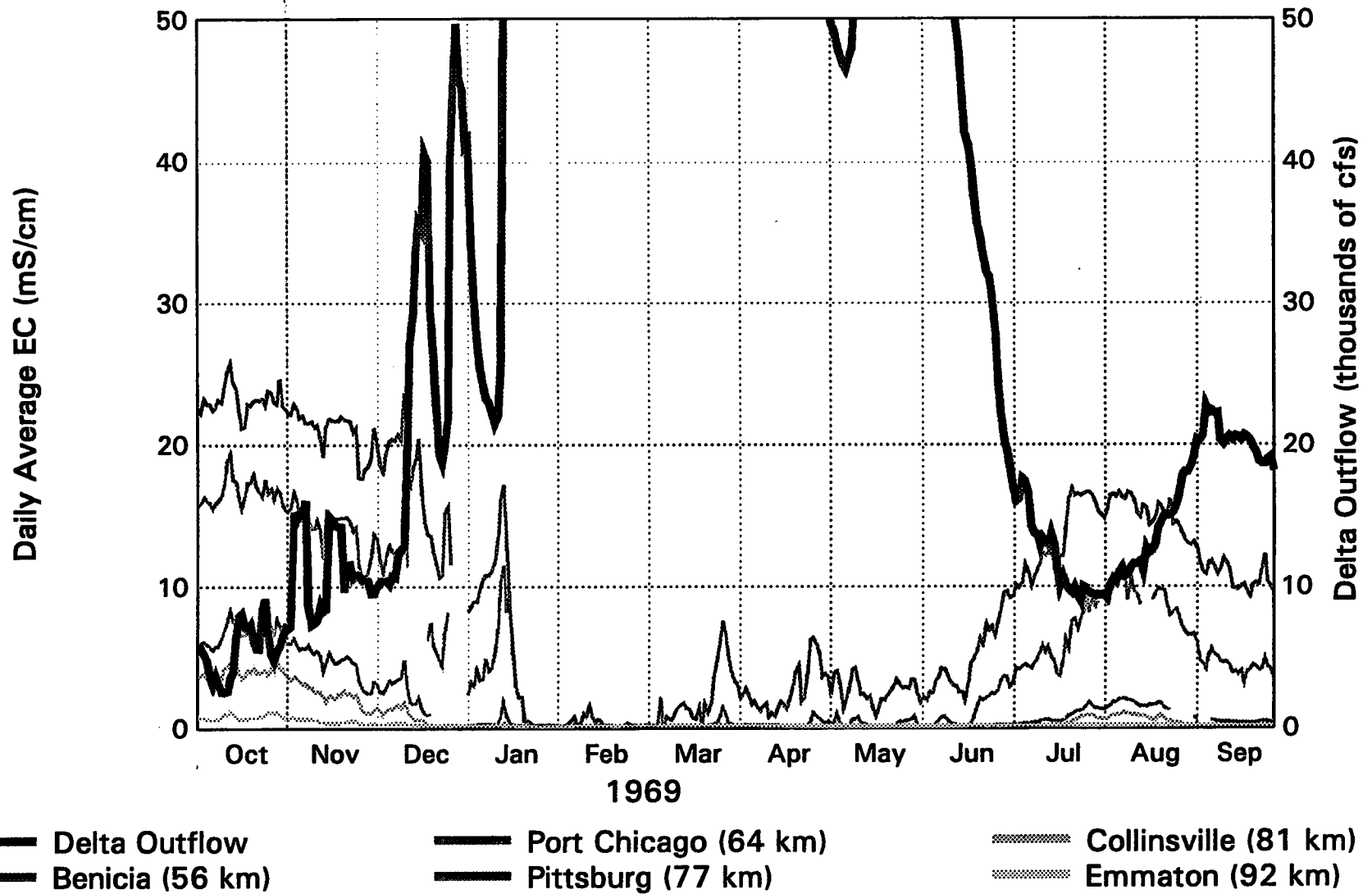
**Russ Brown
Shawn Yotter
Jones & Stokes Associates, Inc.
June 1994
(916) 737-3000**



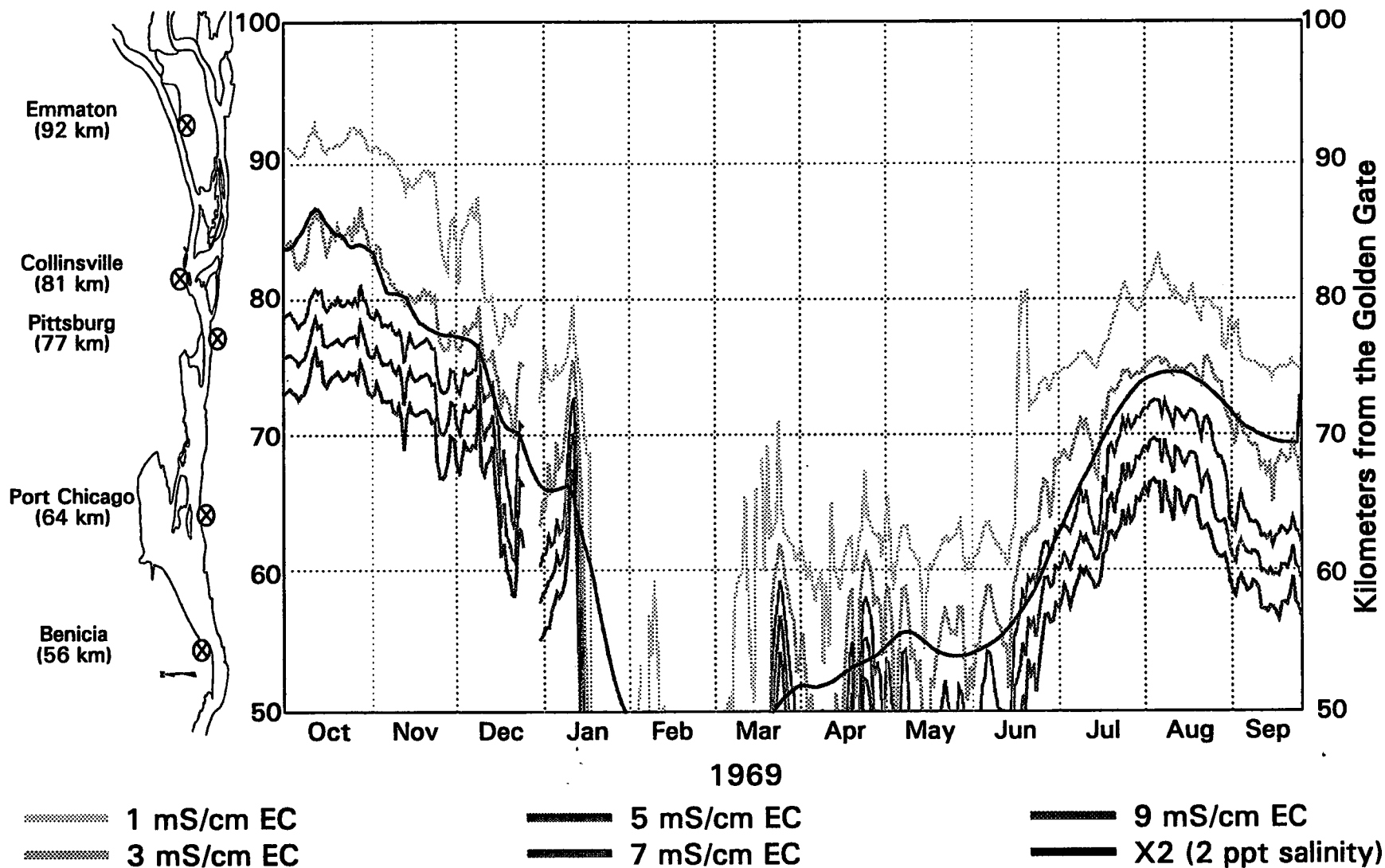
**DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1968
FIGURE 68A**



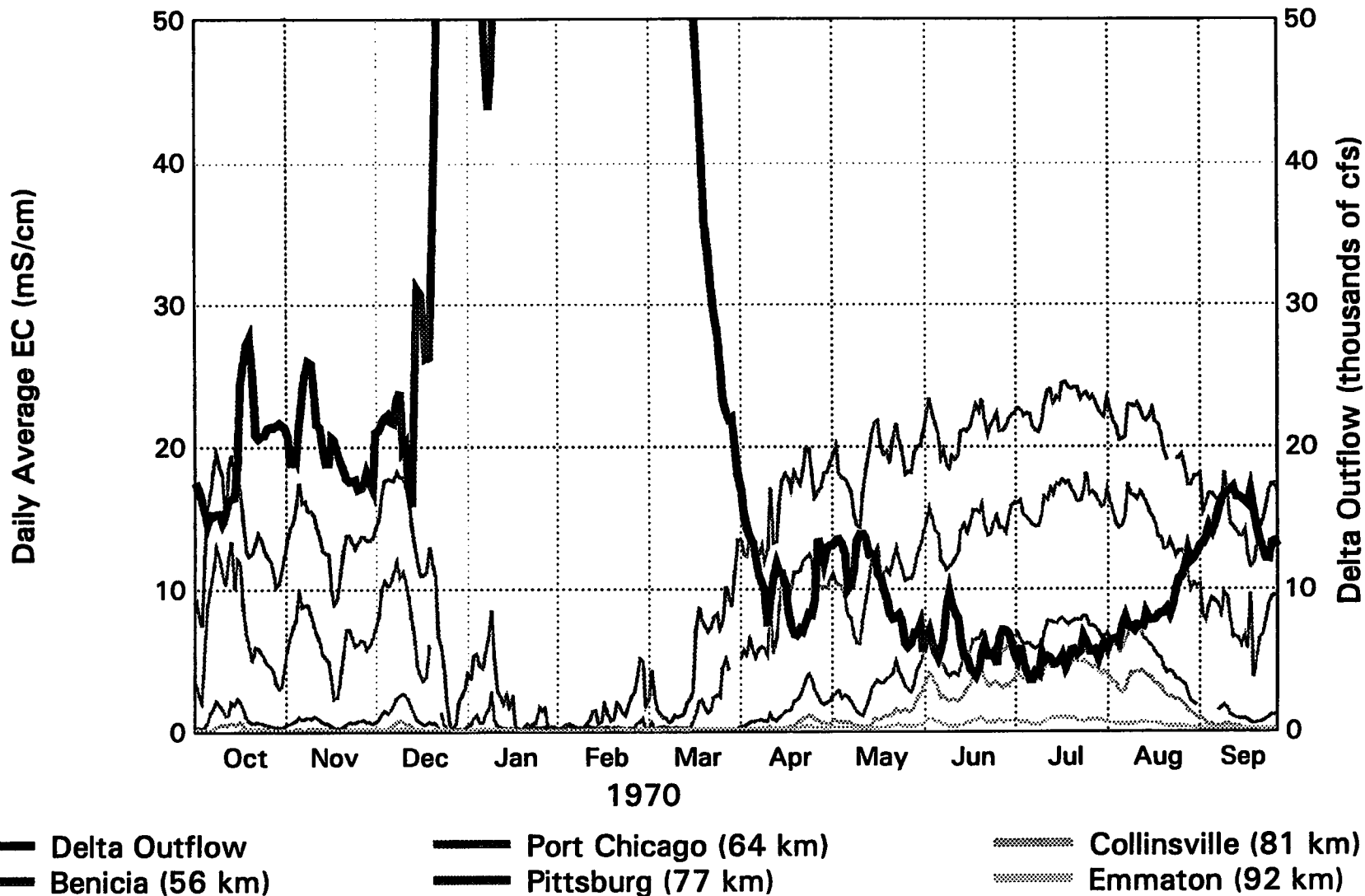
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1968
FIGURE 68B



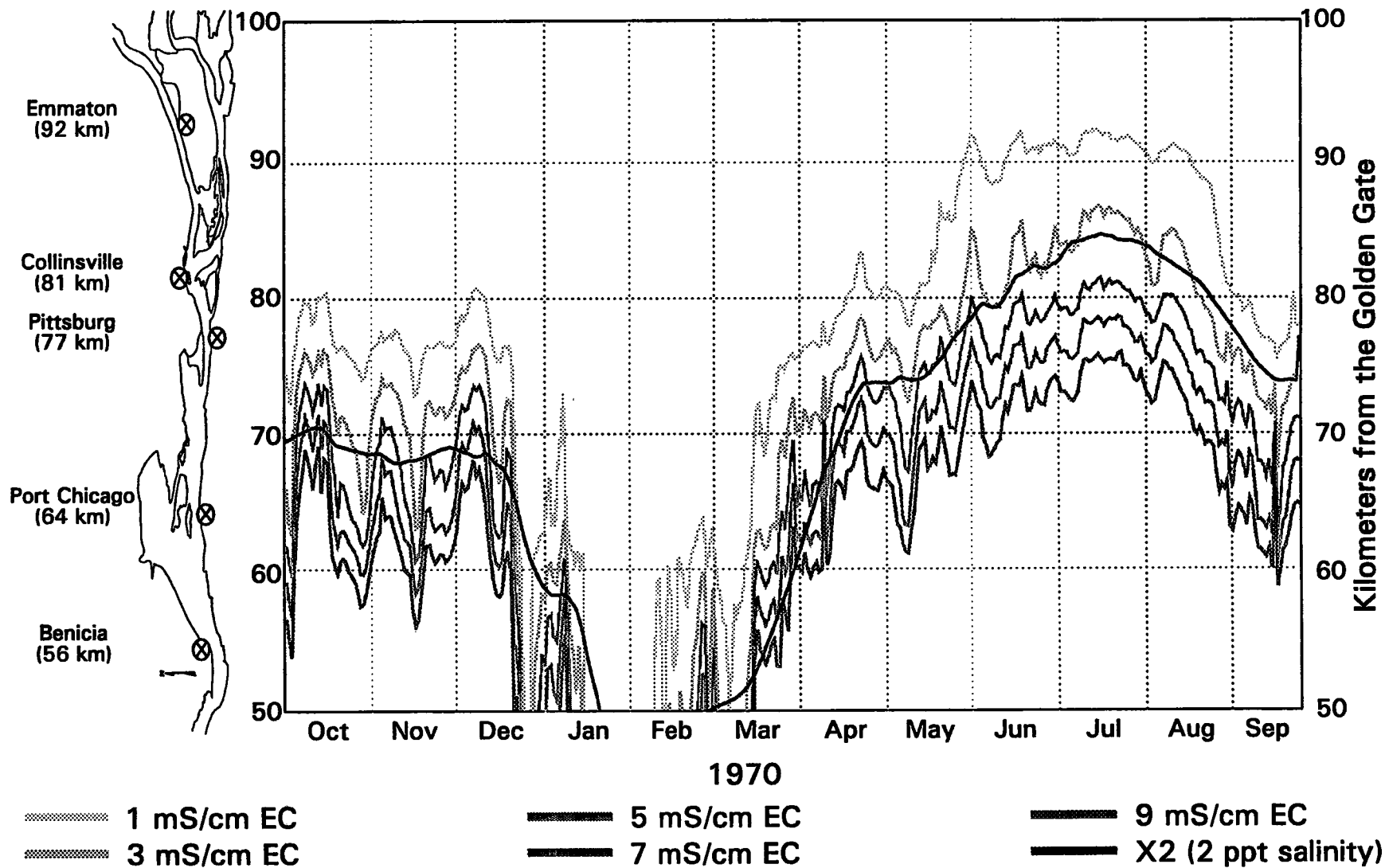
**DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1969
FIGURE 69A**



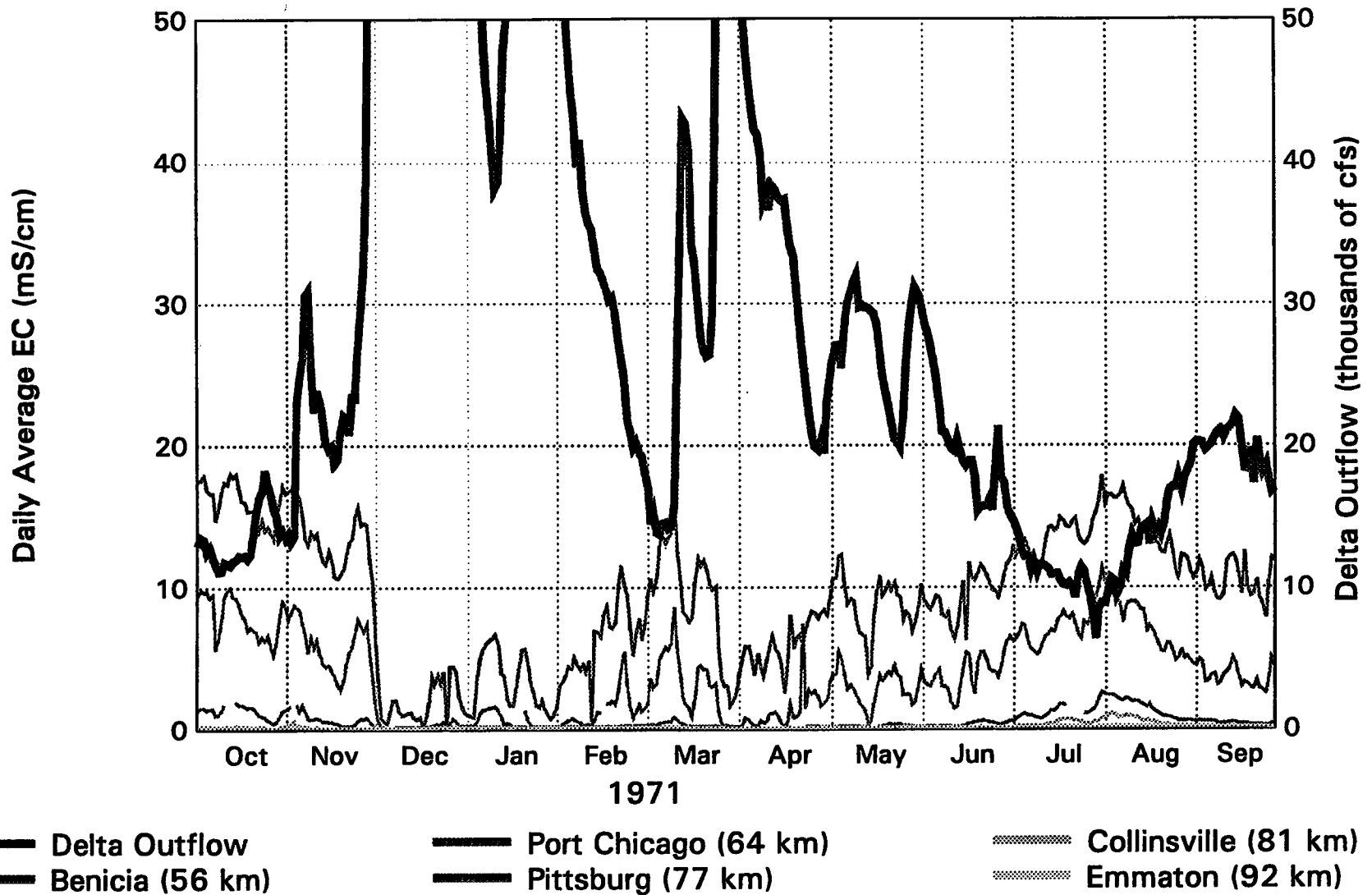
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1969
FIGURE 69B



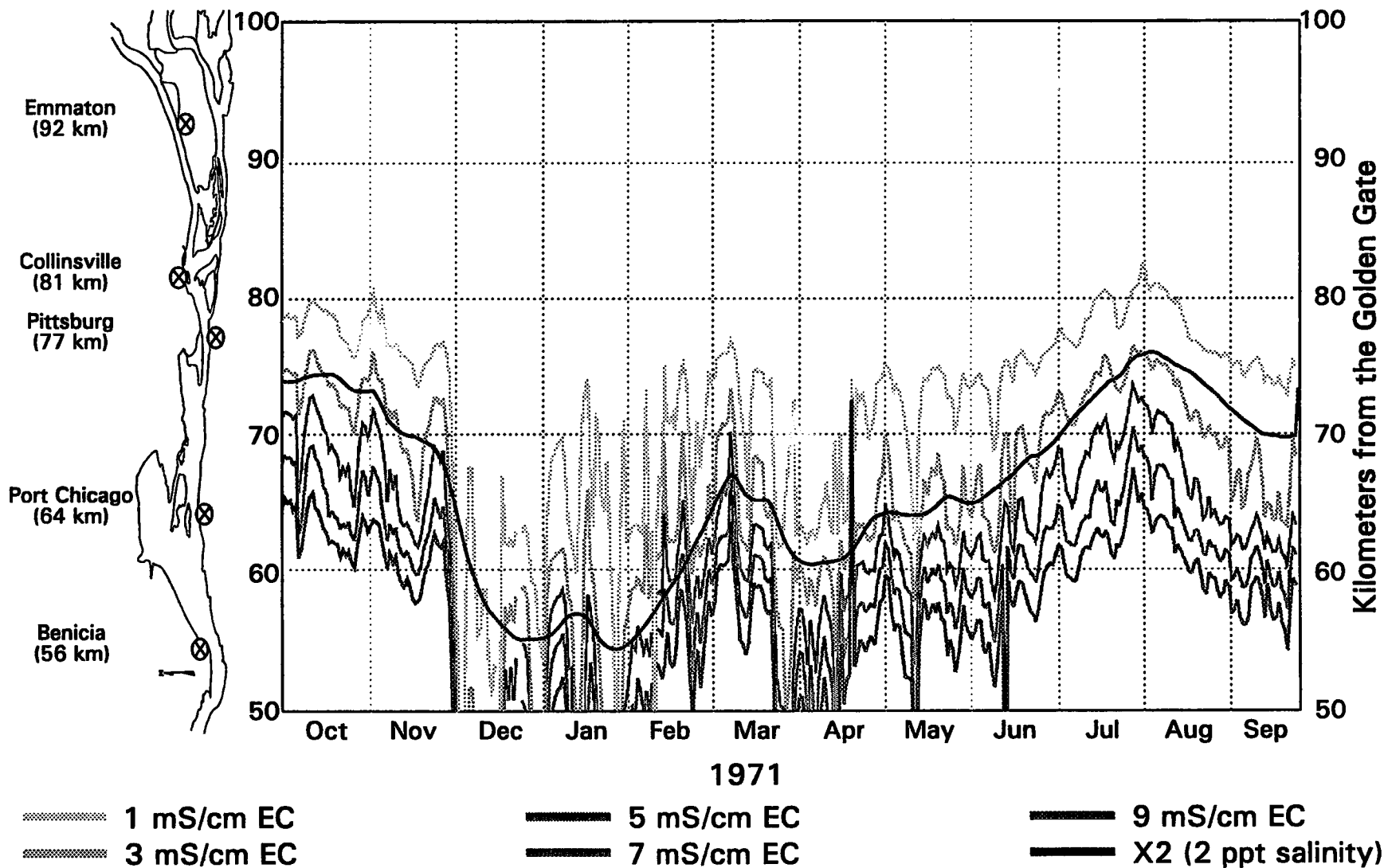
**DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1970
FIGURE 70A**



