Preliminary Investigation of Mosquito and Invertebrate Occurrance in Temporary Flooded Agricultural Lands In Western San Joaquin County

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4/24/95

STUDY OBJECTIVES

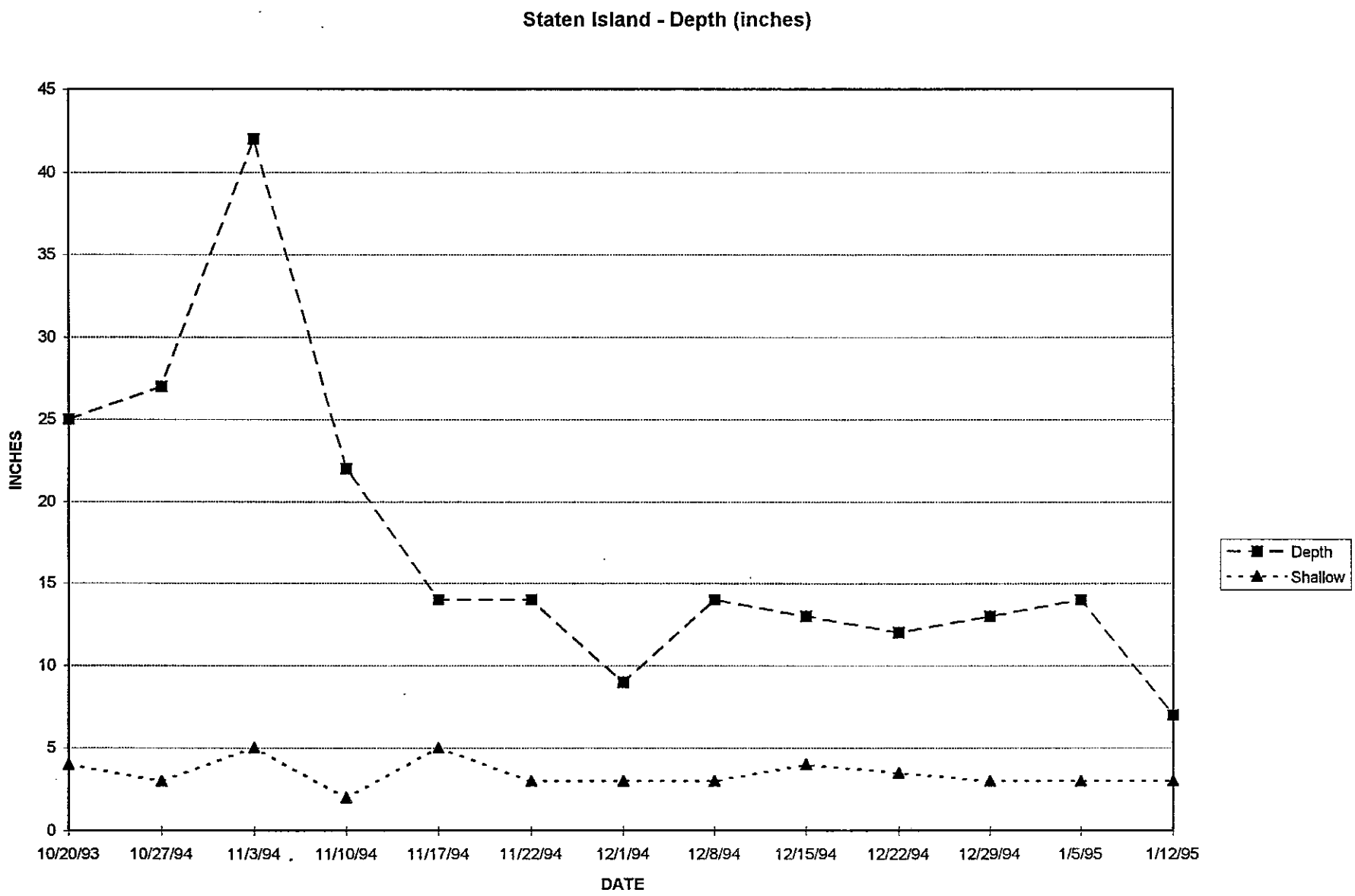
- Evaluate the relationship of field and water conditions with mosquito, midge, and waterfowl occurance.
- Evaluate timing of flooding and depth of water with local farming pracitices.
- Develop reasonable recommendations for mosquito prevention and natural resource enhancement.