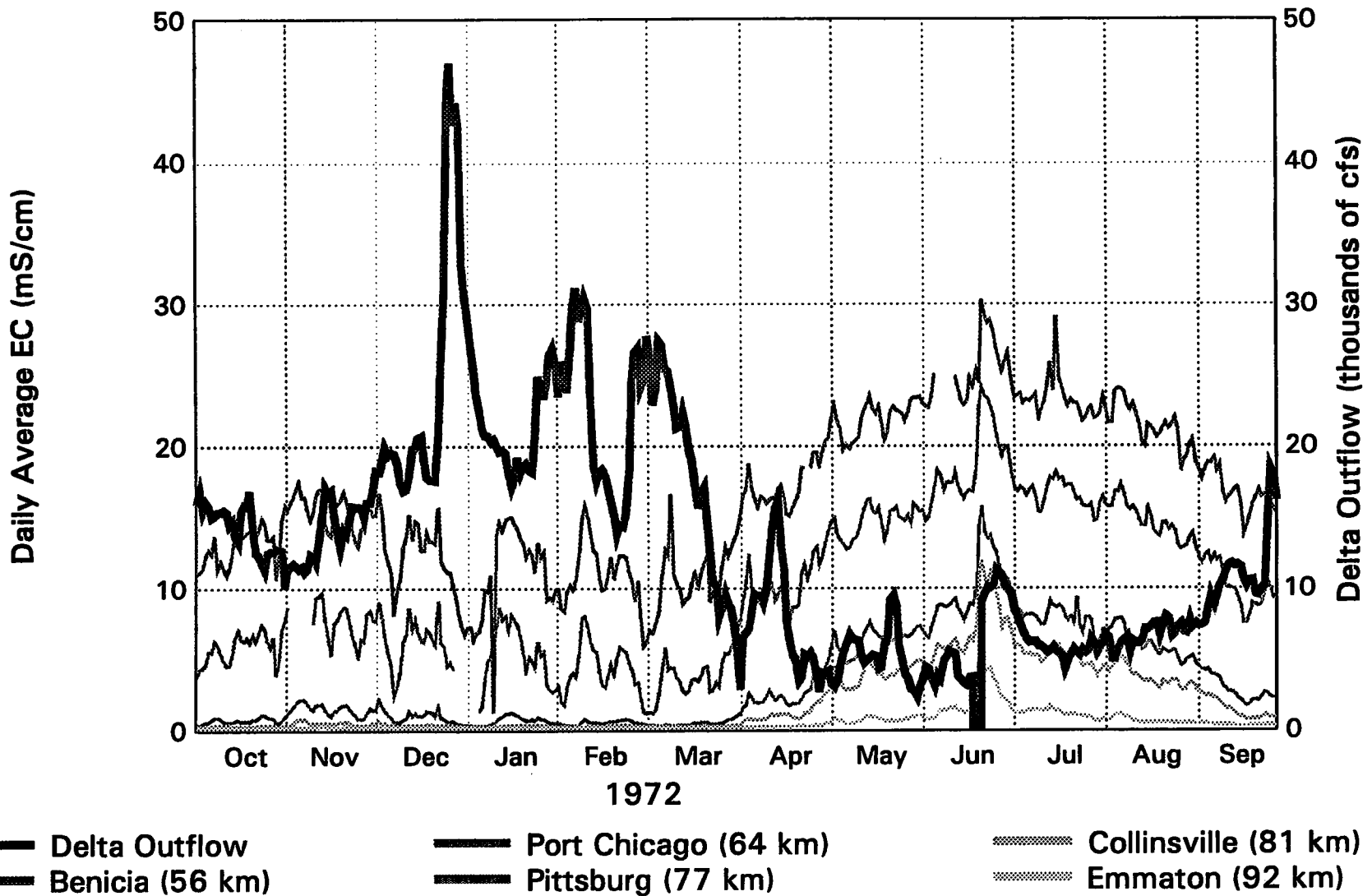
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1970
FIGURE 70B



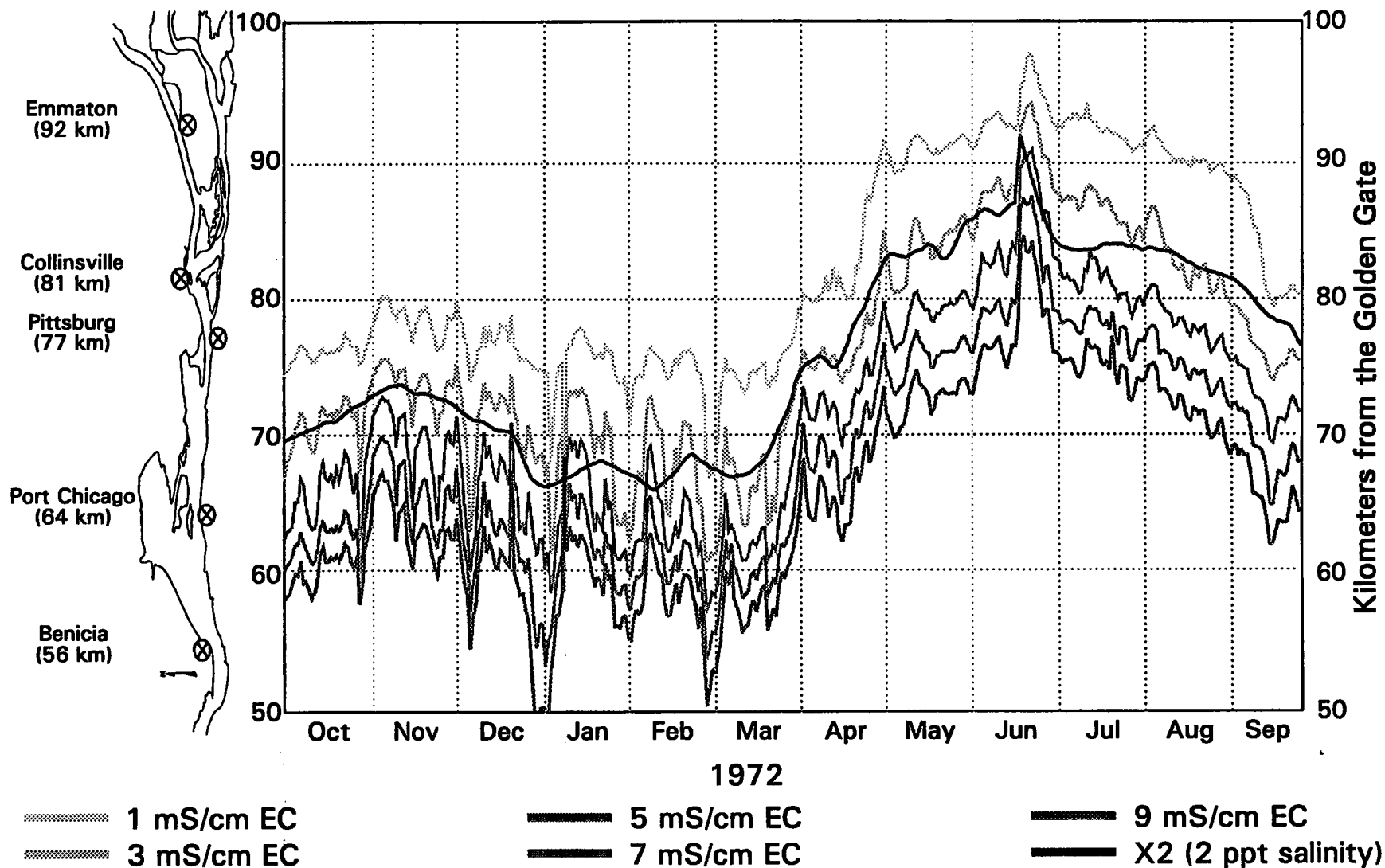
**DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1971
FIGURE 71A**



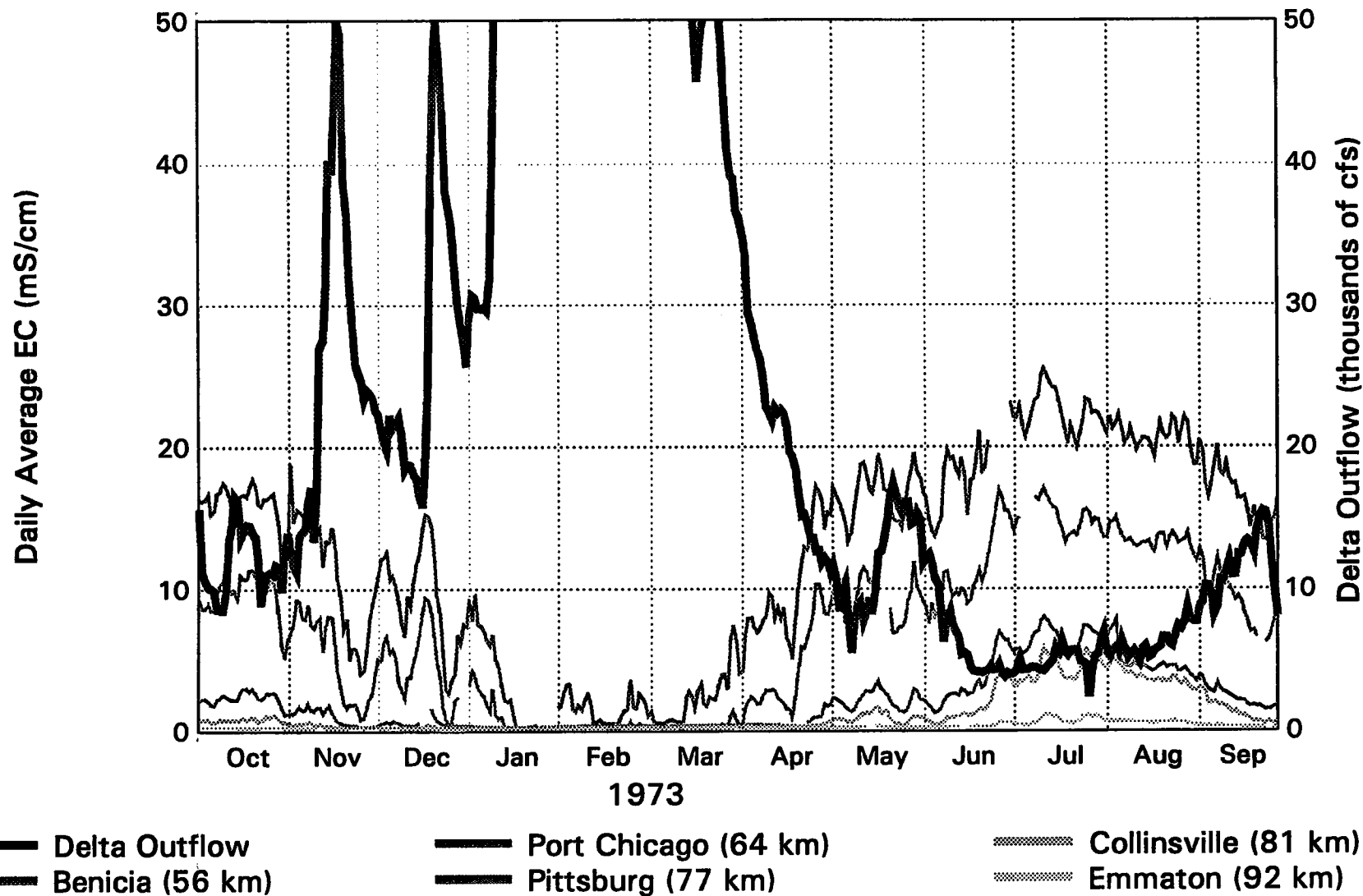
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1971
FIGURE 71B



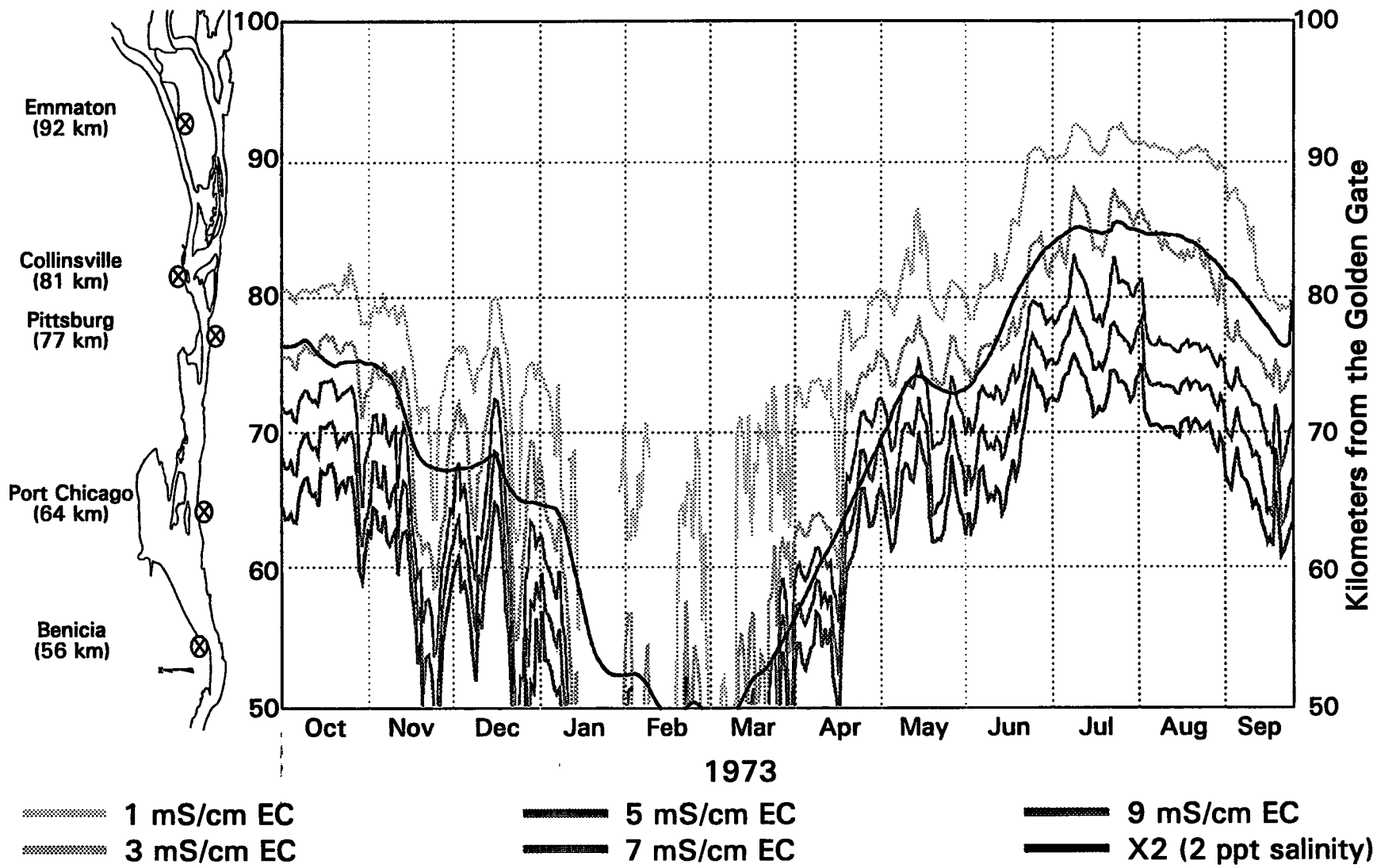
**DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1972
FIGURE 72A**



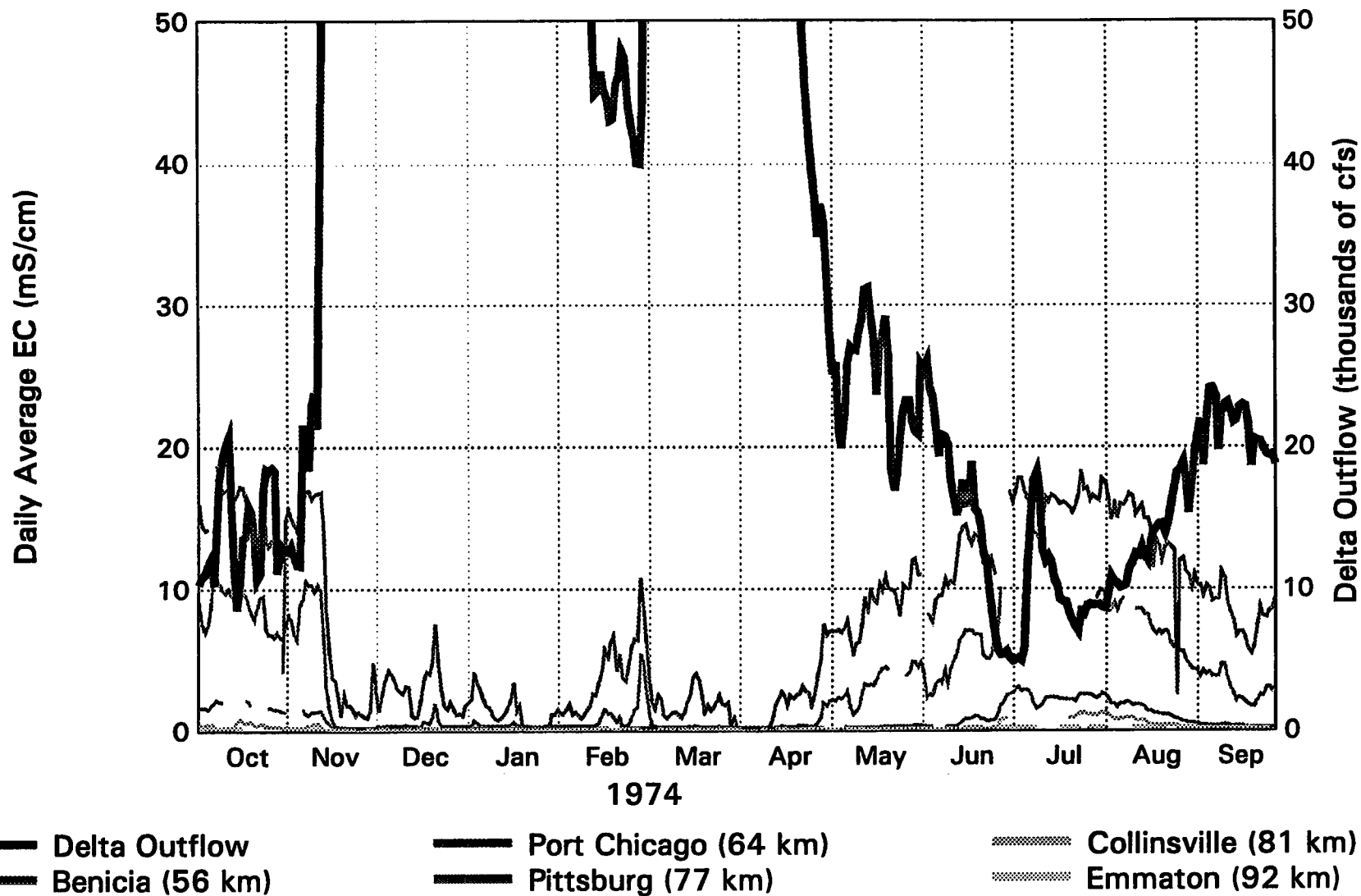
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1972
FIGURE 72B



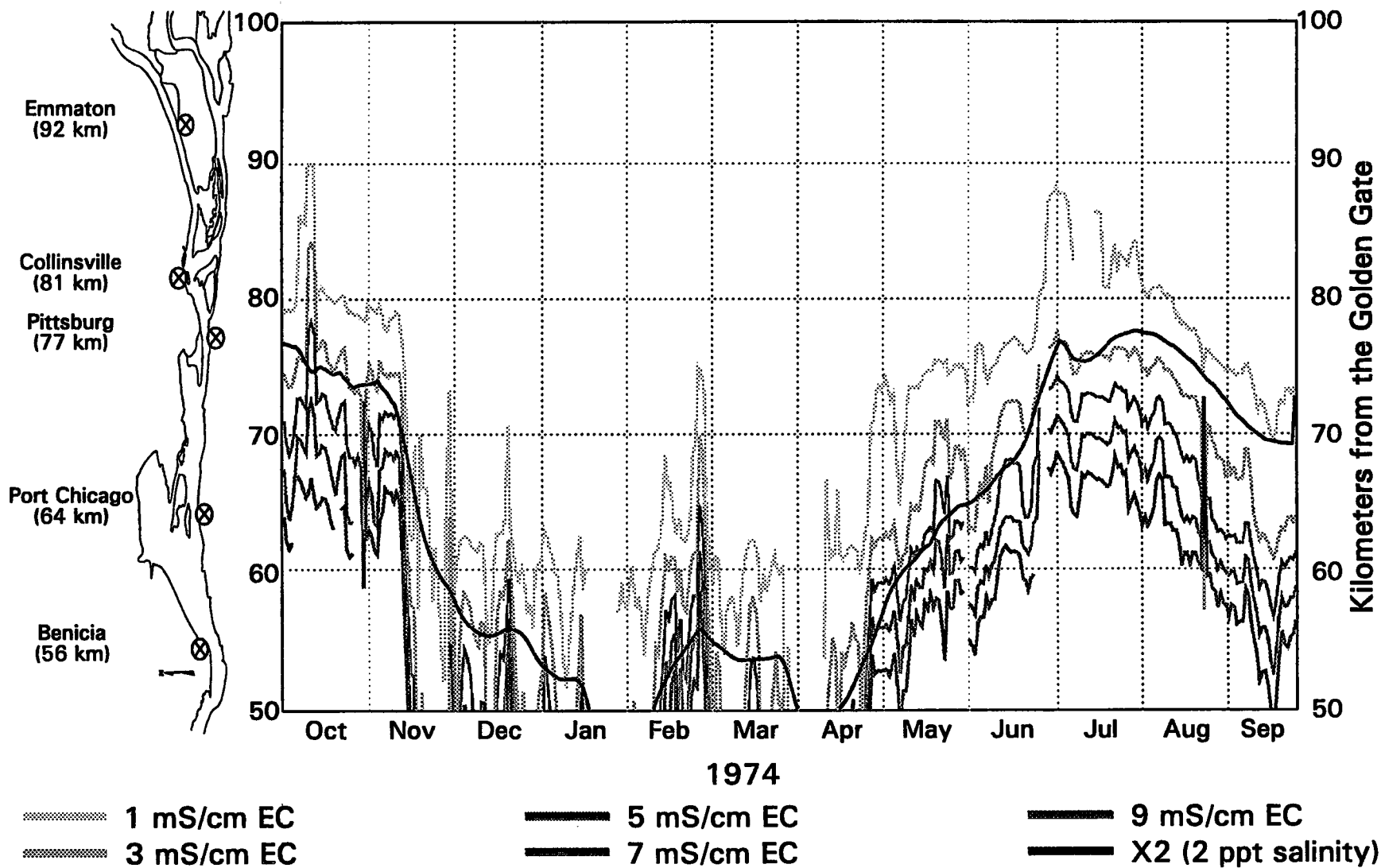
**DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1973
FIGURE 73A**



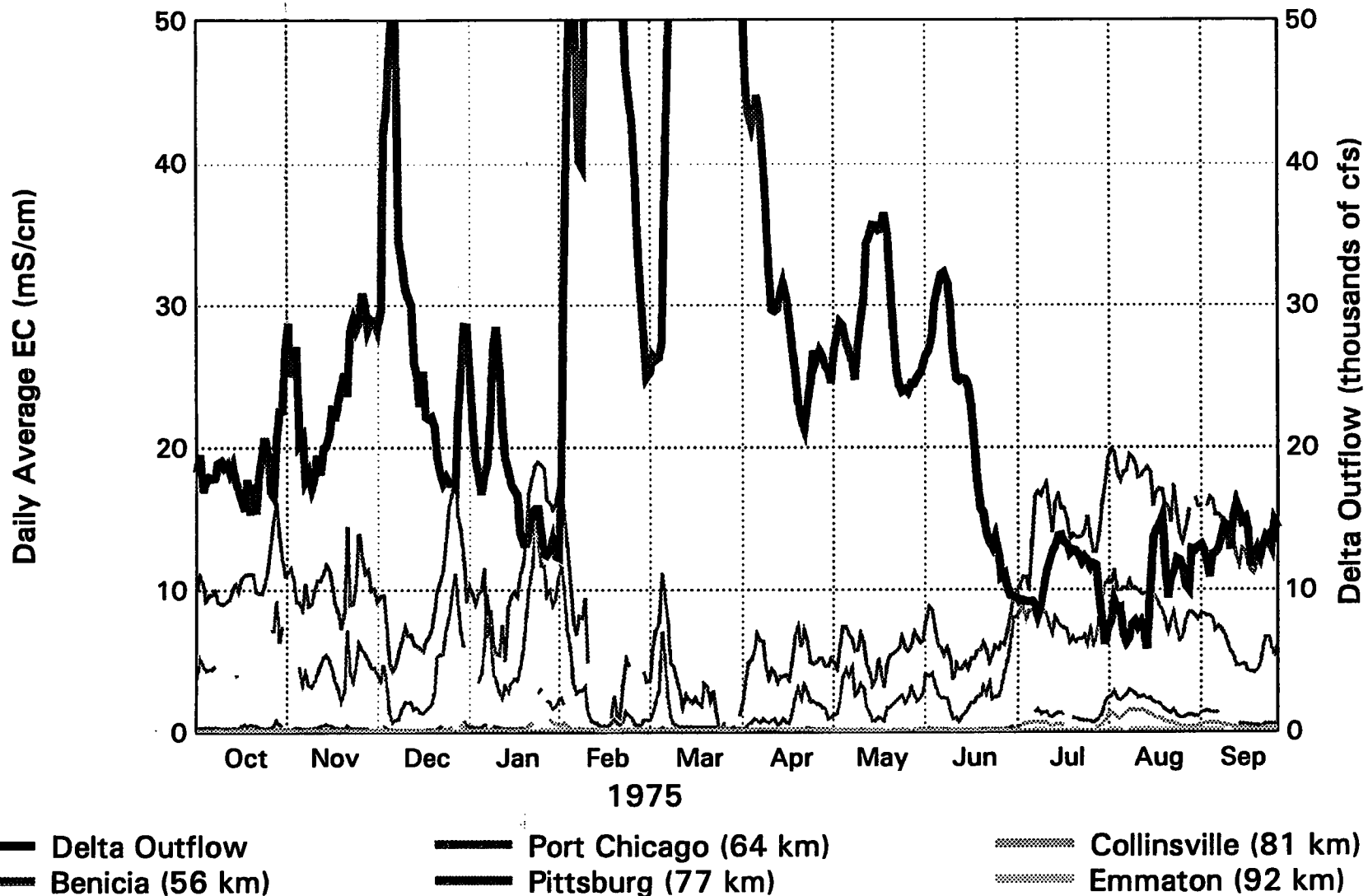
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1973
FIGURE 73B



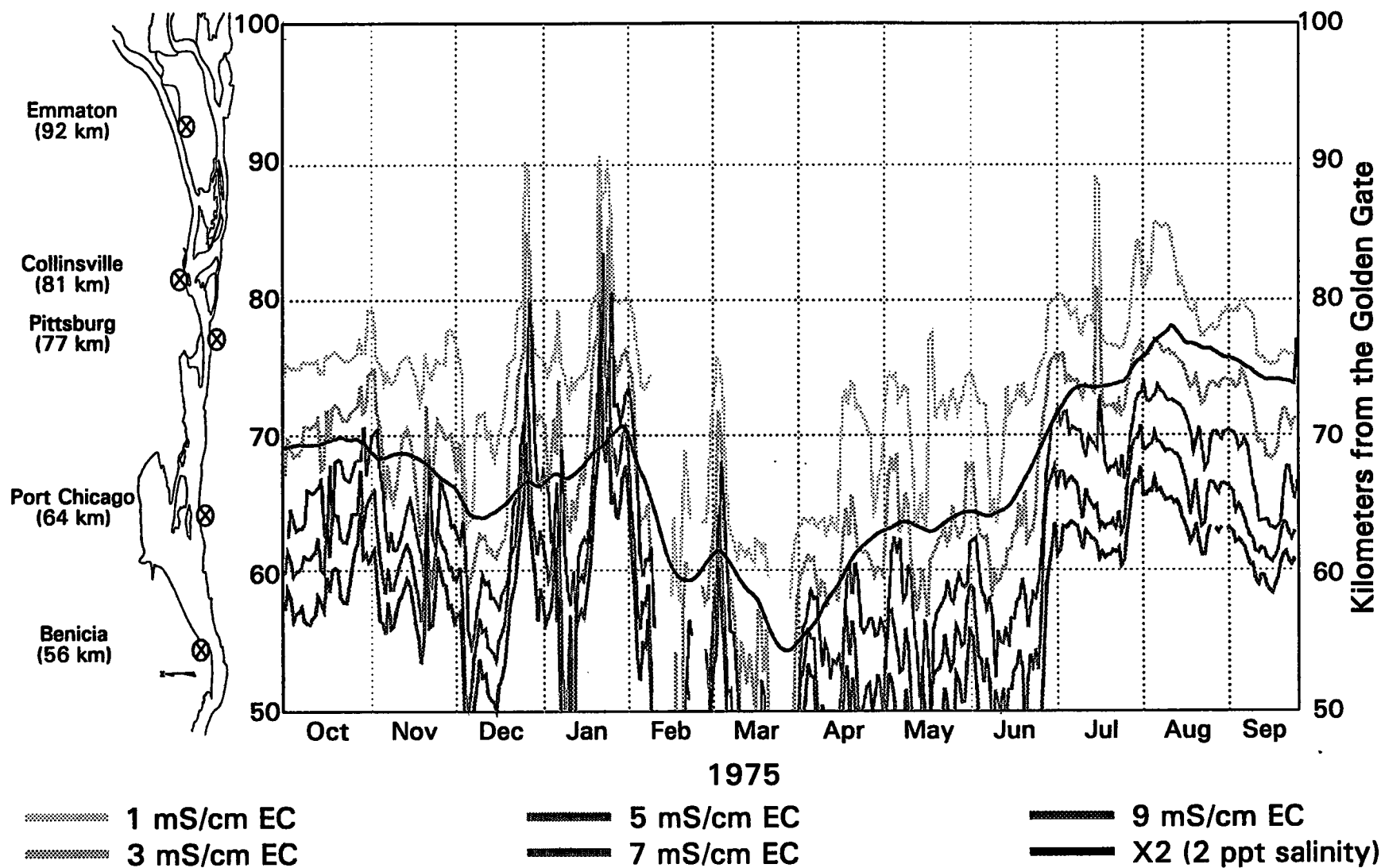
**DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1974
FIGURE 74A**



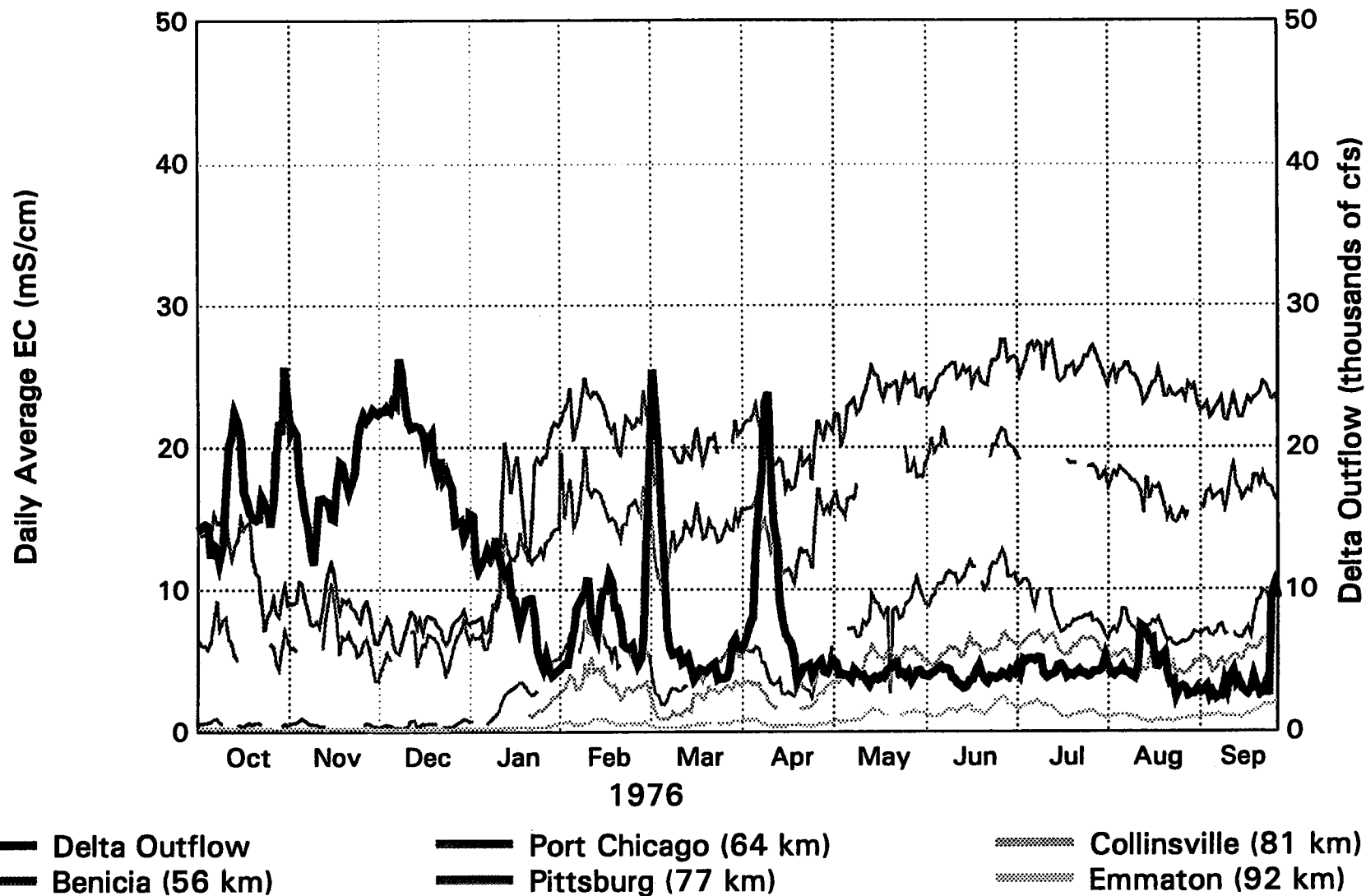
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1974
FIGURE 74B



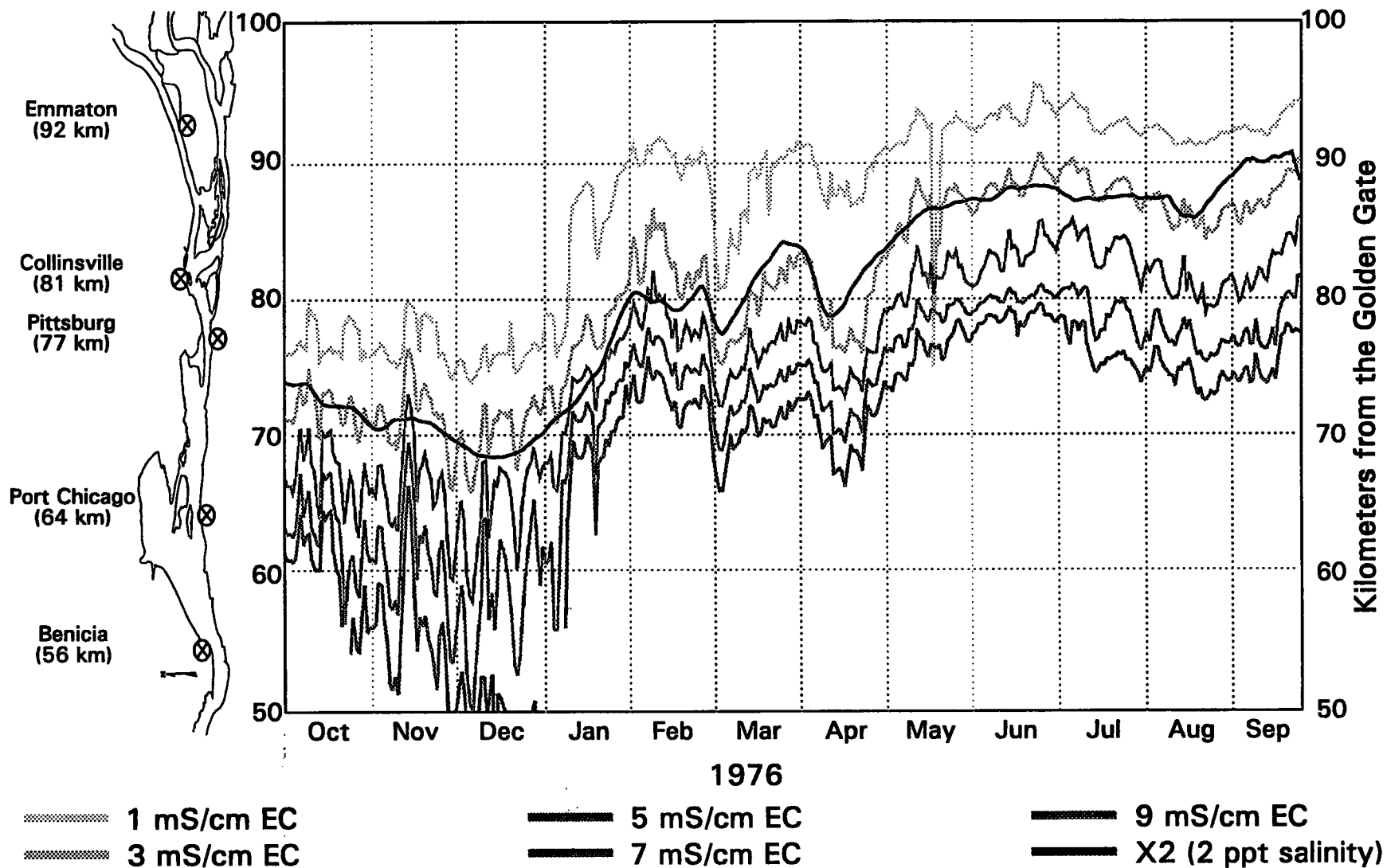
**DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1975
FIGURE 75A**



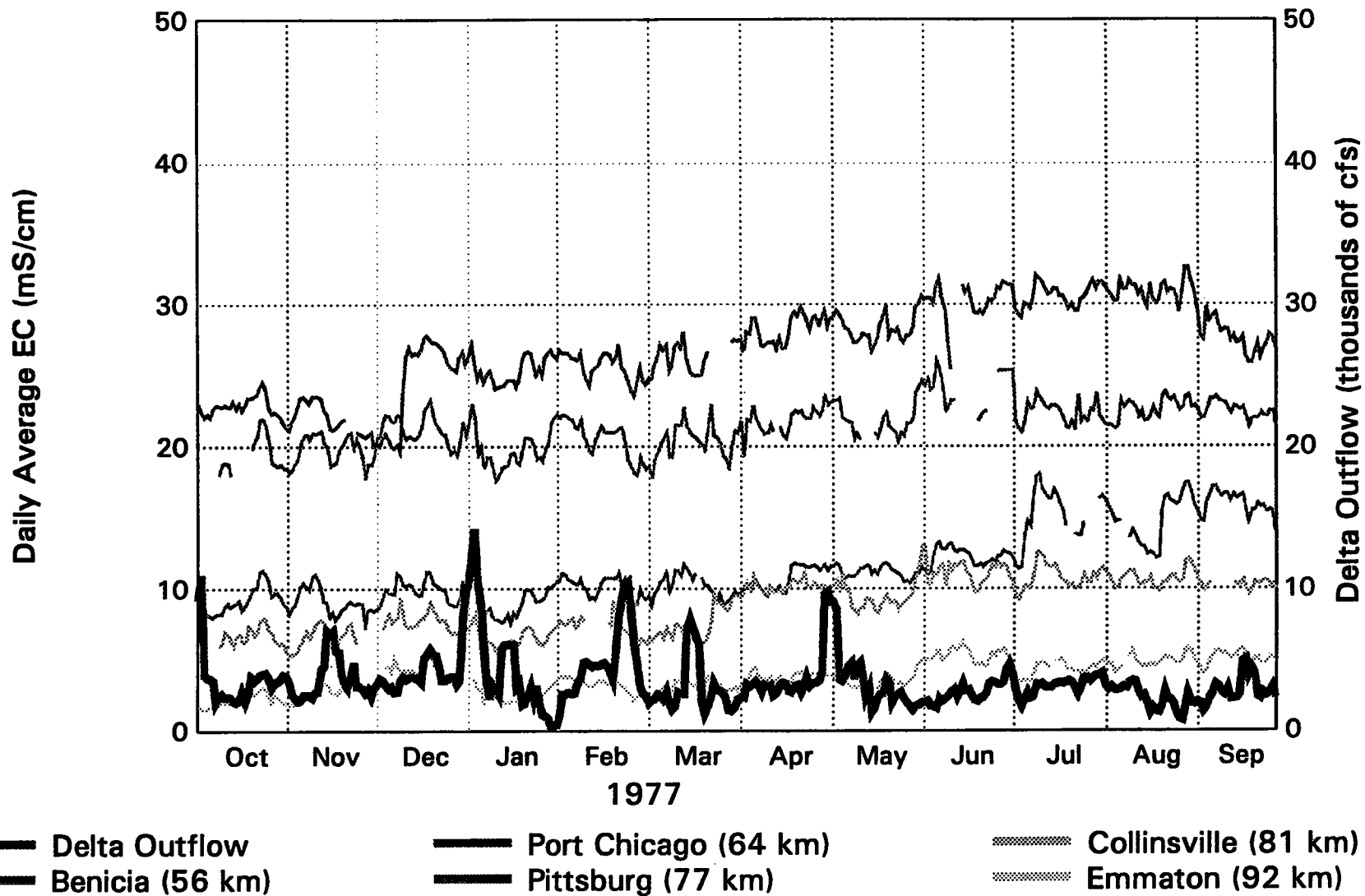
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1975
FIGURE 75B



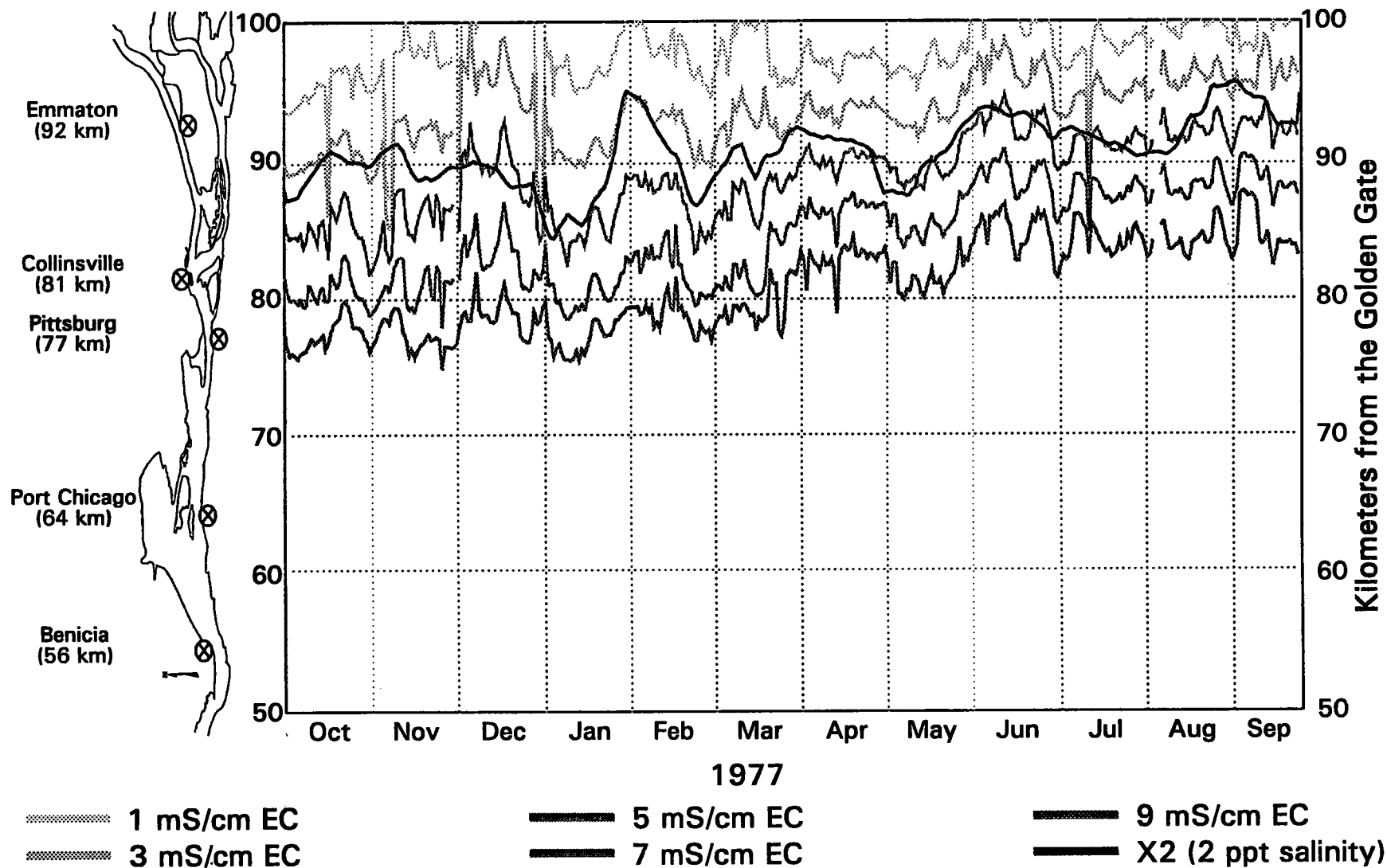
**DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1976
FIGURE 76A**



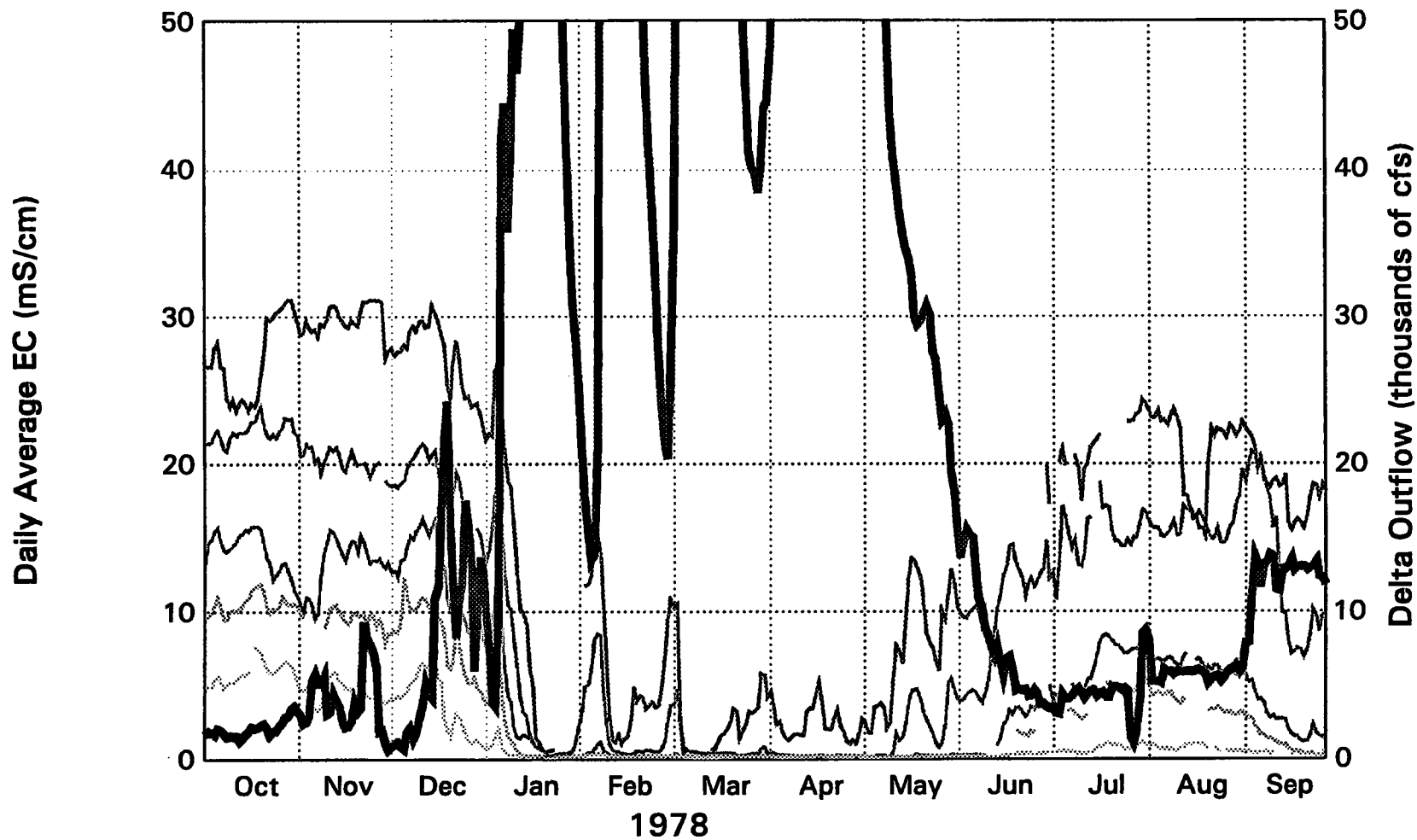
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1976
FIGURE 76B



**DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1977
FIGURE 77A**

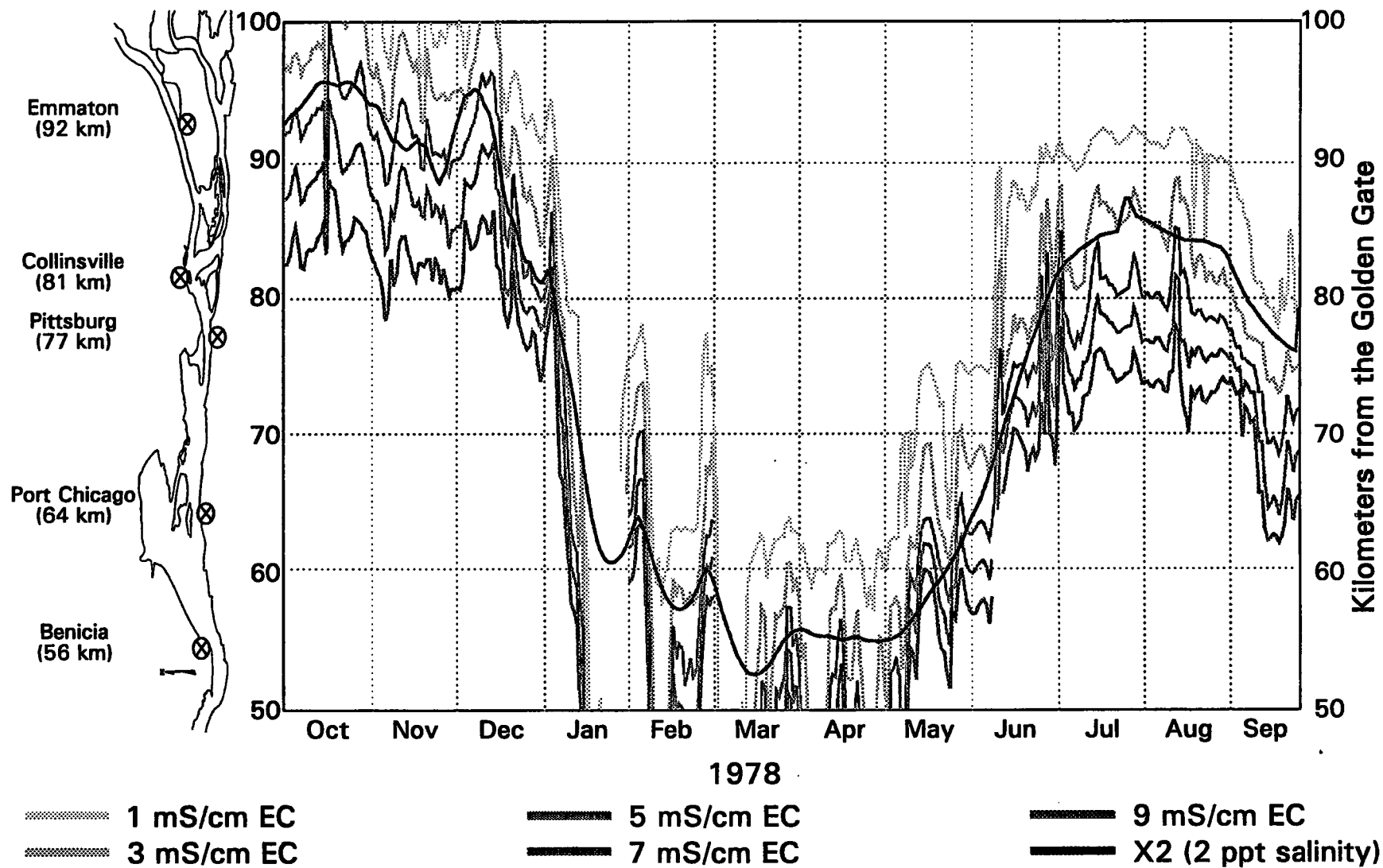


LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1977
FIGURE 77B

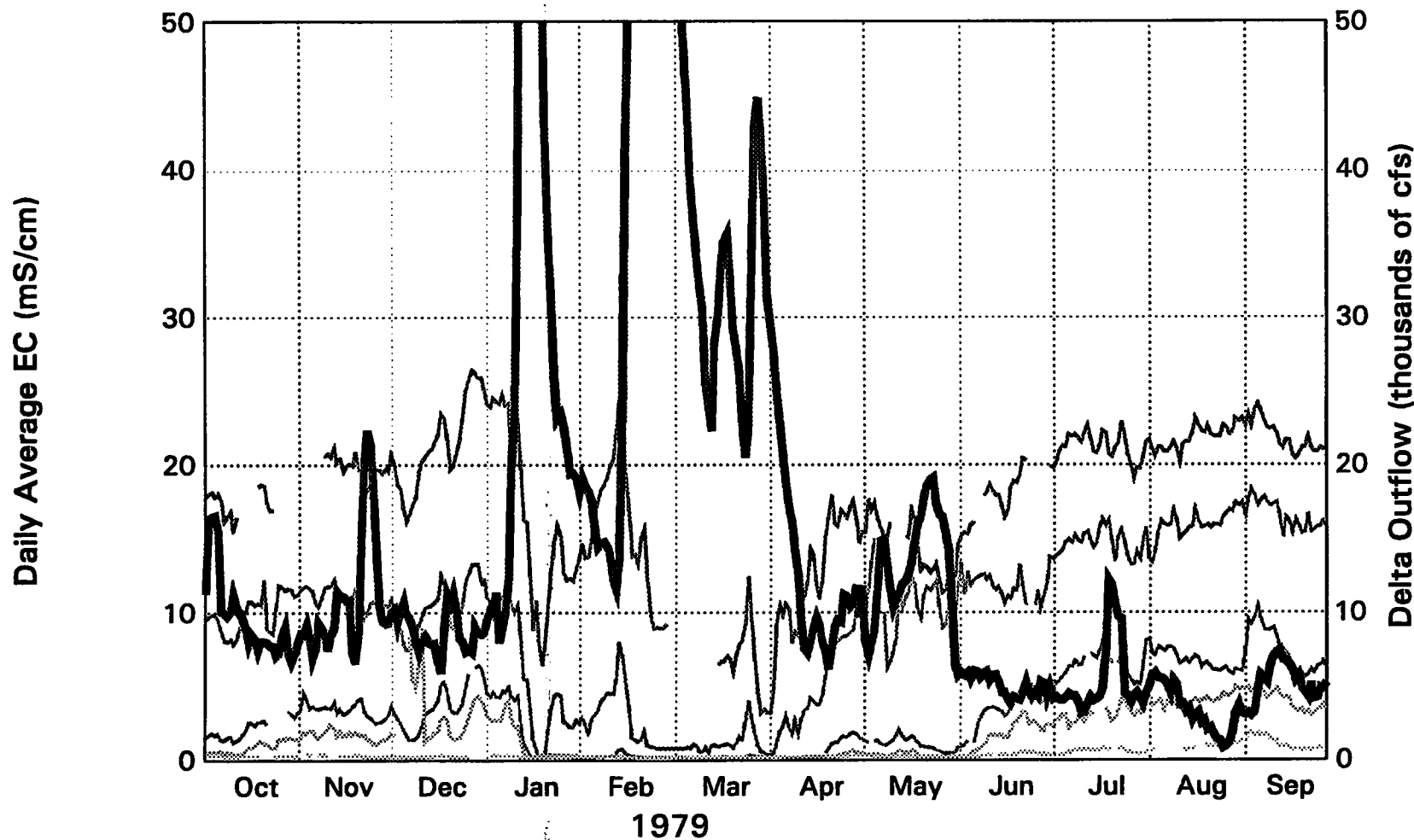


— Delta Outflow — Port Chicago (64 km) - - - Collinsville (81 km)
 — Benicia (56 km) — Pittsburg (77 km) - - - Emmaton (92 km)

**DAILY AVERAGE EC AT SELECTED STATIONS
 AND DELTA OUTFLOW FOR 1978
 FIGURE 78A**

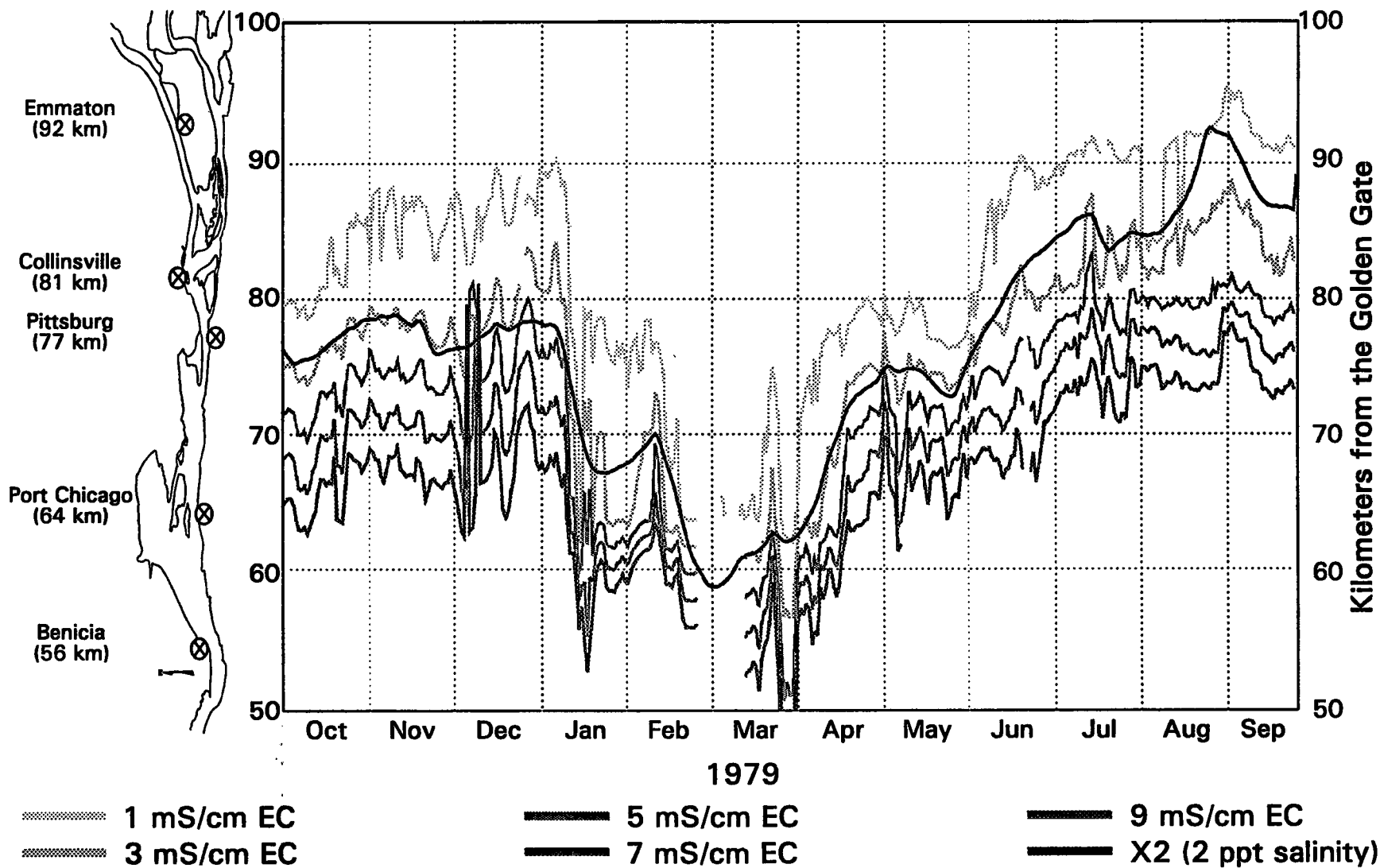


LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1978
FIGURE 78B

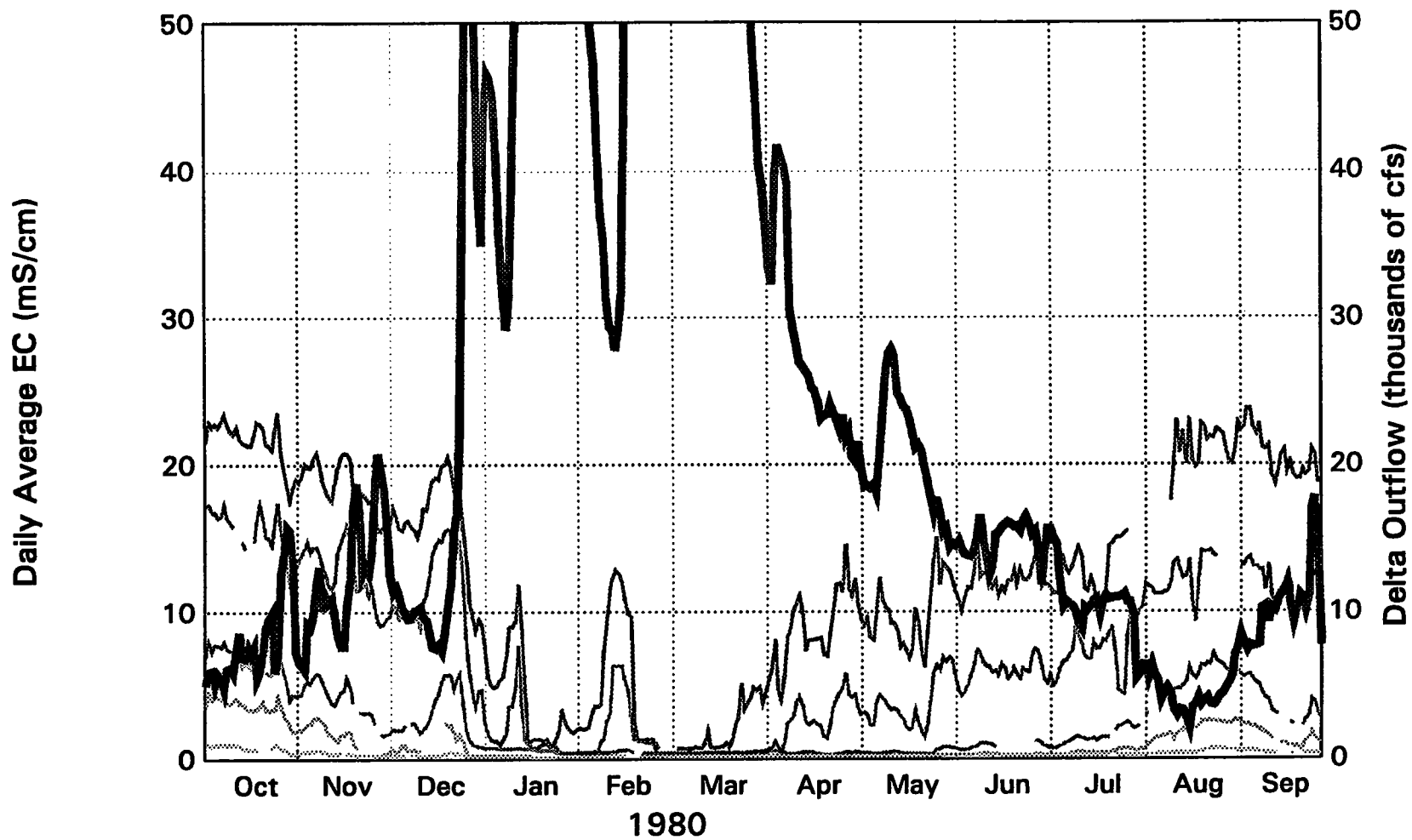


— Delta Outflow — Port Chicago (64 km) - - - Collinsville (81 km)
 — Benicia (56 km) — Pittsburg (77 km) - - - Emmatton (92 km)

**DAILY AVERAGE EC AT SELECTED STATIONS
 AND DELTA OUTFLOW FOR 1979
 FIGURE 79A**

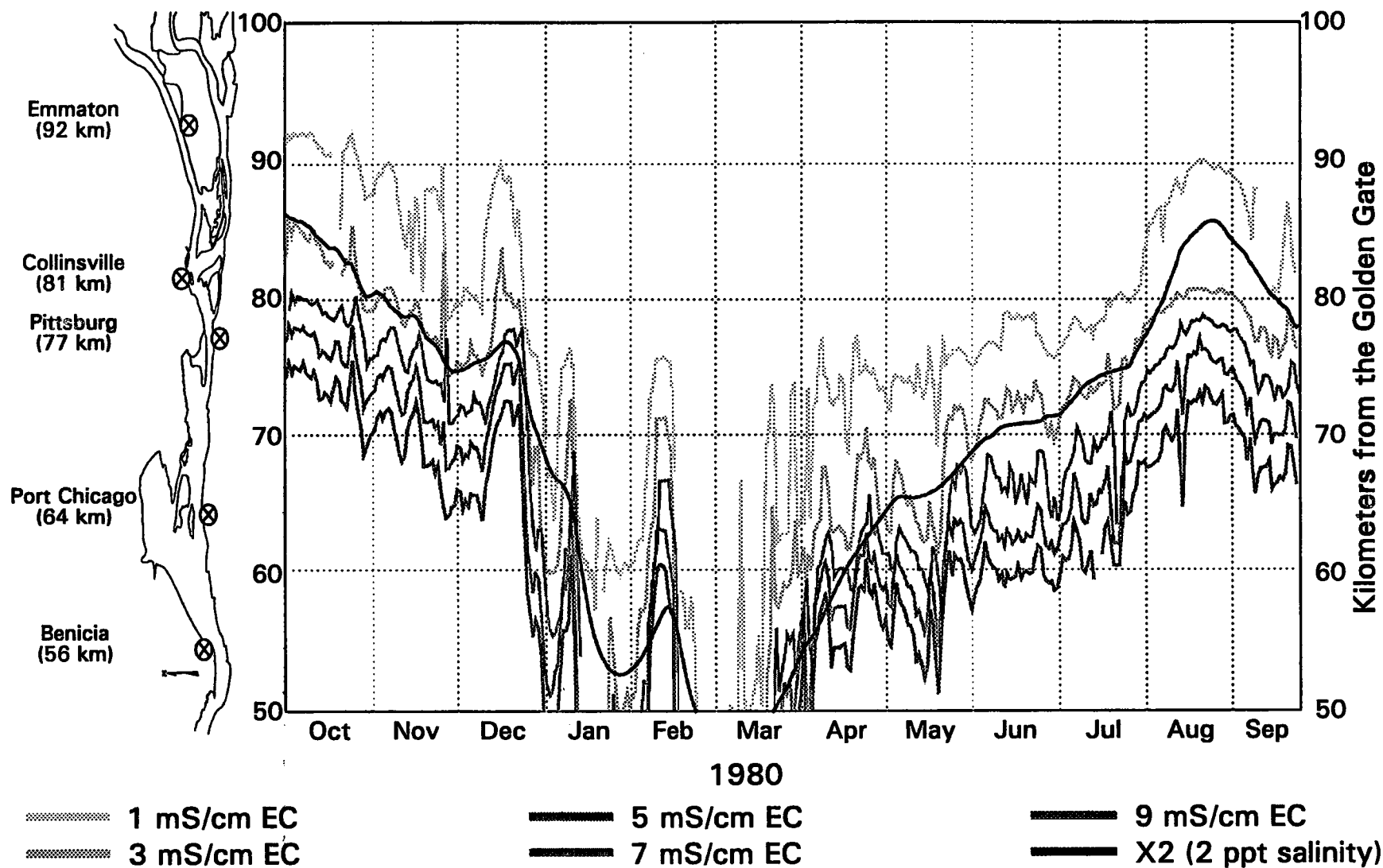


LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1979
FIGURE 79B

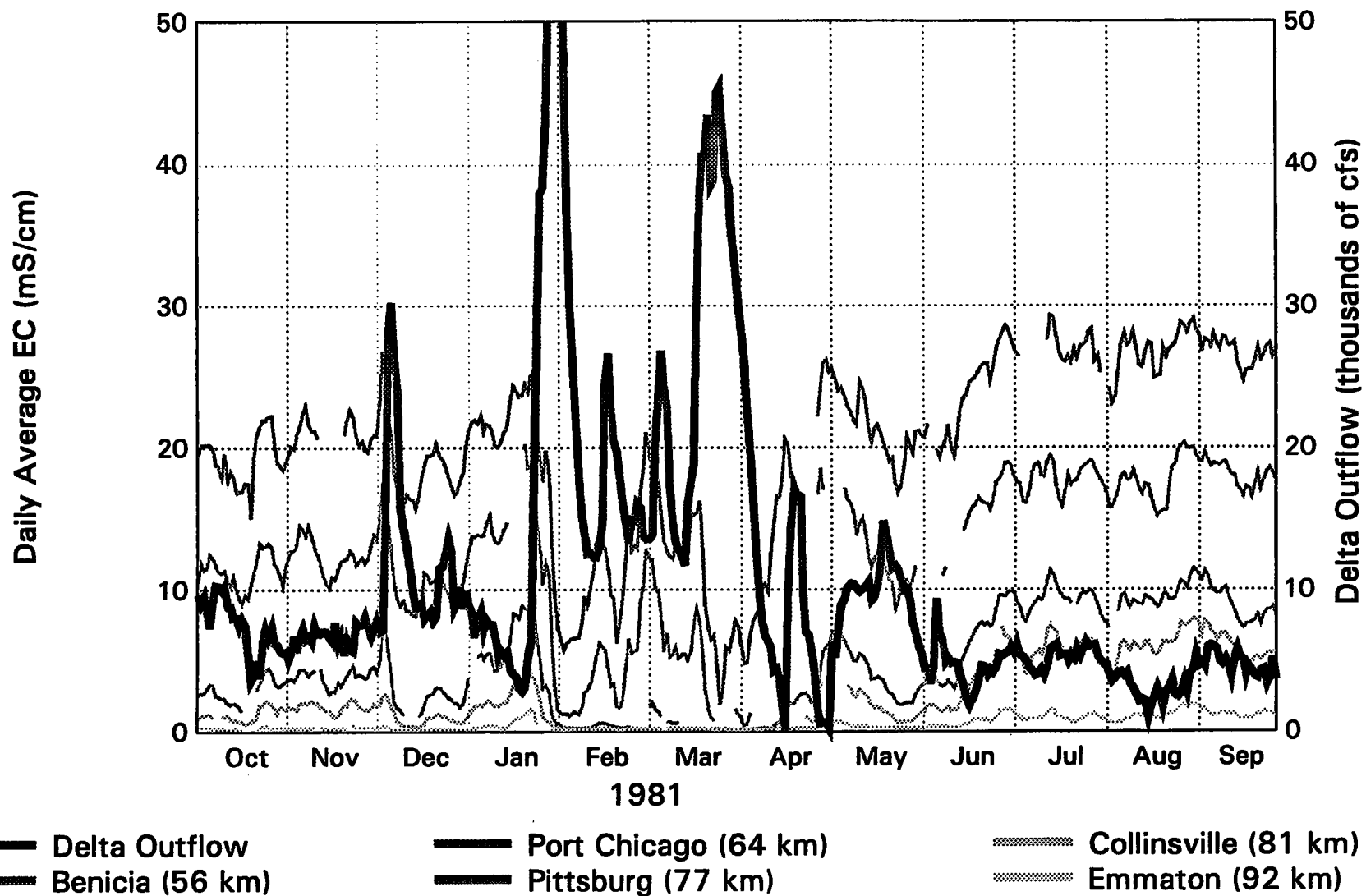


- Delta Outflow
- Benicia (56 km)
- Port Chicago (64 km)
- Pittsburg (77 km)
- Collinsville (81 km)
- Emmaton (92 km)

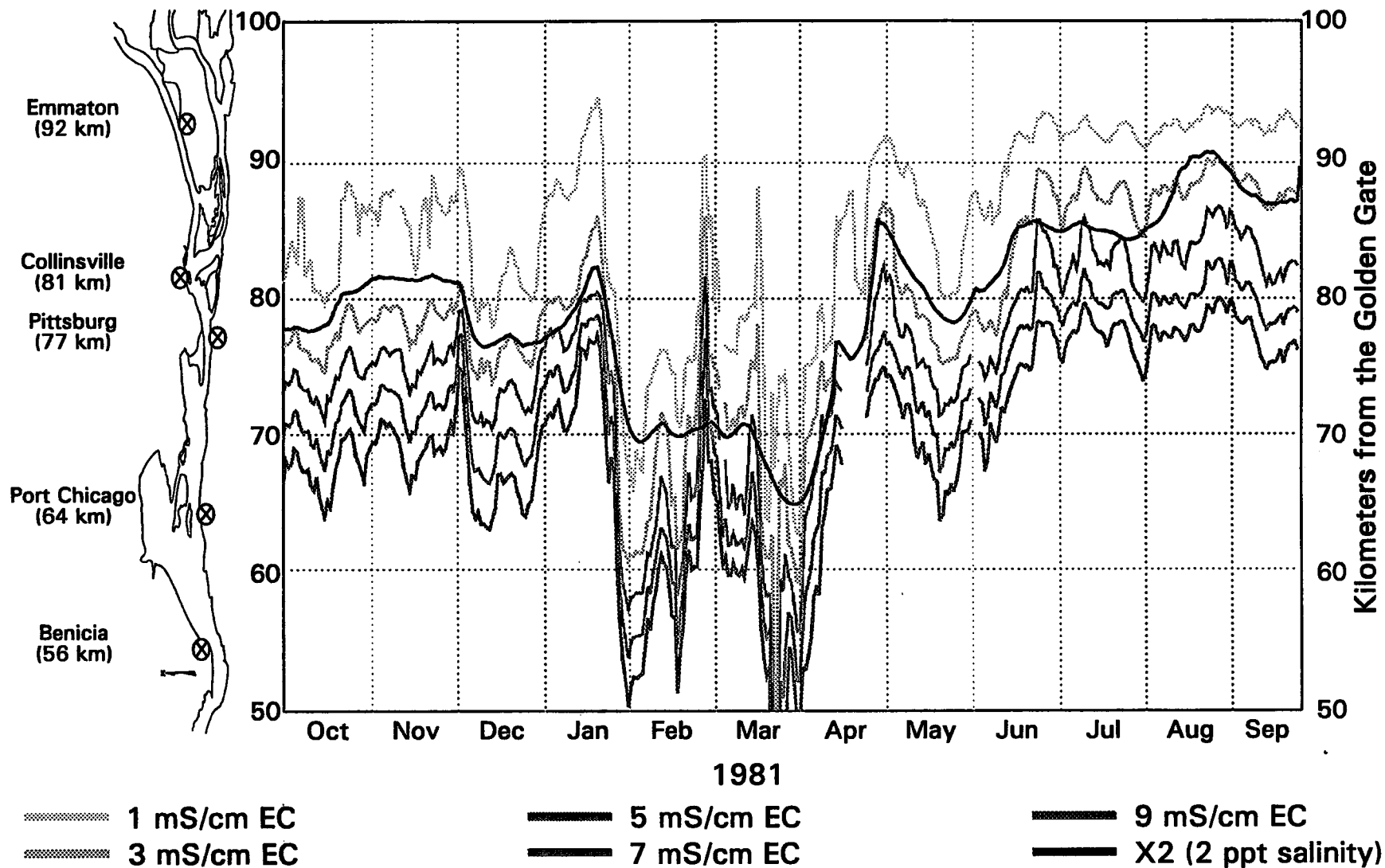
**DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1980
FIGURE 80A**