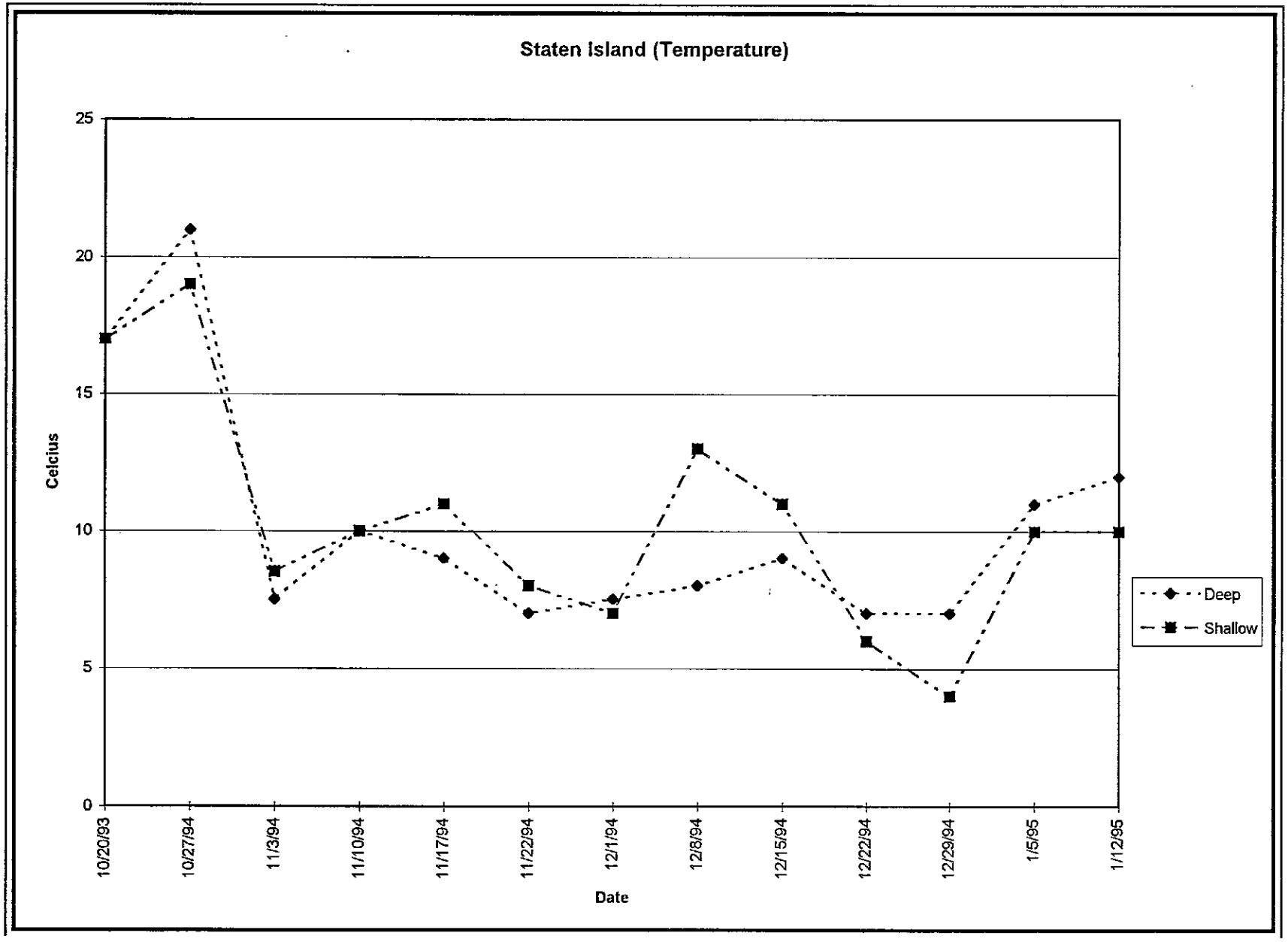
STUDY LOCATIONS

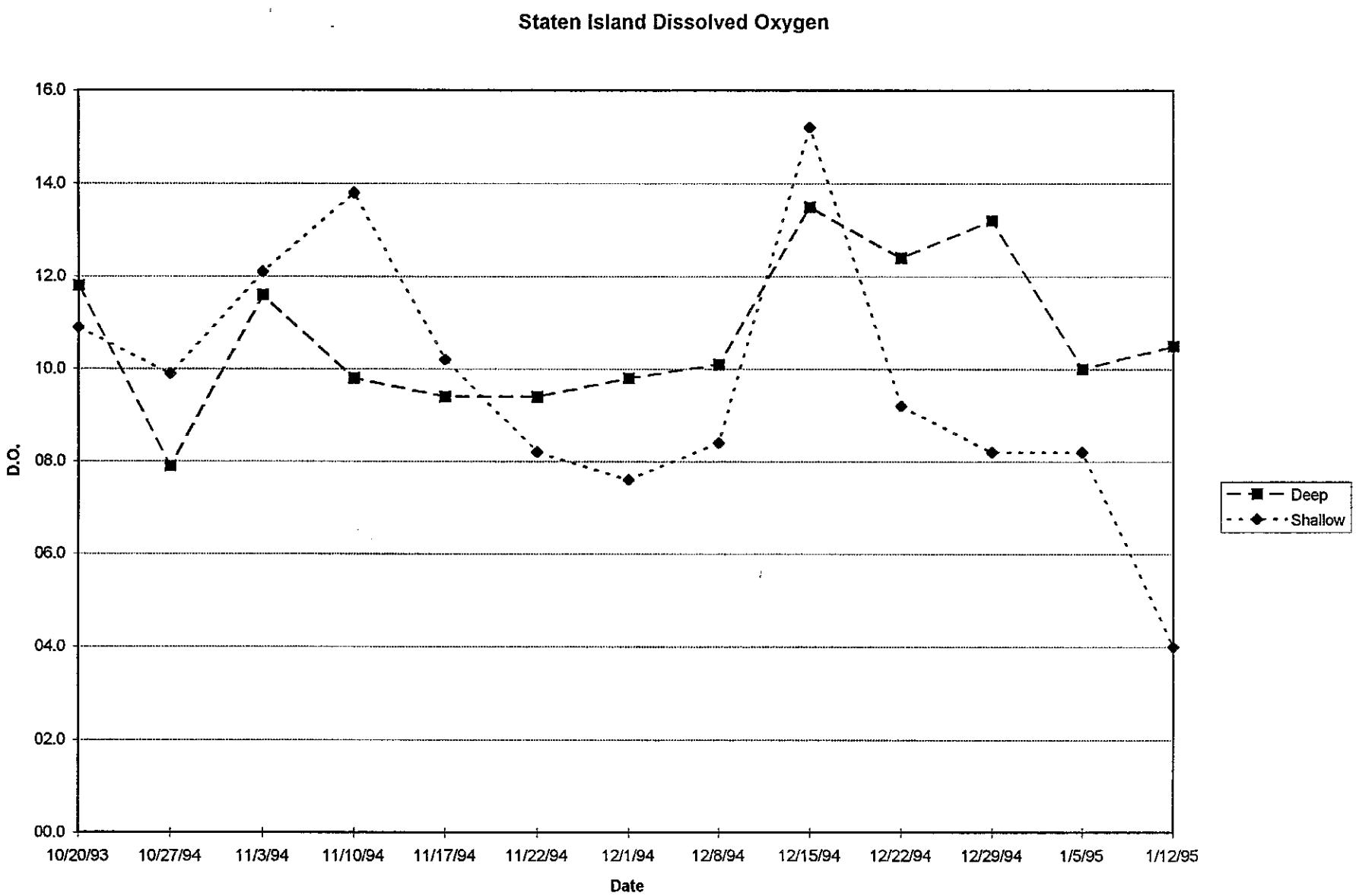
- STATEN ISLAND; Northwest San Joaquin County near South Fork Mokelumne River.
- RINDGE TRACT; West of City of Stockton near Disappointment Slough.