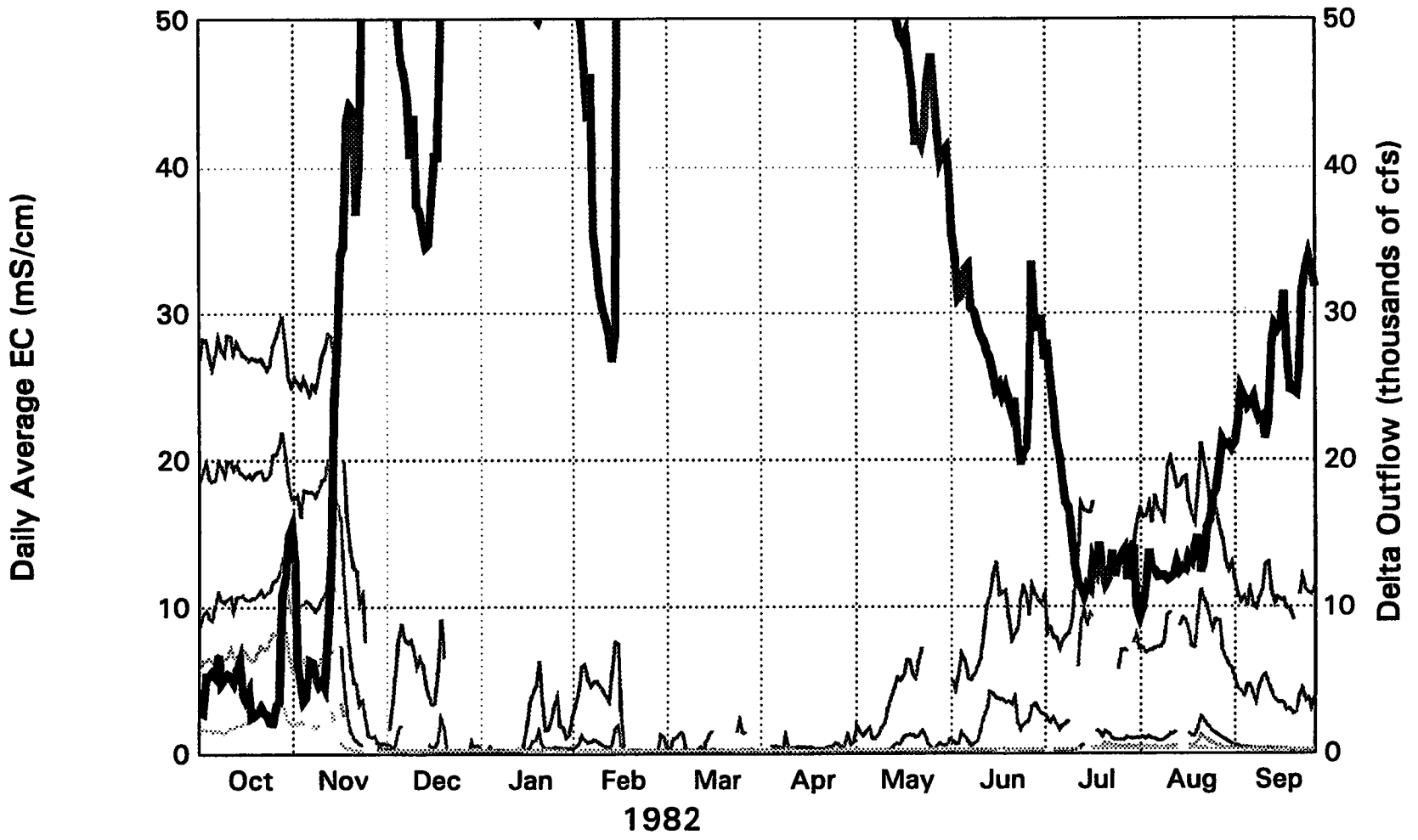
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1980
FIGURE 80B



**DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1981
FIGURE 81A**

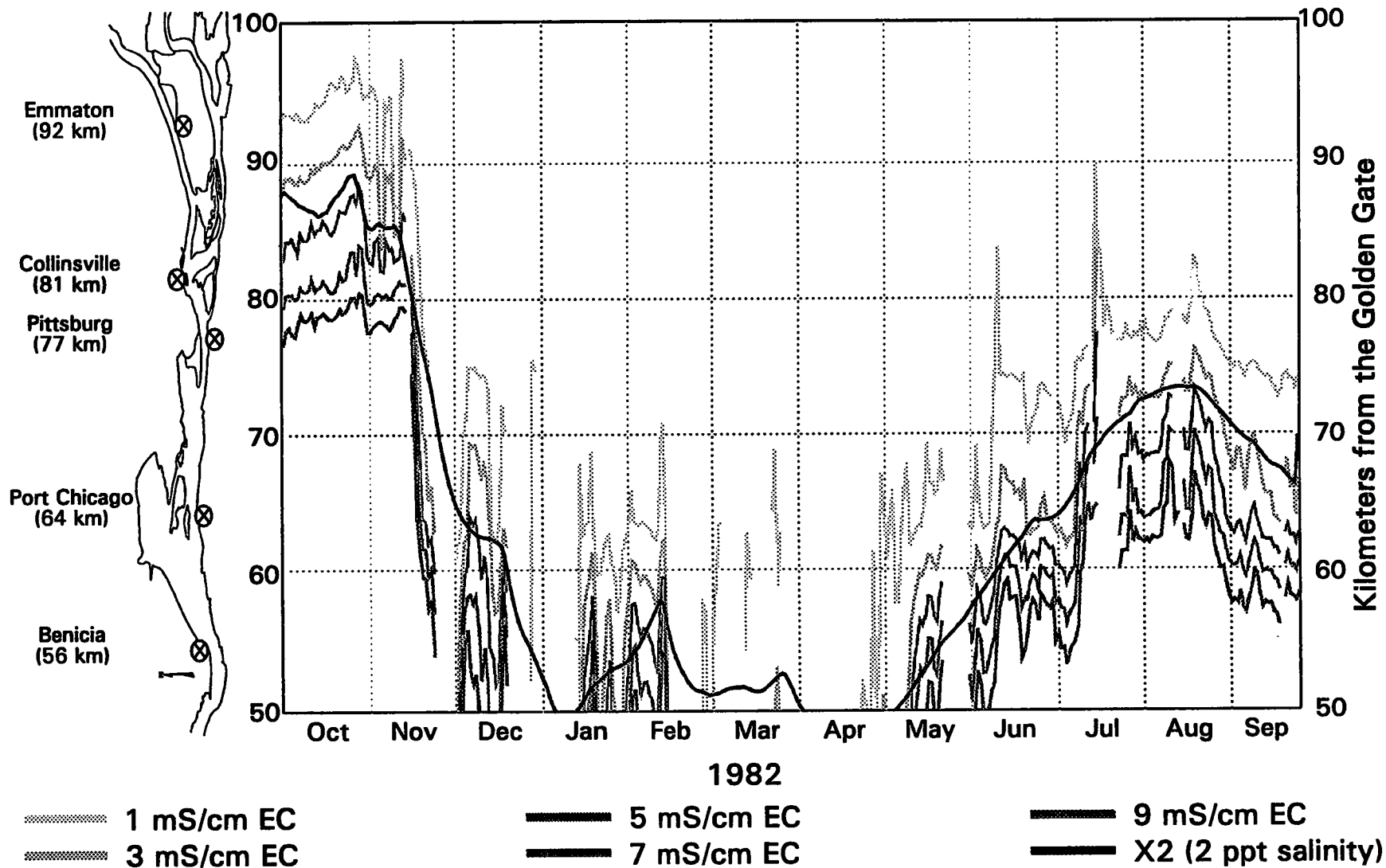


LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1981
FIGURE 81B

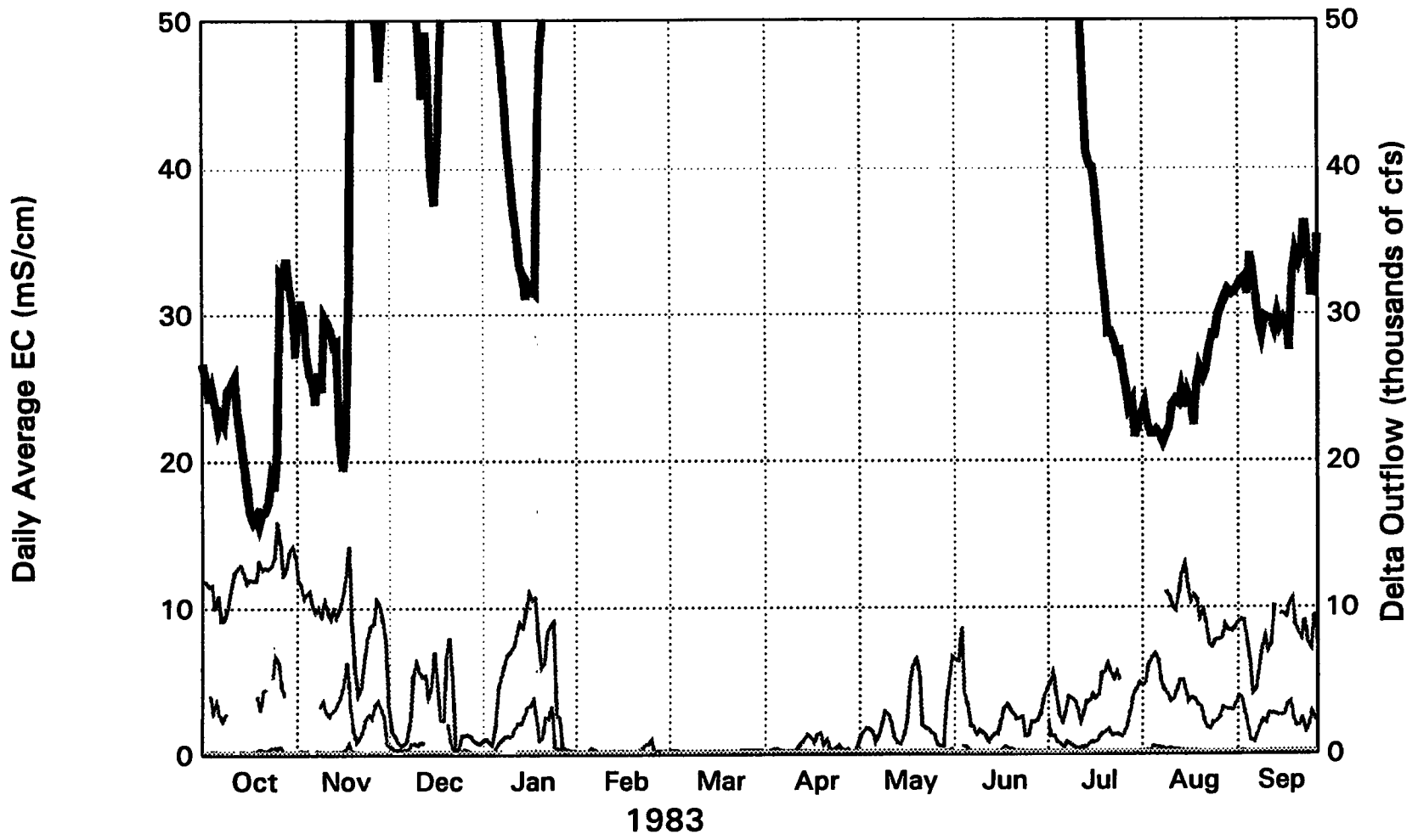


— Delta Outflow — Port Chicago (64 km) ▨ Collinsville (81 km)
 — Benicia (56 km) — Pittsburg (77 km) ▨ Emmaton (92 km)

**DAILY AVERAGE EC AT SELECTED STATIONS
 AND DELTA OUTFLOW FOR 1982
 FIGURE 82A**

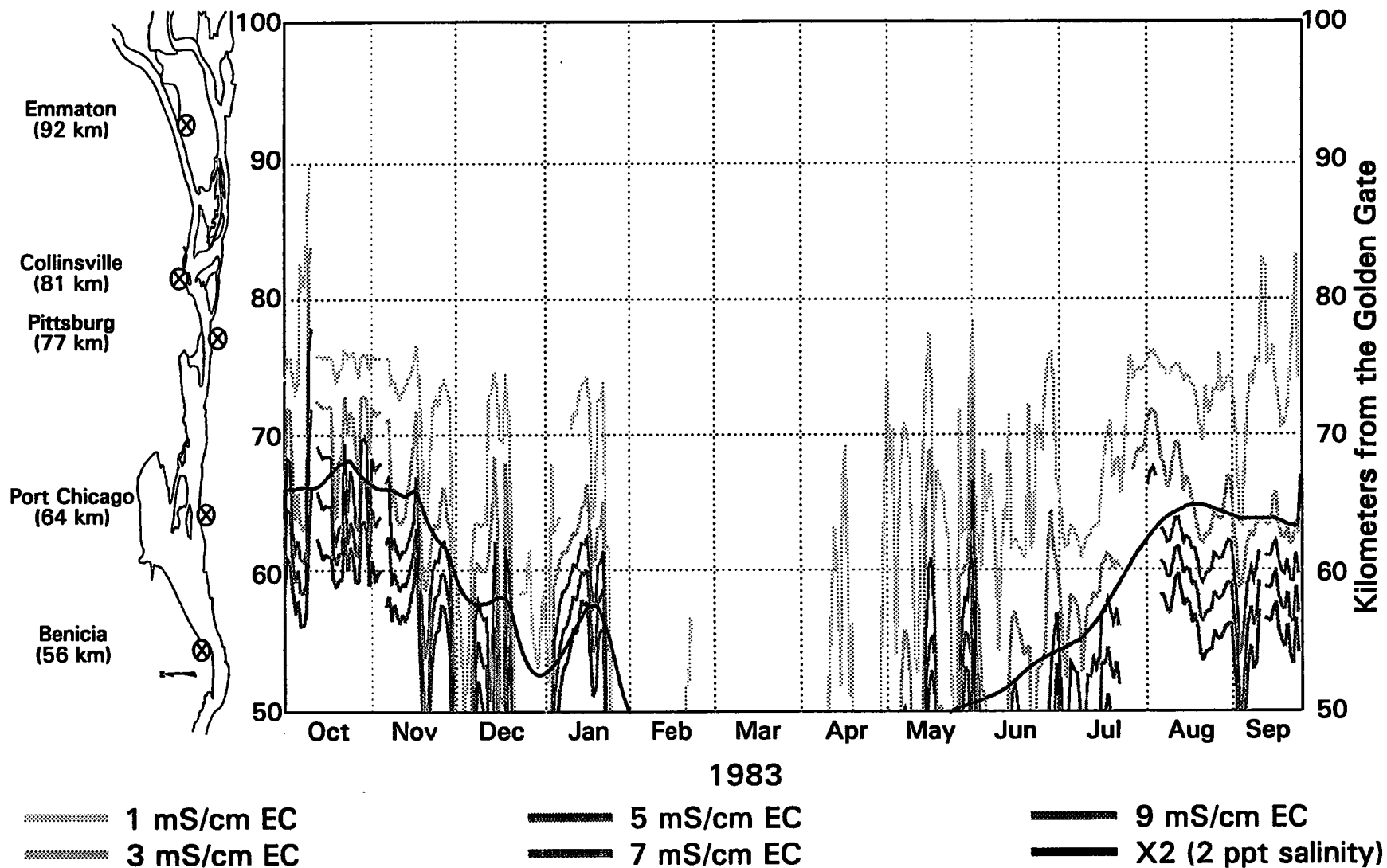


LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1982
FIGURE 82B

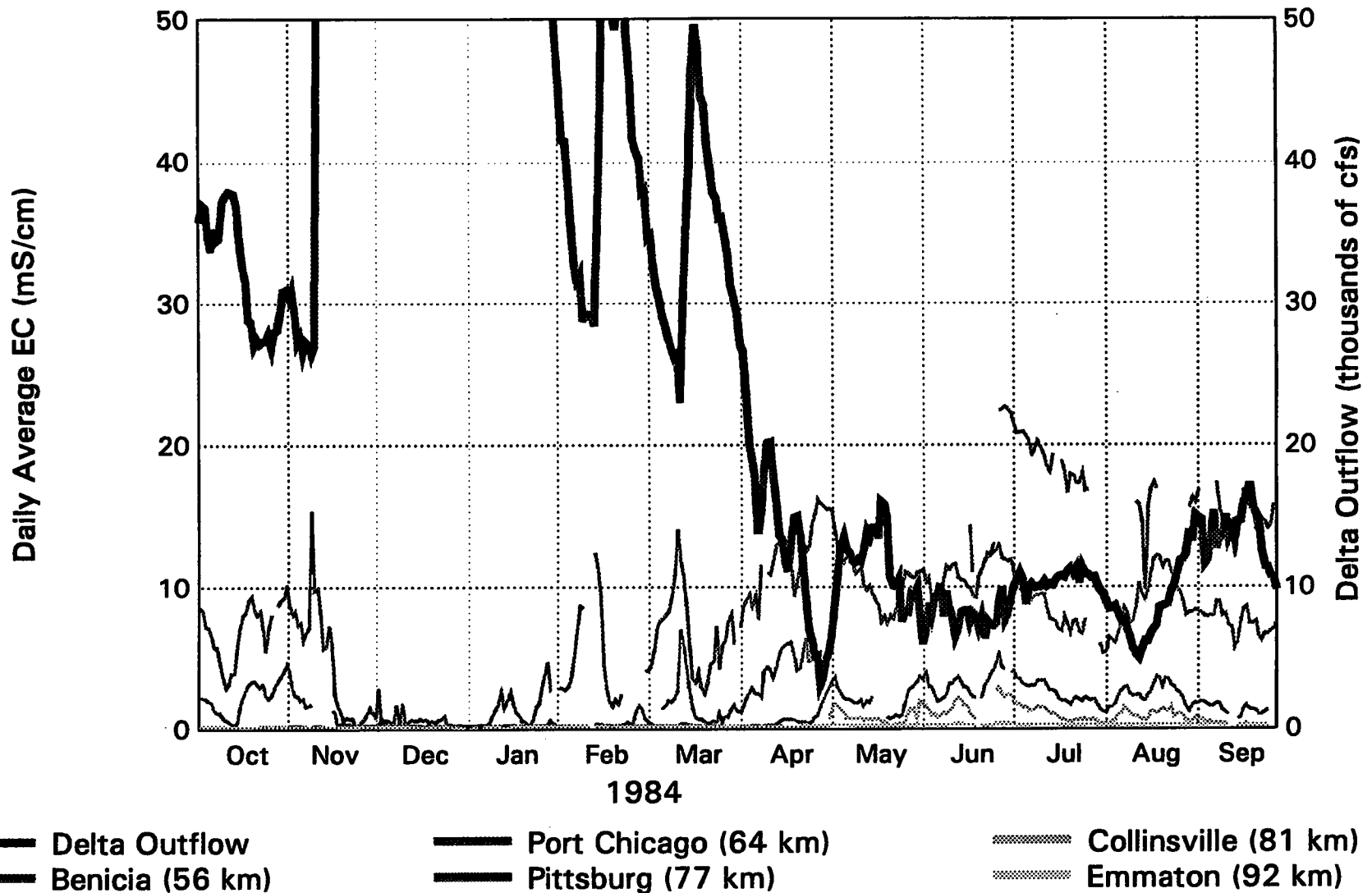


— Delta Outflow — Port Chicago (64 km) ▨ Collinsville (81 km)
 — Benicia (56 km) — Pittsburg (77 km) ▩ Emmaton (92 km)

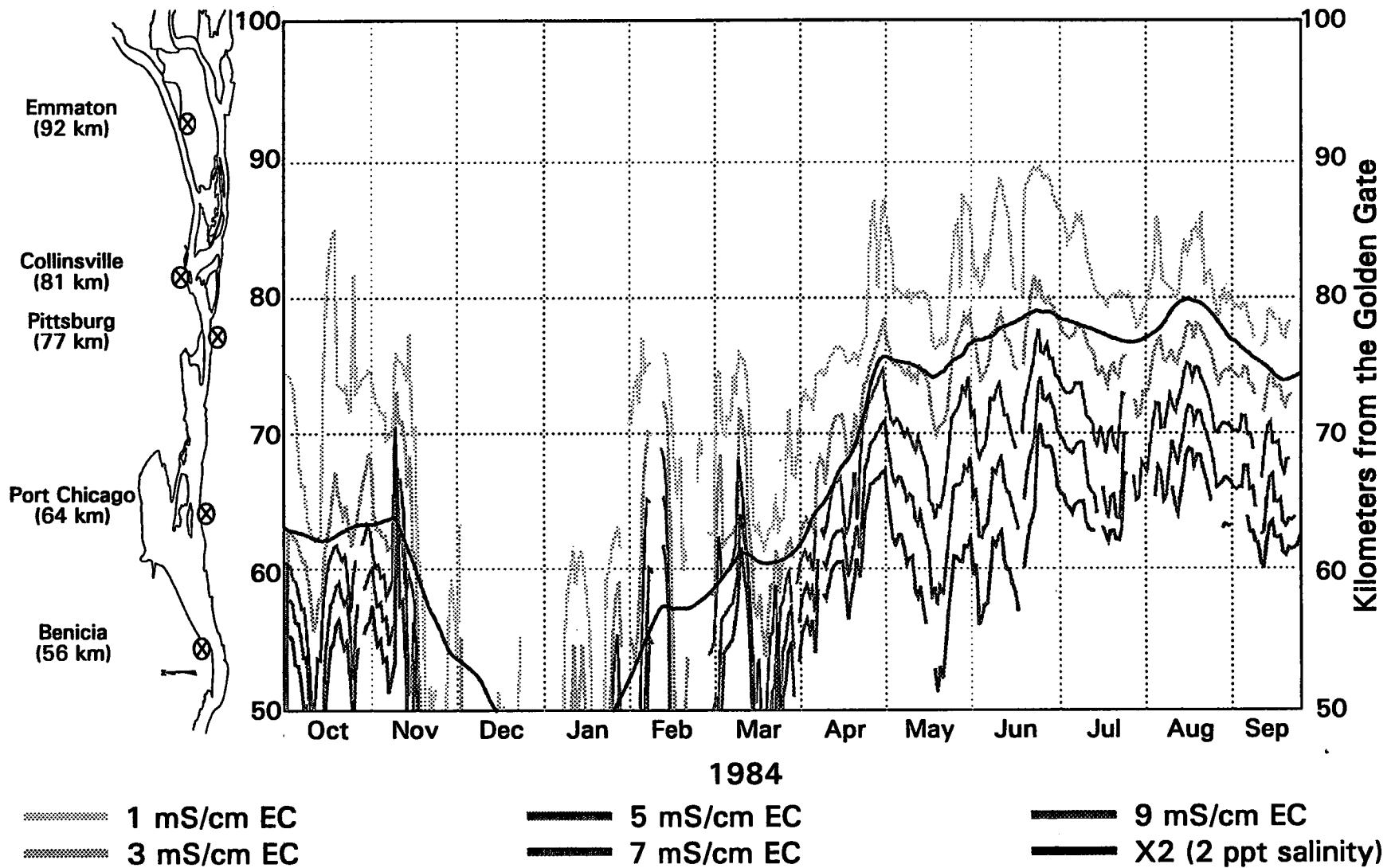
**DAILY AVERAGE EC AT SELECTED STATIONS
 AND DELTA OUTFLOW FOR 1983
 FIGURE 83A**



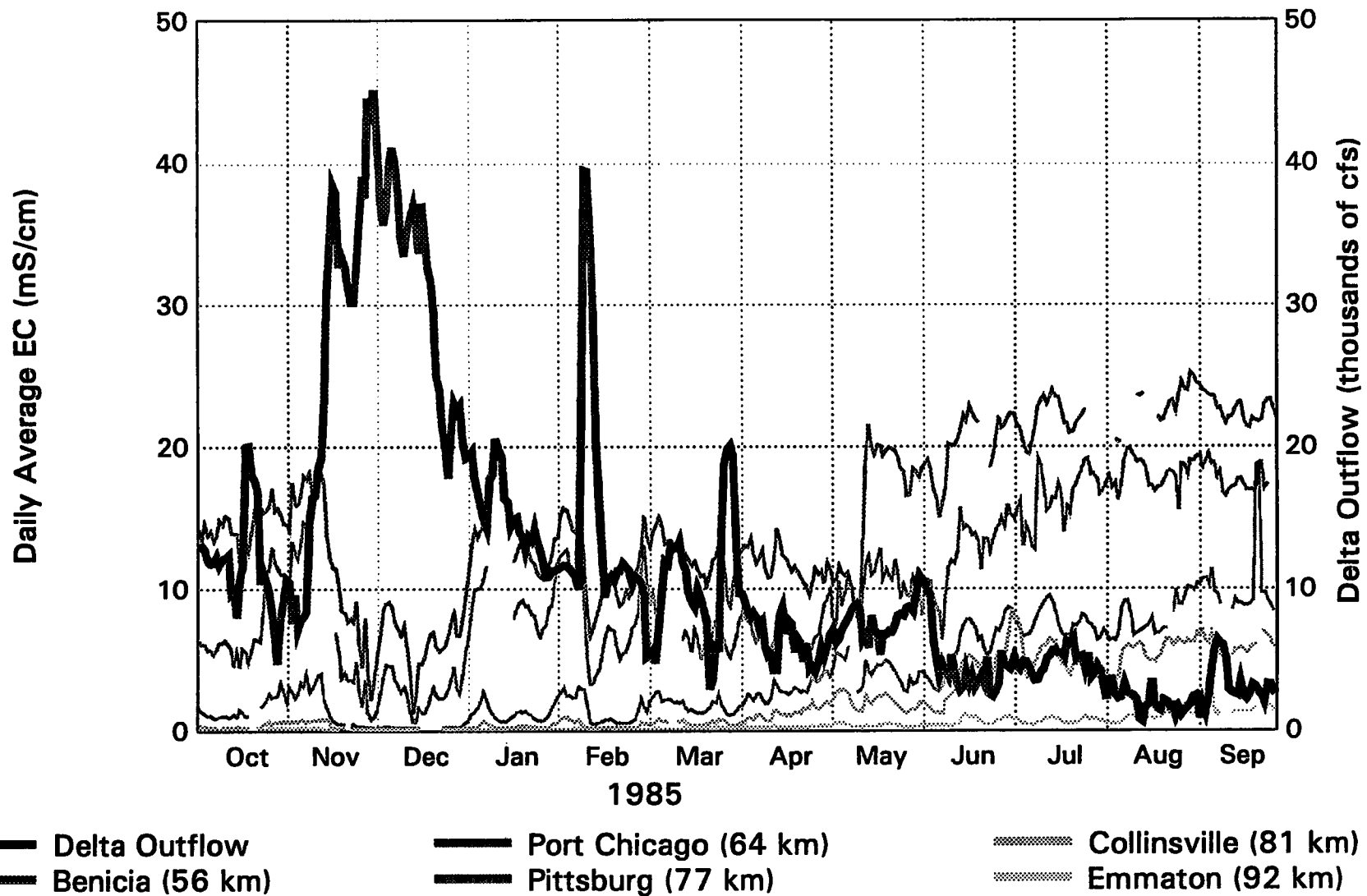
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1983
FIGURE 83B



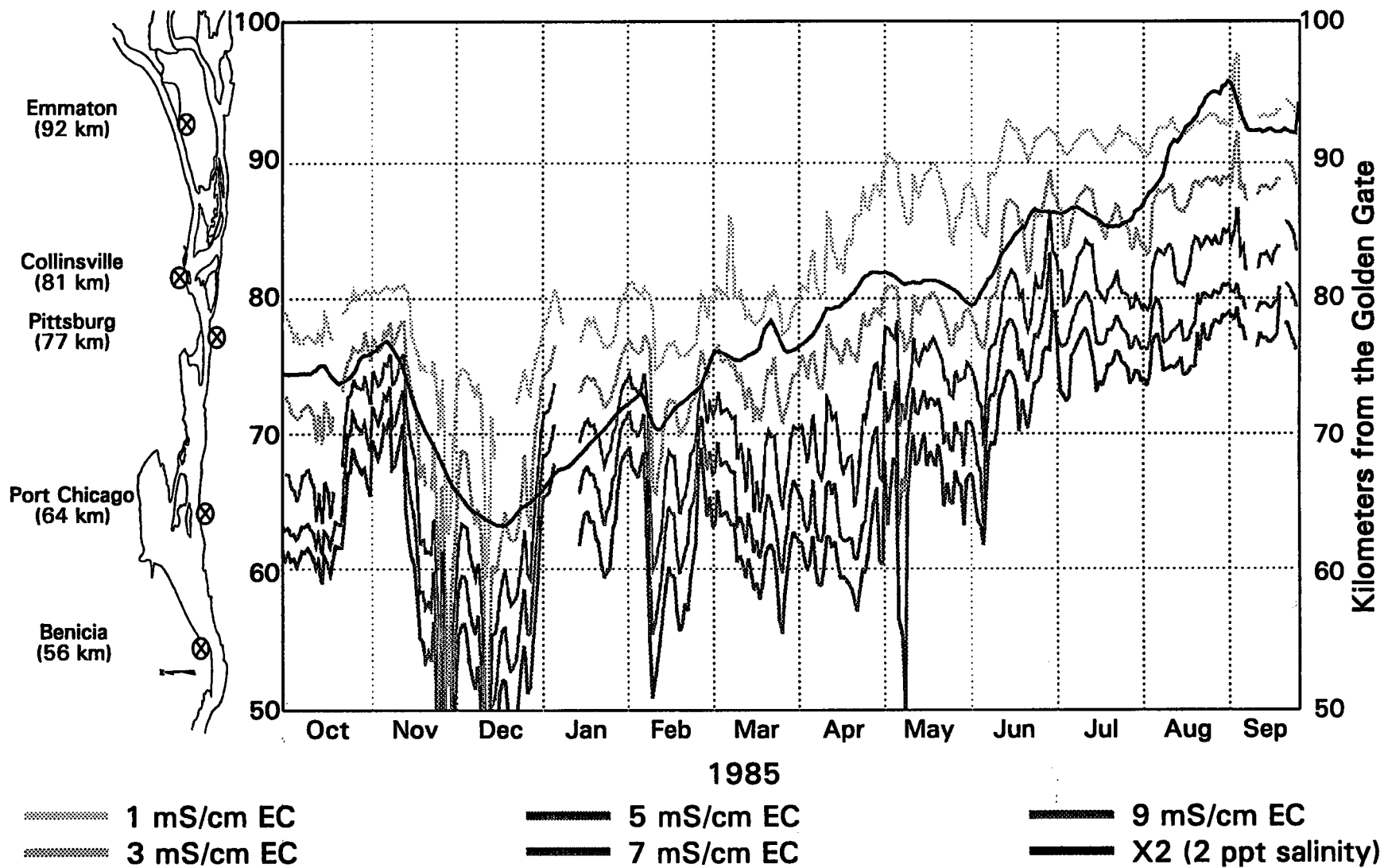
**DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1984
FIGURE 84A**



LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1984
FIGURE 84B

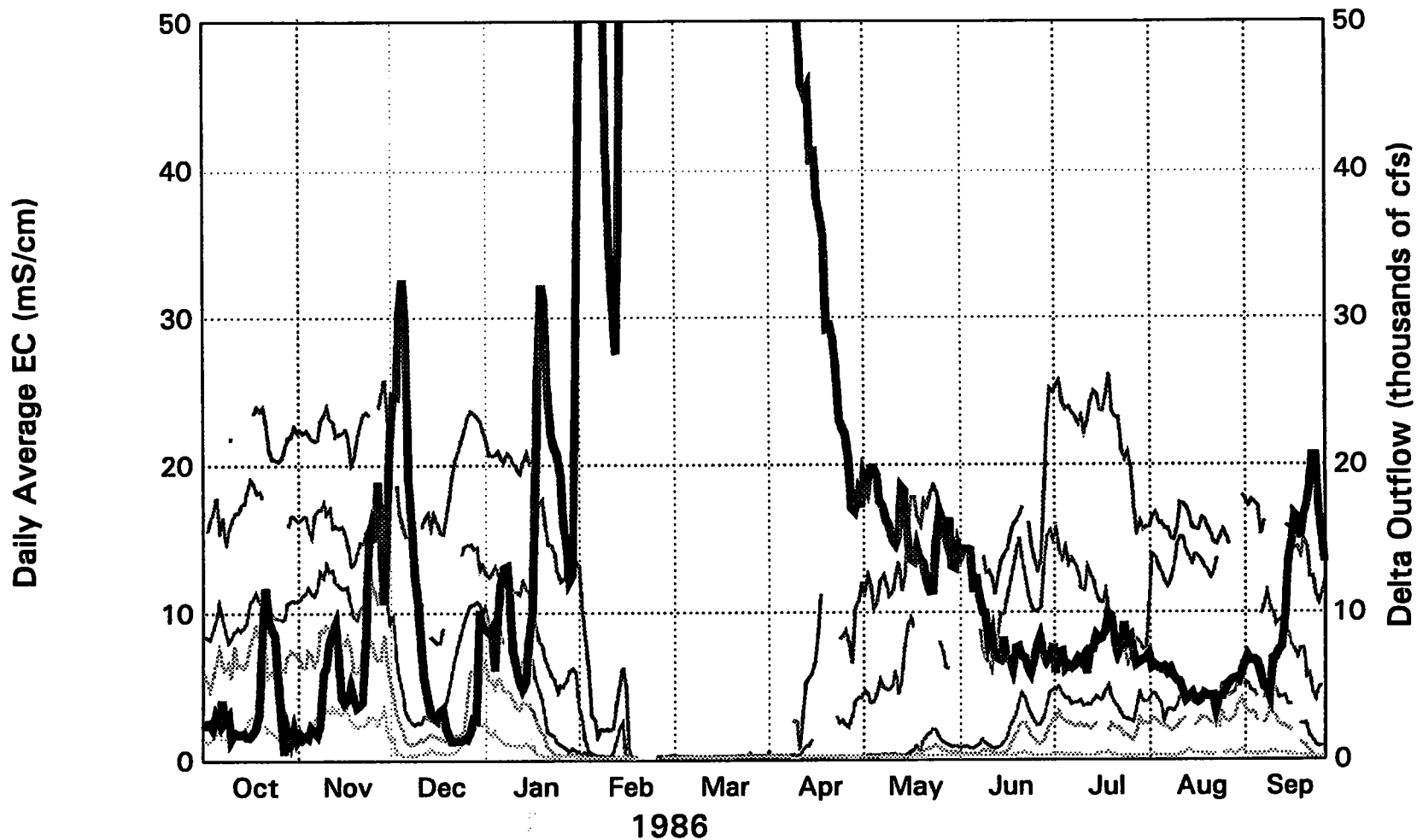


**DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1985
FIGURE 85A**



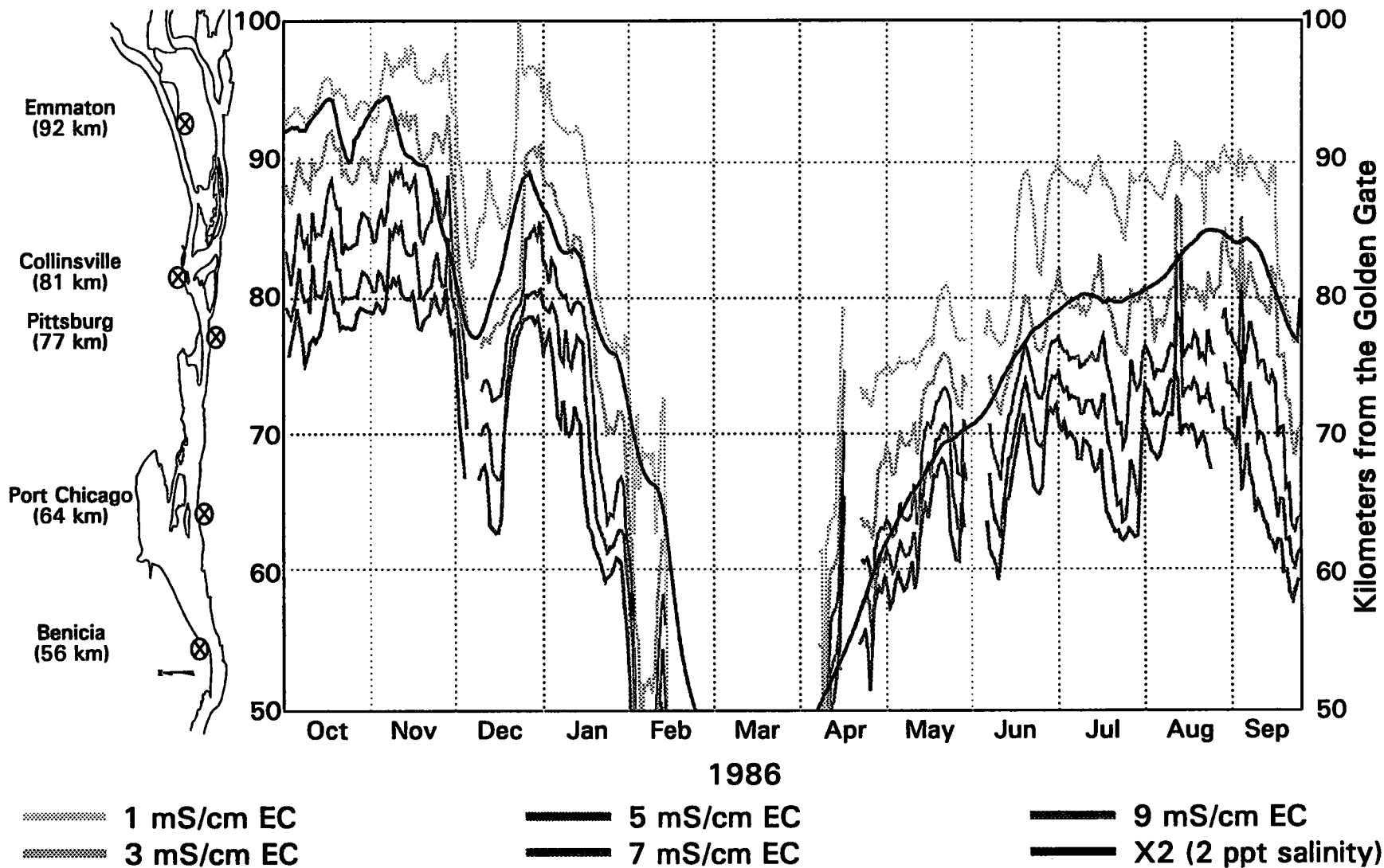
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1985

FIGURE 85B



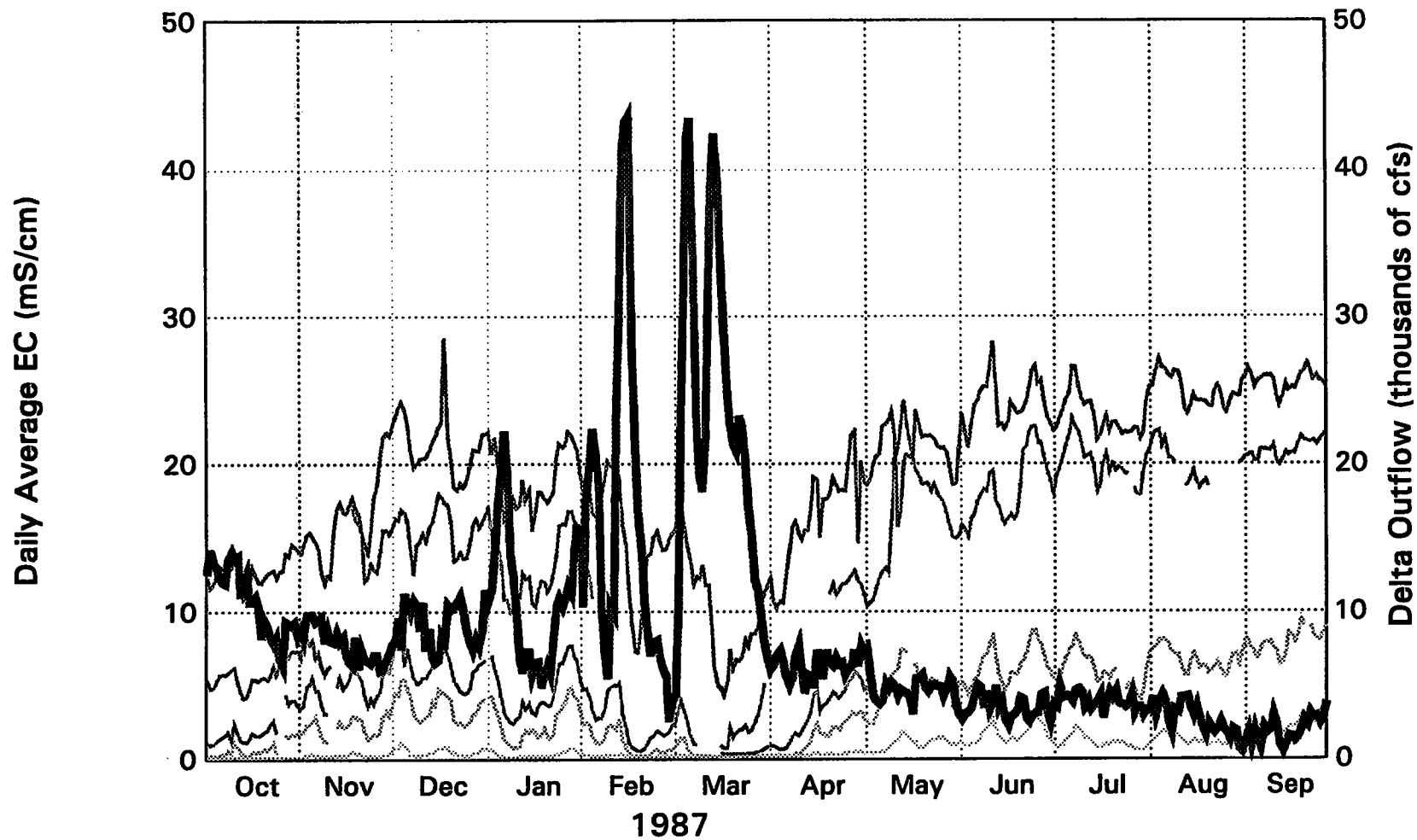
- Delta Outflow
- Port Chicago (64 km)
- Collinsville (81 km)
- Benicia (56 km)
- Pittsburg (77 km)
- Emmaton (92 km)

**DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1986
FIGURE 86A**



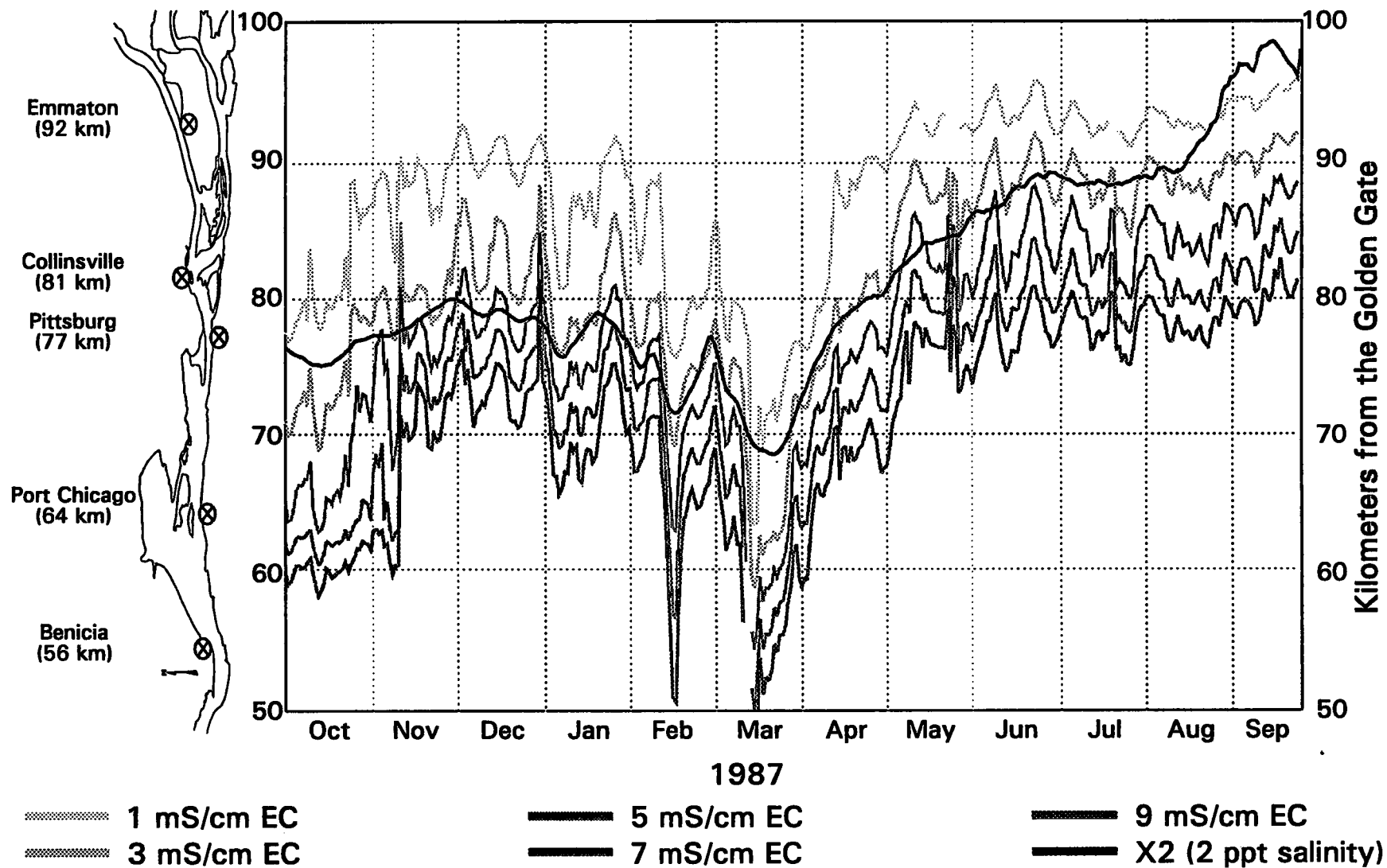
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1986

FIGURE 86B

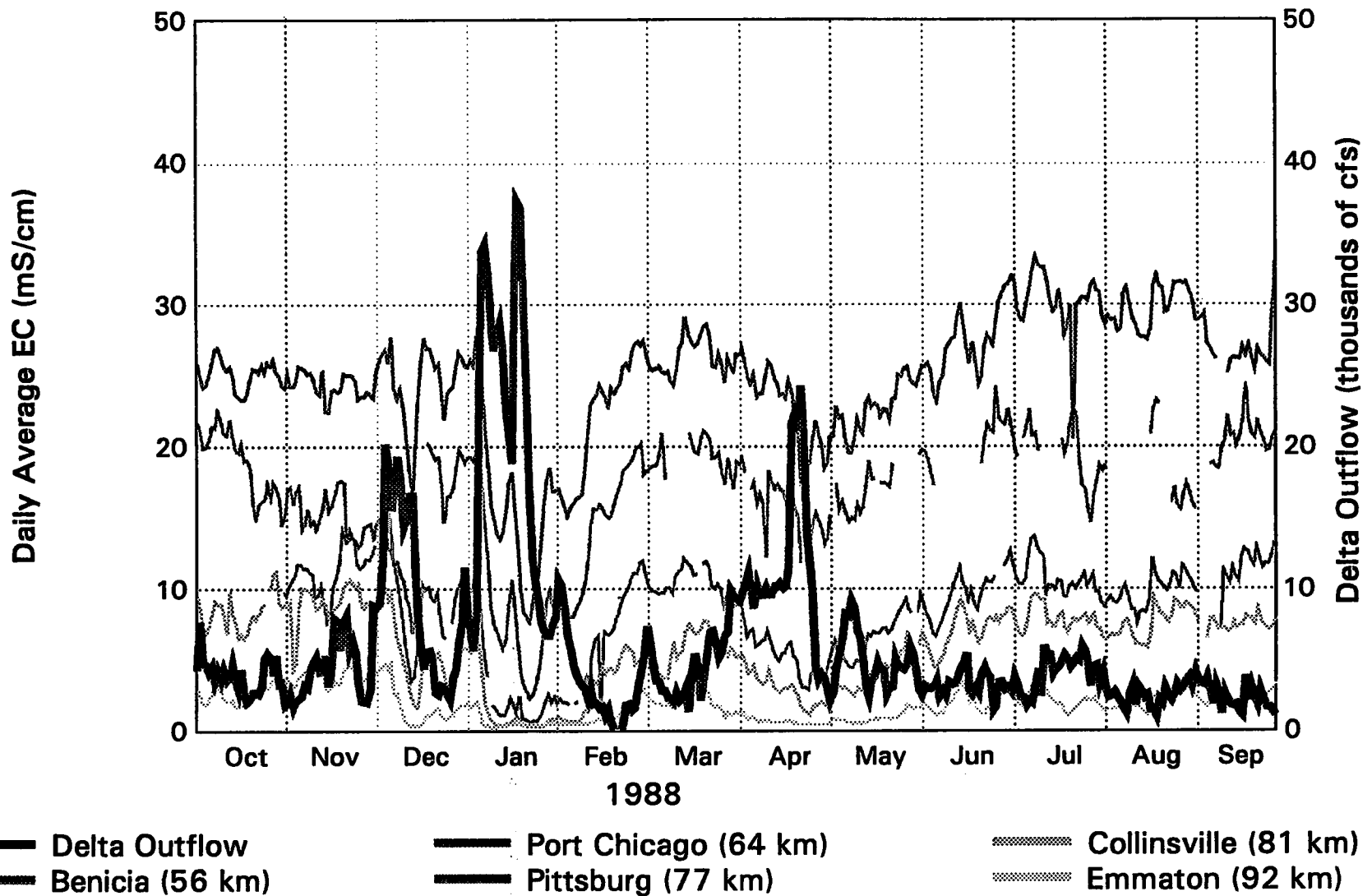


- Delta Outflow
- Benicia (56 km)
- Port Chicago (64 km)
- Pittsburg (77 km)
- Collinsville (81 km)
- Emmaton (92 km)

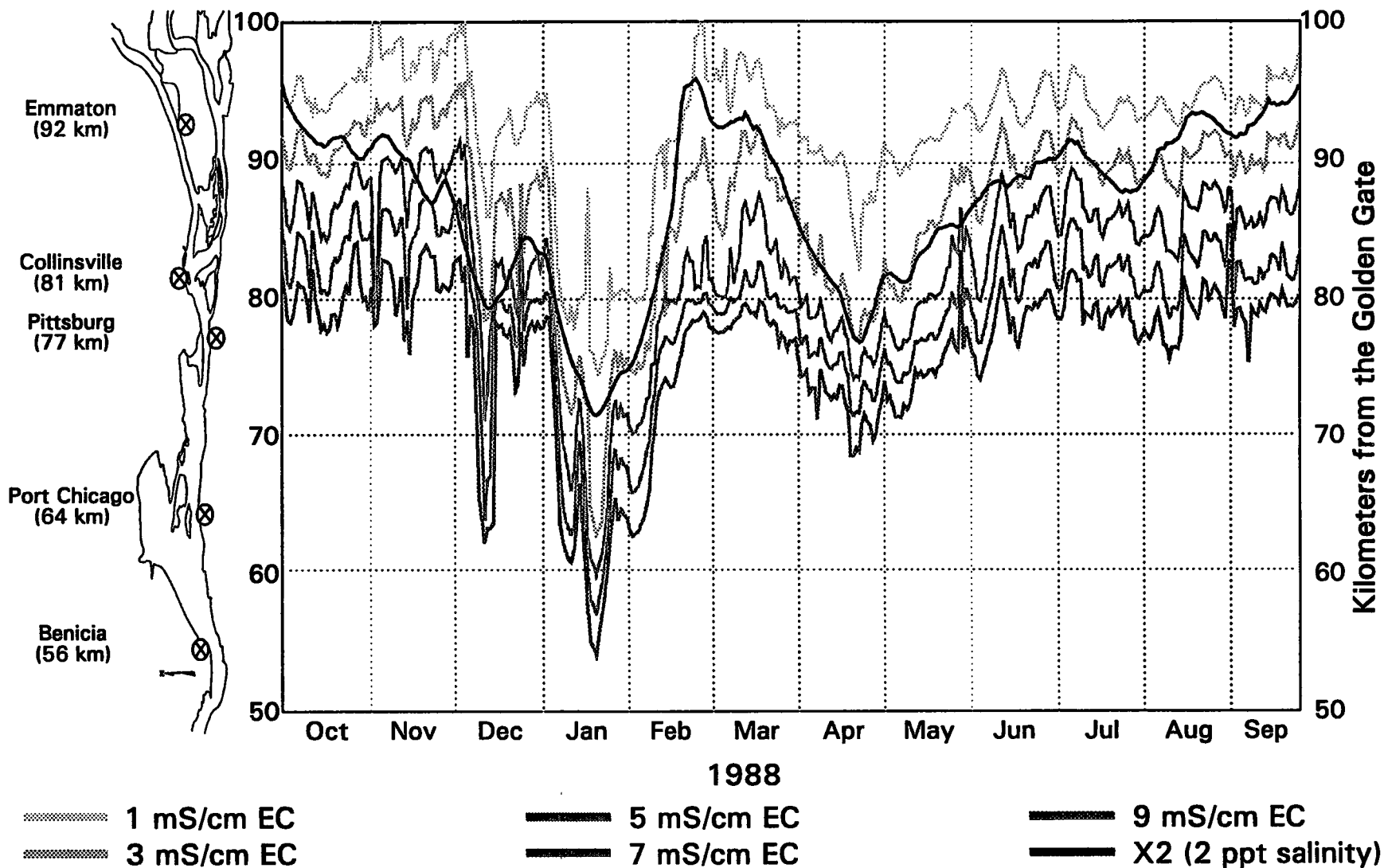
**DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1987
FIGURE 87A**



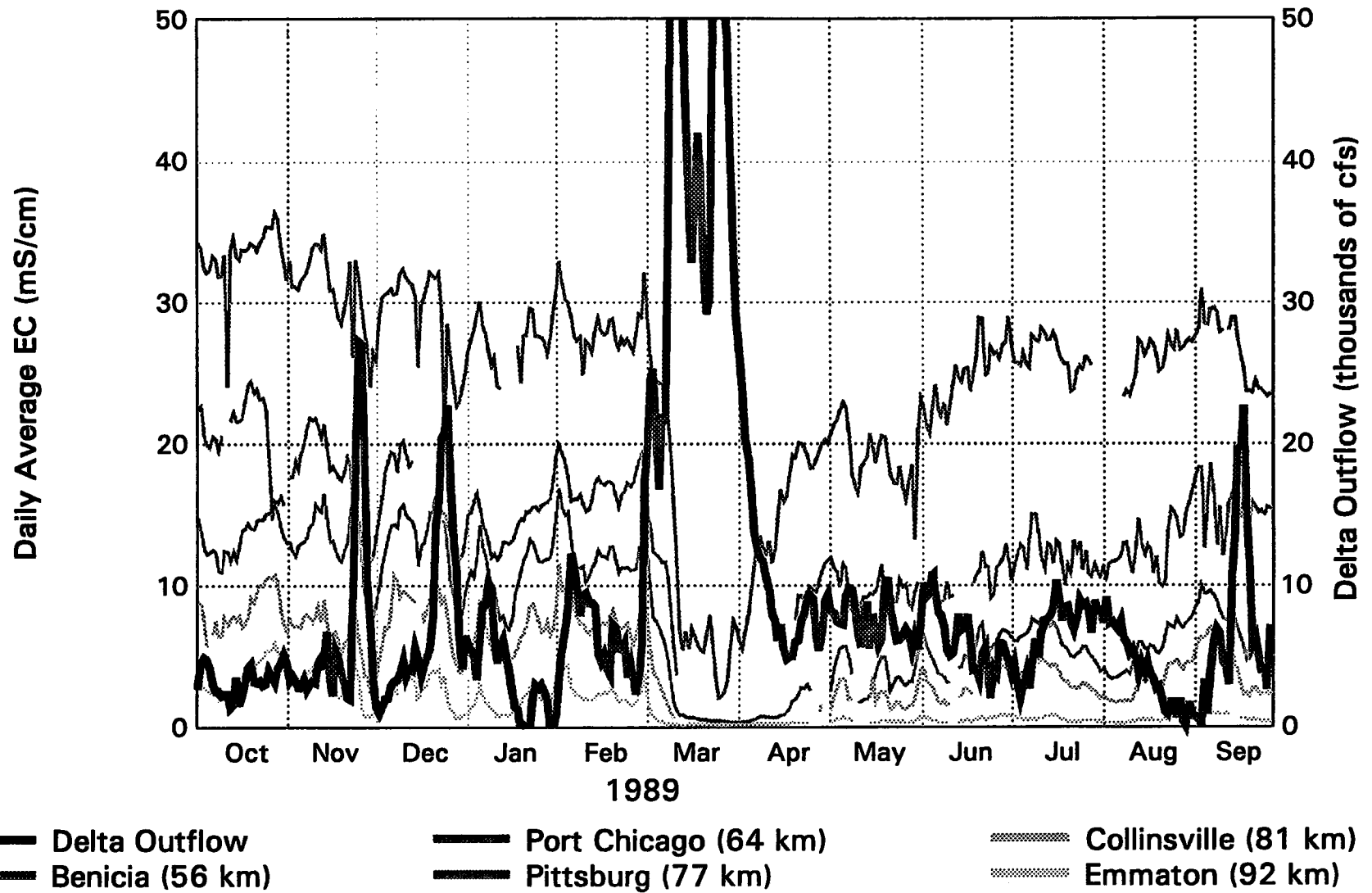
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1987
FIGURE 87B



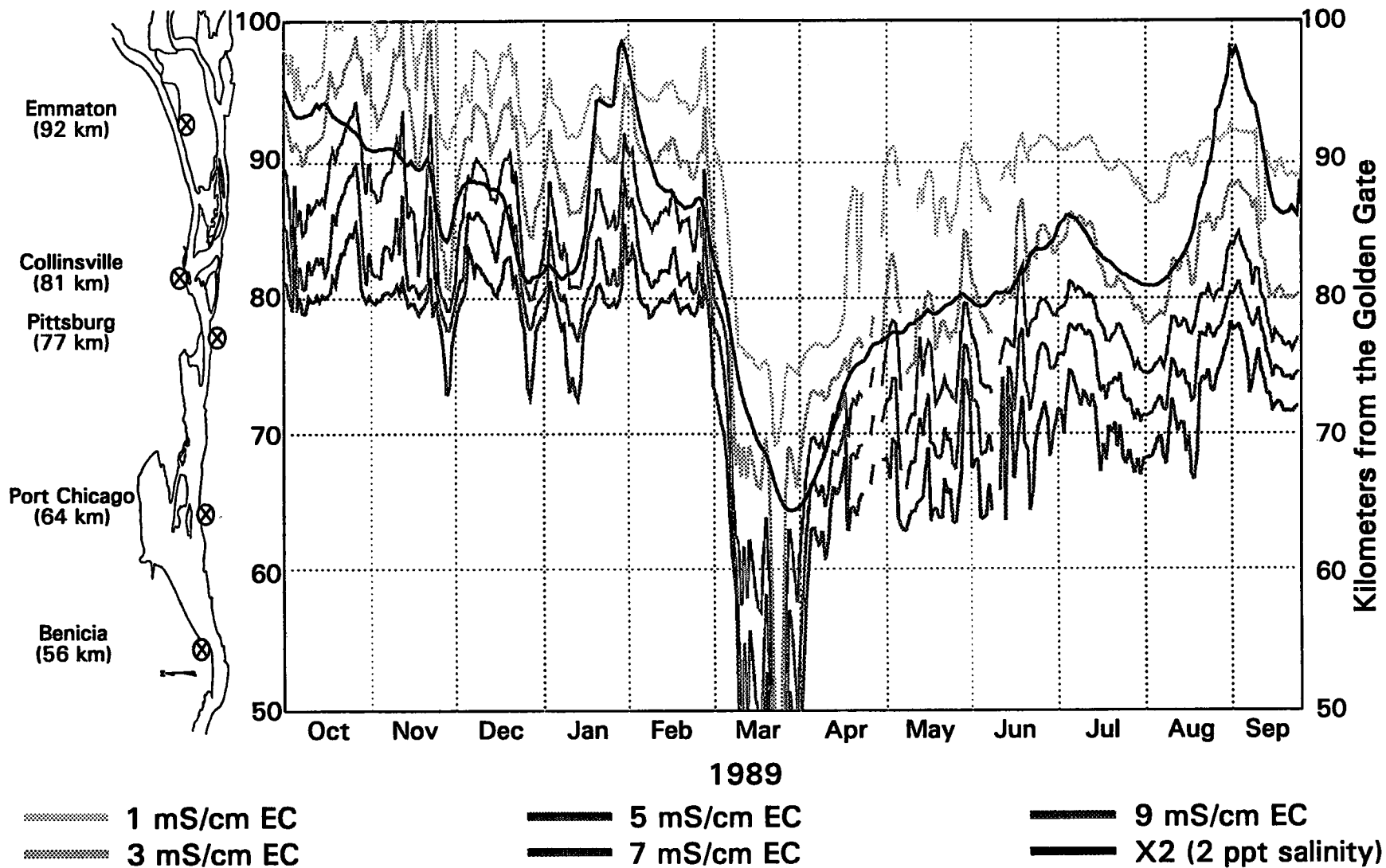
**DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1988
FIGURE 88A**



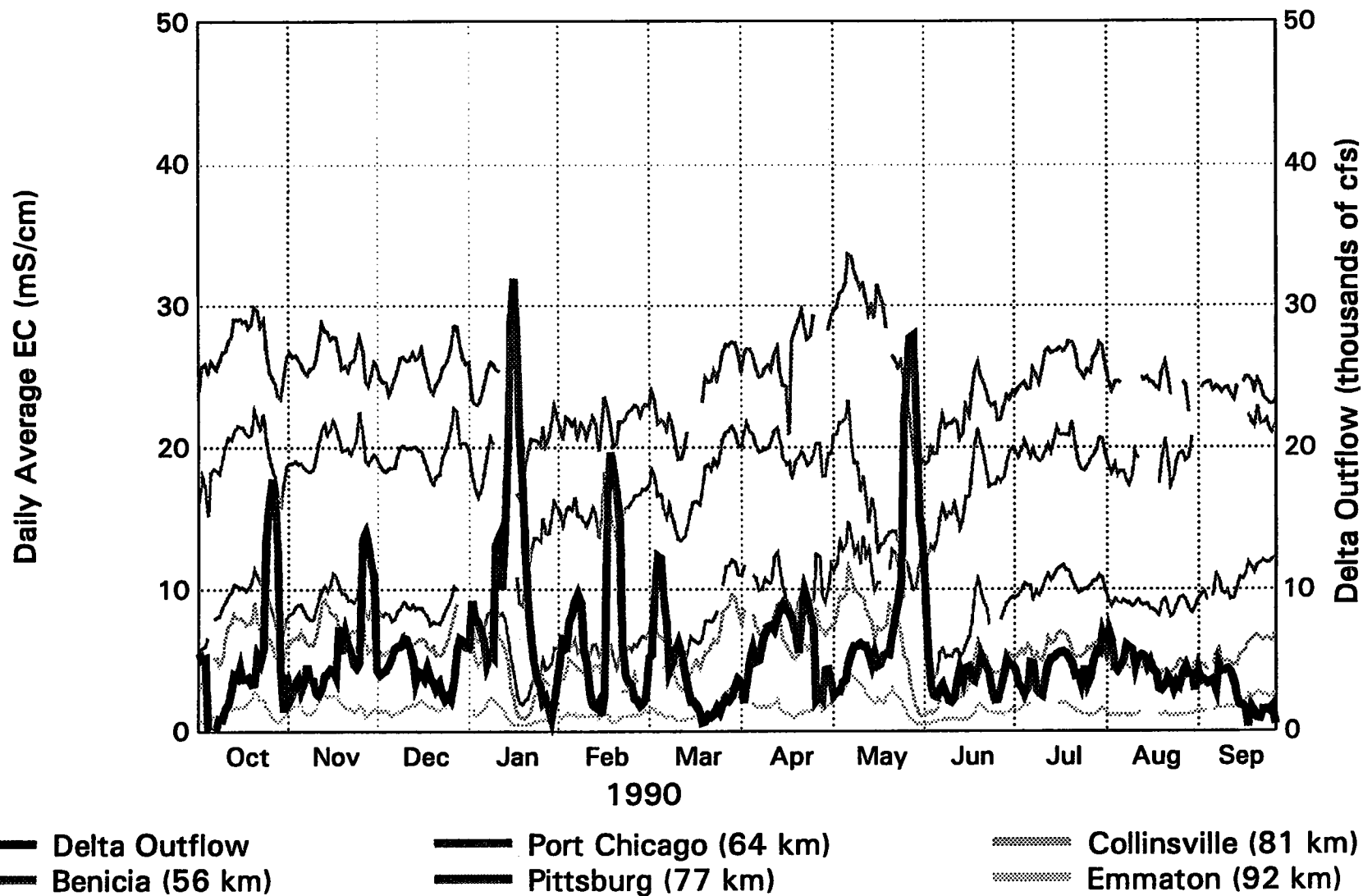
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1988
FIGURE 88B



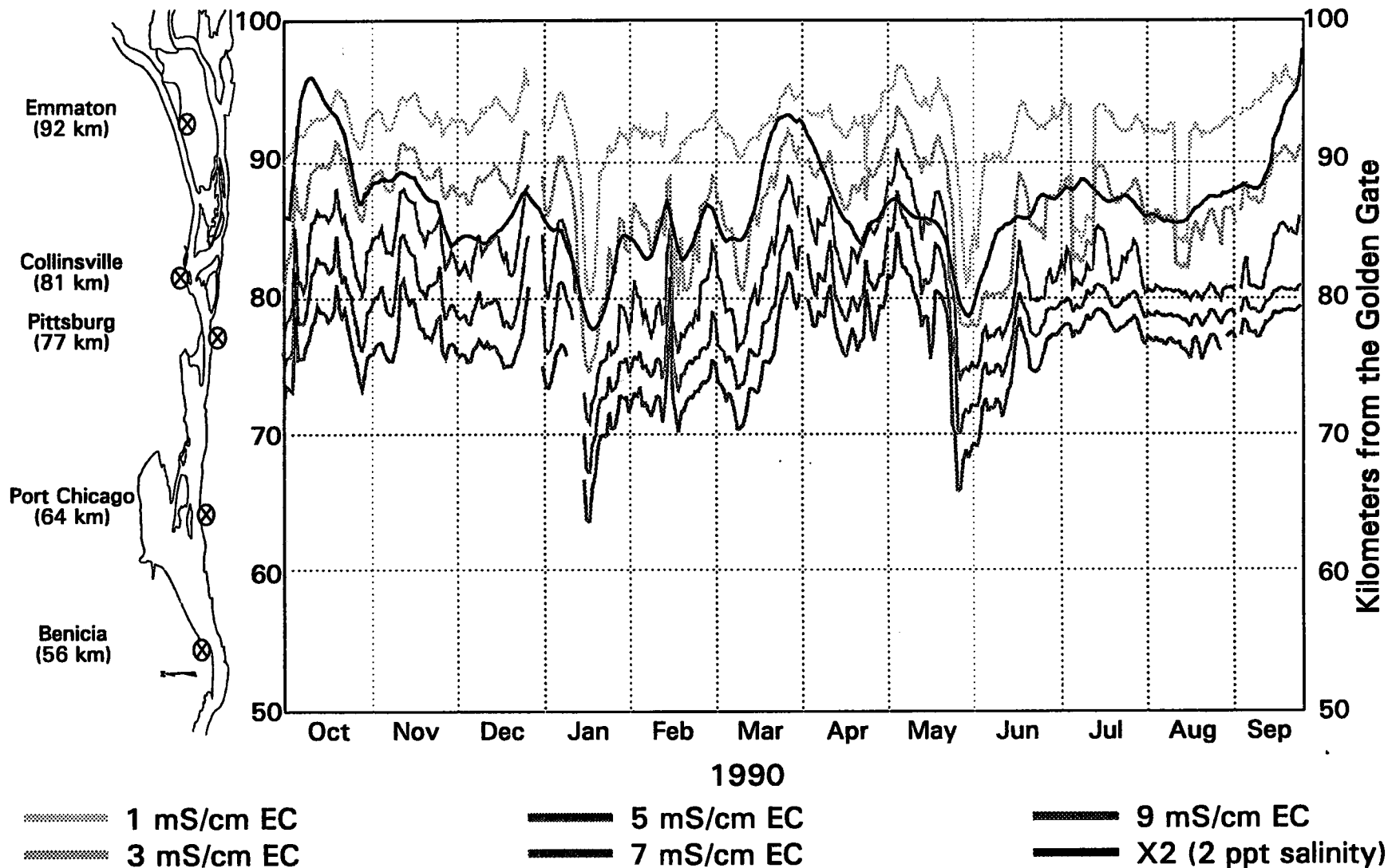
**DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1989
FIGURE 89A**



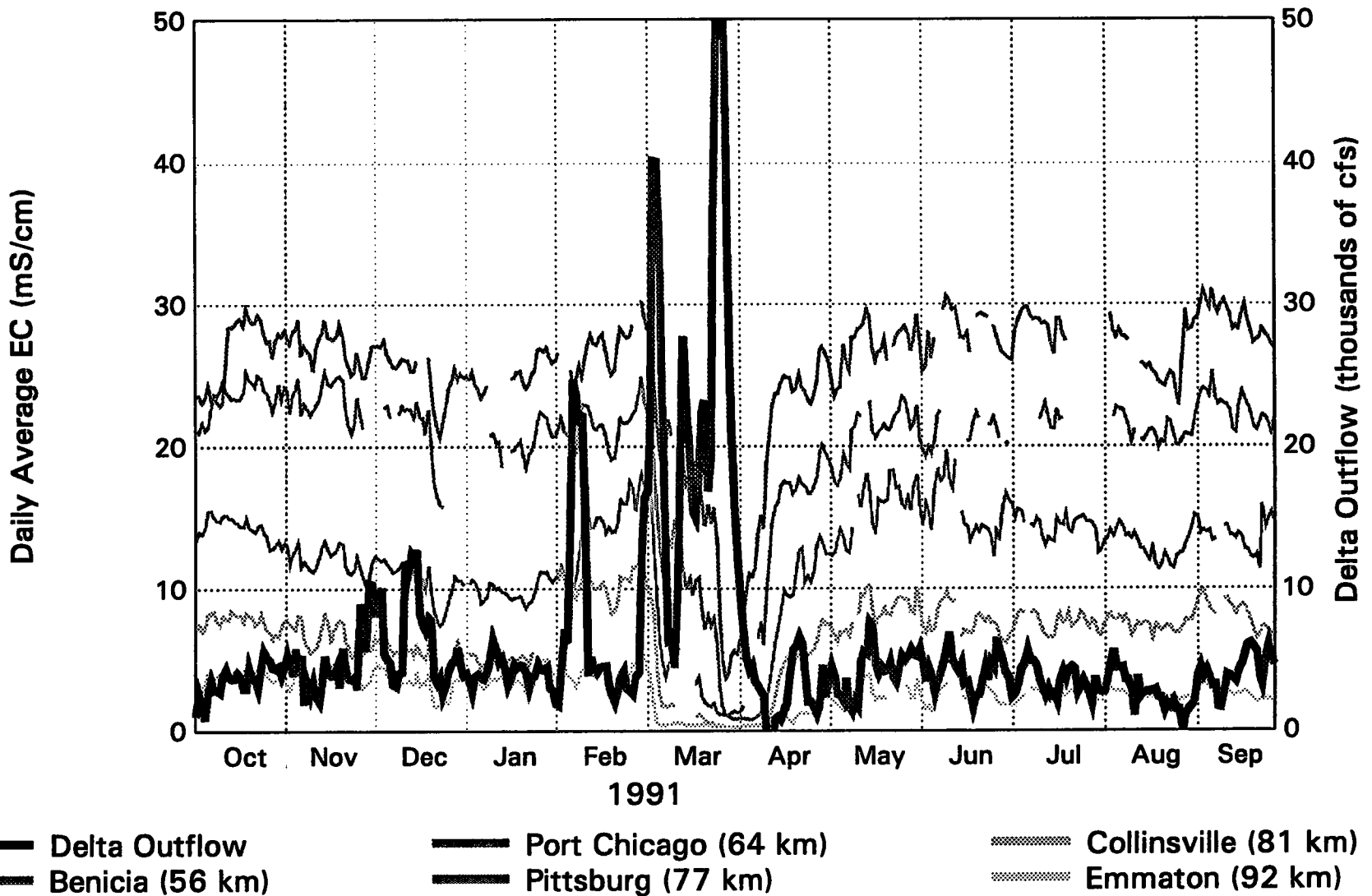
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1989
FIGURE 89B



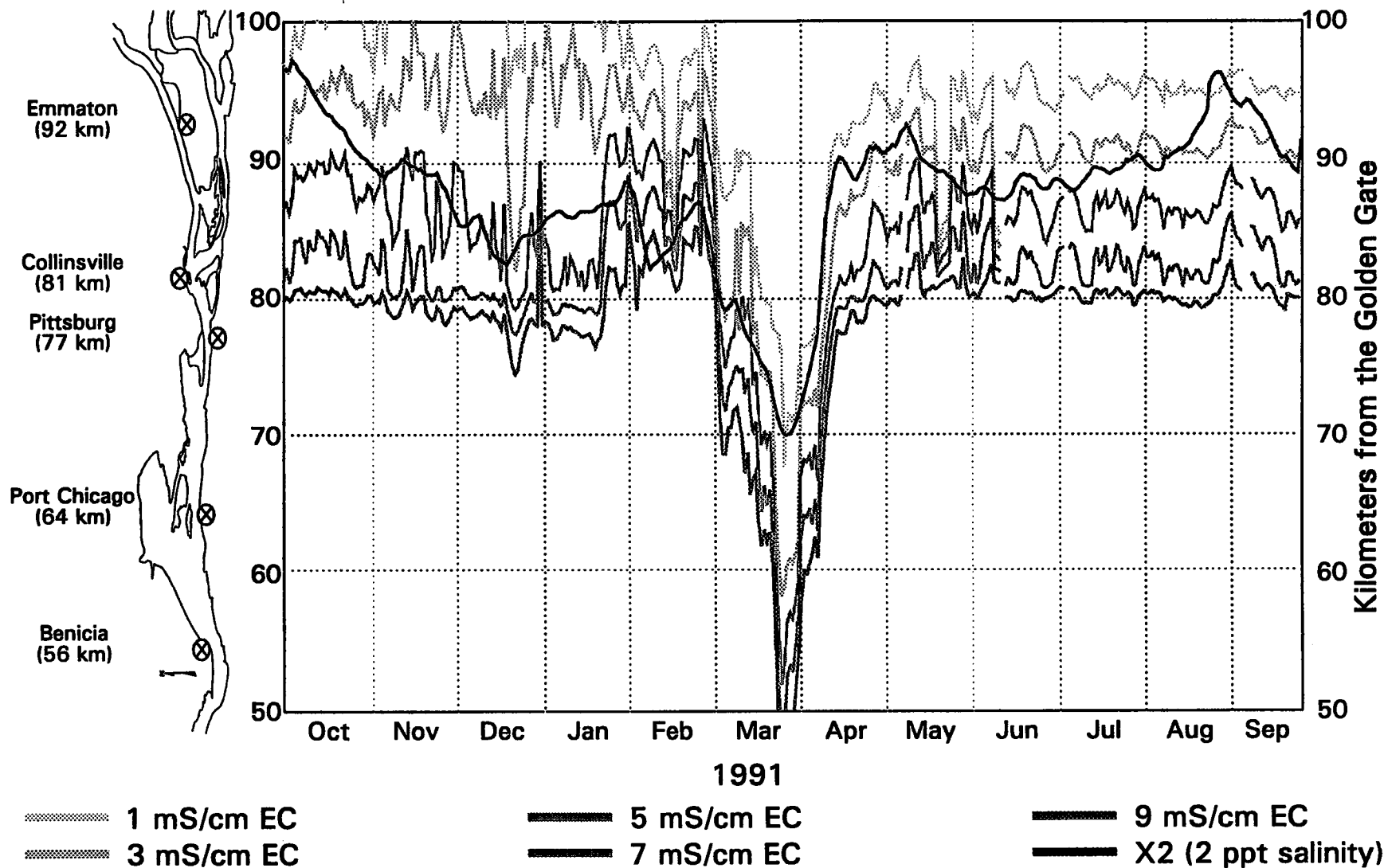
**DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1990
FIGURE 90A**



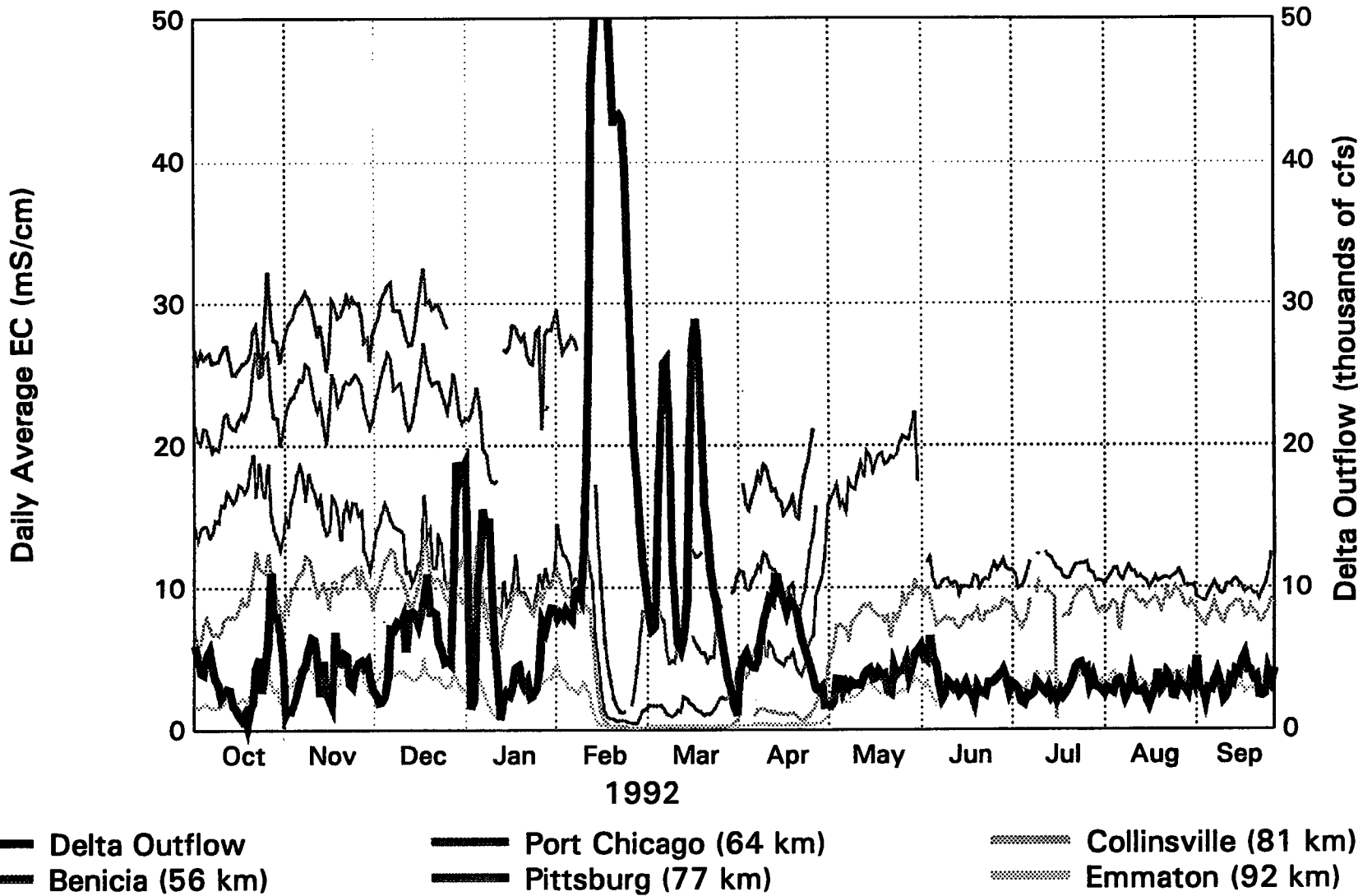
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1990
FIGURE 90B



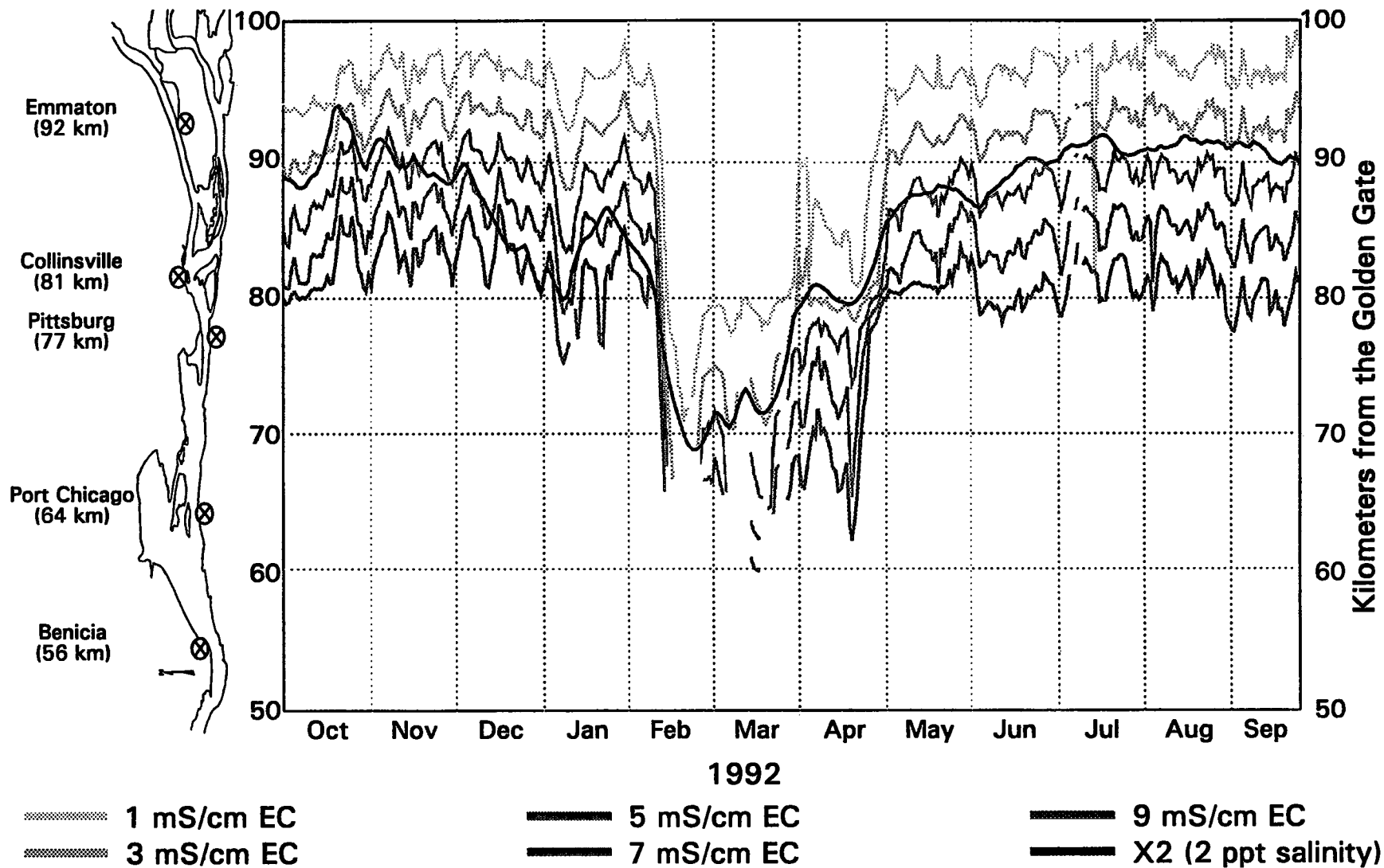
**DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1991
FIGURE 91A**



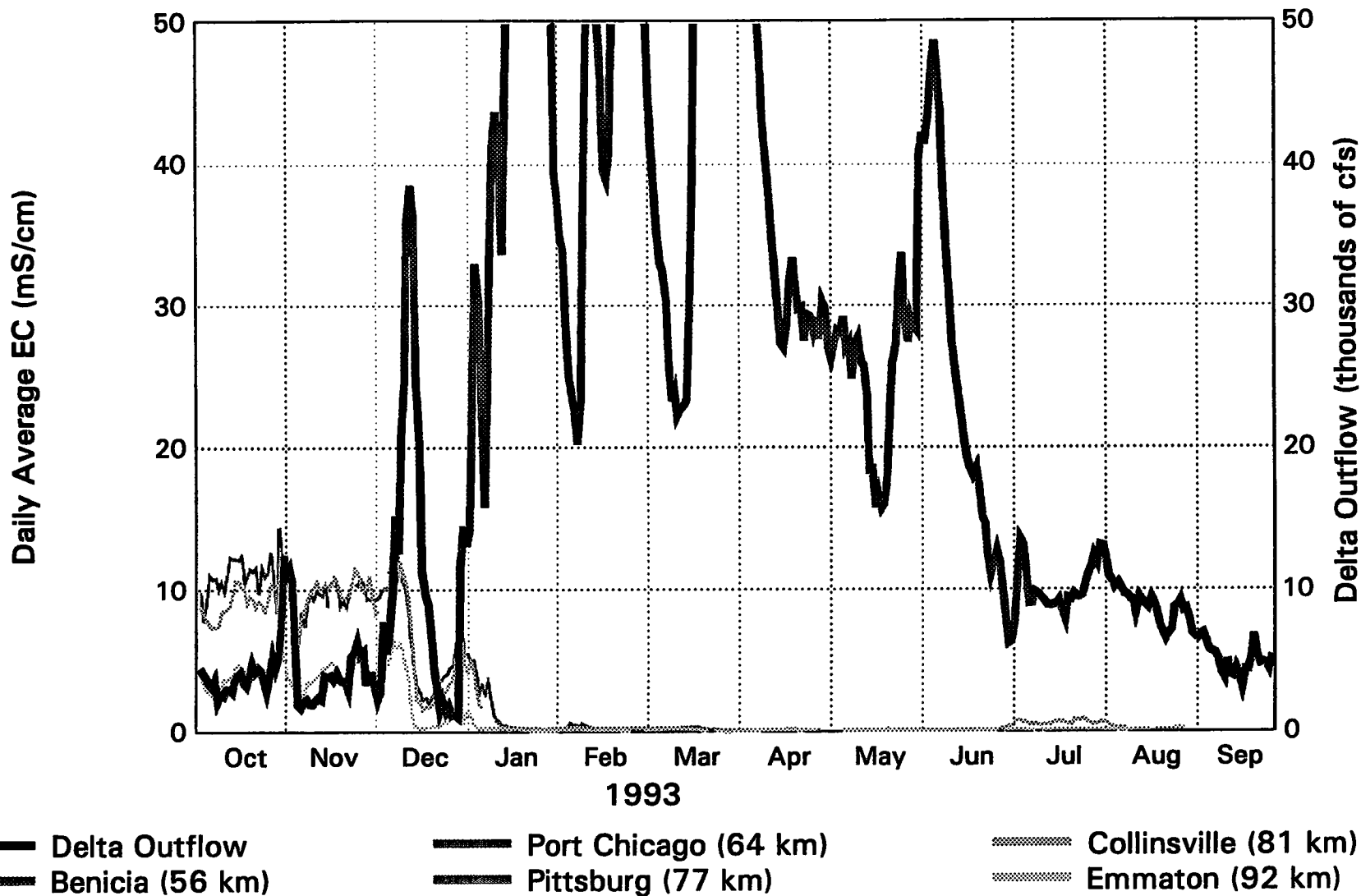
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1991
FIGURE 91B



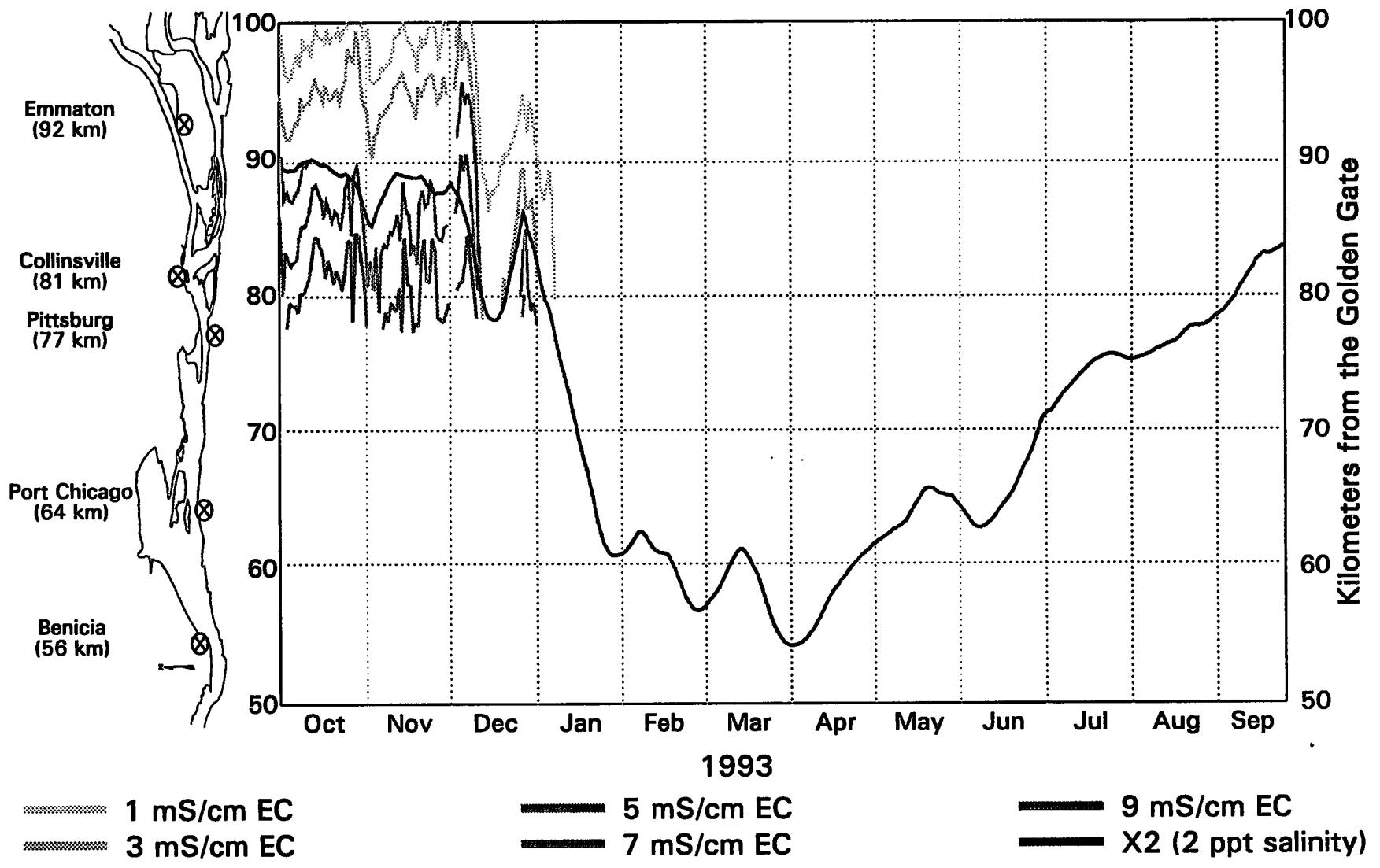
**DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1992
FIGURE 92A**



LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1992
FIGURE 92B



**DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1993
FIGURE 93A**



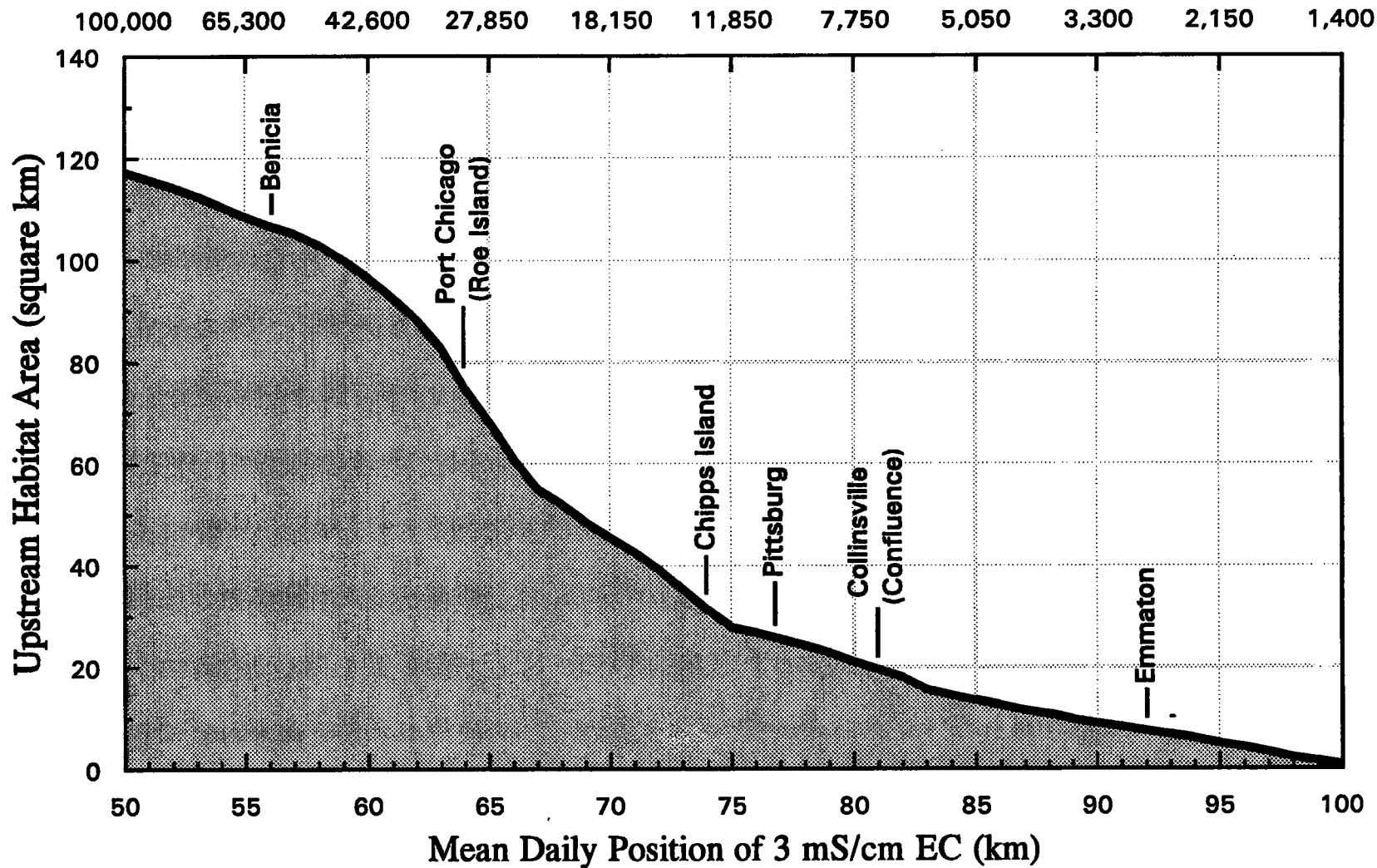
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1993
FIGURE 93B

**Estimated Estuarine Habitat Area Upstream of
Mean Daily Position of 3 mS/cm EC**

Position of 3 mS/cm (km)	Estimated Habitat Width (km)	Estimated Upstream Habitat (km ²)	Estimated Delta Outflow to Maintain Position ¹ (cfs)
50	1.50	117.25	100,000
51	1.50	115.75	91,825
52	1.75	114.25	84,319
53	2.00	112.50	77,426
54	2.00	110.50	71,097
55	1.75	108.50	65,285
56	1.50	106.75	59,948
57	2.25	105.25	55,048
58	3.00	103.00	50,548
59	3.50	100.00	46,416
60	4.00	96.50	42,622
61	4.25	92.50	39,137
62	5.50	88.25	35,938
63	8.00	82.75	33,000
64	6.50	74.75	30,303
65	7.25	68.25	27,826
66	6.00	61.00	25,551
67	3.00	55.00	23,462
68	3.50	52.00	21,544
69	3.00	48.50	19,783
70	3.00	45.50	18,166
71	3.25	42.50	16,681
72	4.00	39.25	15,317
73	4.00	35.25	14,065
74	3.50	31.25	12,915
75	1.00	27.75	11,860
76	1.25	26.75	10,890
77	1.25	25.50	10,000
78	1.50	24.25	9,183
79	1.75	22.75	8,432
80	1.50	21.00	7,743
81	1.50	19.50	7,110
82	2.50	18.00	6,529
83	1.00	15.50	5,995
84	1.00	14.50	5,505
85	1.00	13.50	5,055
86	1.00	12.50	4,642
87	0.75	11.50	4,262
88	1.00	10.75	3,914
89	0.75	9.75	3,594
90	0.75	9.00	3,300
91	0.75	8.25	3,030
92	0.75	7.50	2,783
93	0.75	6.75	2,555
94	1.00	6.00	2,346
95	0.75	5.00	2,154
96	1.00	4.25	1,978
97	1.00	3.25	1,817
98	0.75	2.25	1,668
99	0.75	1.50	1,532
100	0.75	0.75	1,407

¹Using Kimmerer and Monismith Steady State X2 equation.

Required Delta Outflow to Maintain 3 mS/cm Position (cfs)



**ESTUARINE HABITAT AREA UPSTREAM OF
MEAN DAILY POSITION OF 3 mS/cm EC**