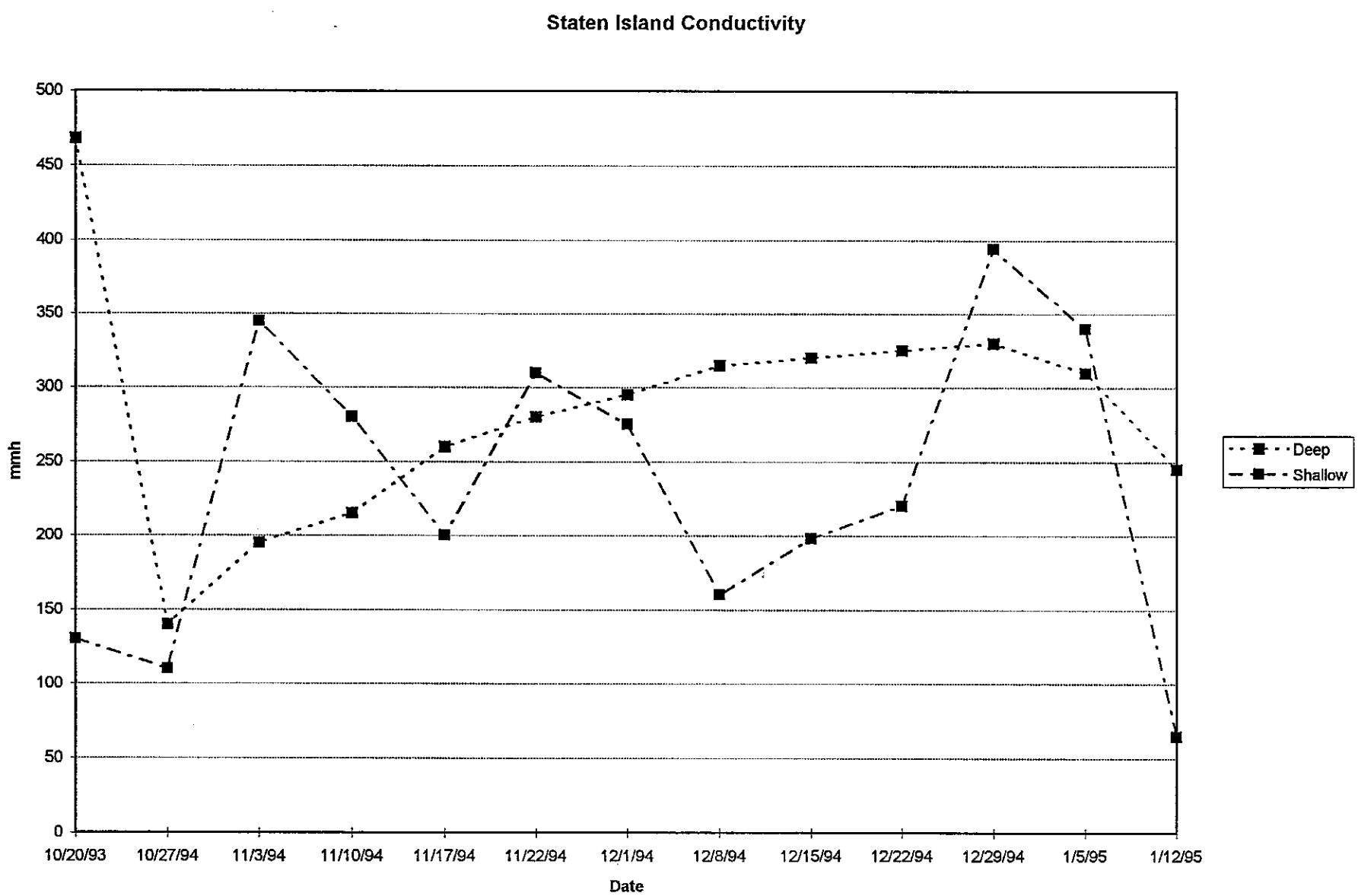
STATEN ISLAND

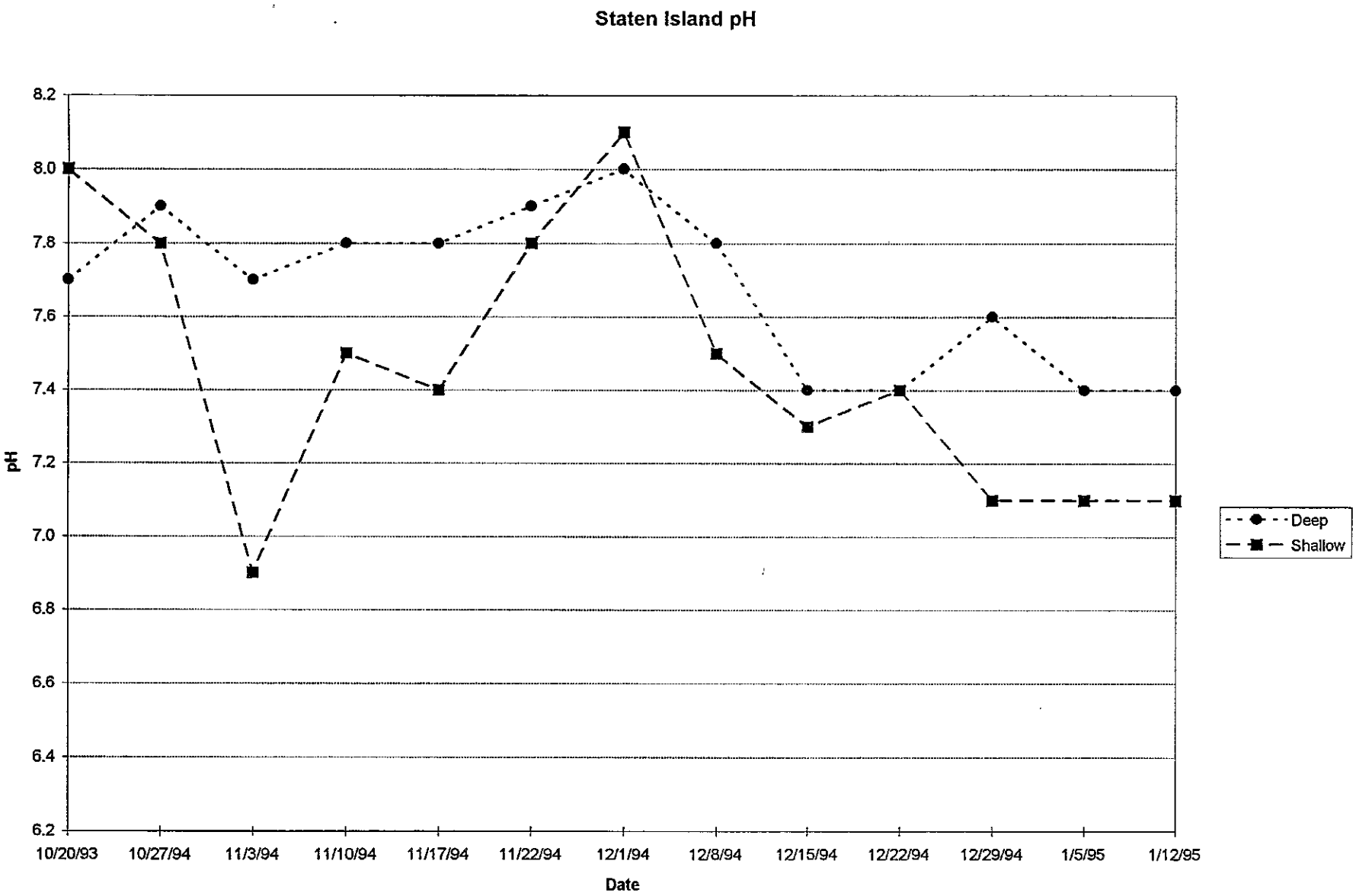
- Study period: 10/20/94 - 1/12/95
- Fields were flooded to evaluate shallow versus deep conditions.
- Shallow water averaged 3.5"; deep water averaged 17.4".
- Water quality did not change substantially, but there was a significant change in temperature.
- Midge and mosquito larvae occurance varied with water depth.


Staten Island - Depth (inches)
INCHES
45
40
35
30
25
20
15
10
5
0
10/20/93
10/27/94
11/3/94
11/10/94
11/17/94
11/22/94
12/1/94
12/8/94
12/15/94
12/22/94
12/29/94
1/5/95
1/12/95
DATE
Depth
Shallow


Staten Island (Temperature)
Celcius
25
20
15
10
5
0
10/20/93
10/27/94
11/3/94
11/10/94
11/17/94
11/22/94
12/1/94
12/8/94
12/15/94
12/22/94
12/29/94
1/5/95
1/12/95
Date
Deep
Shallow

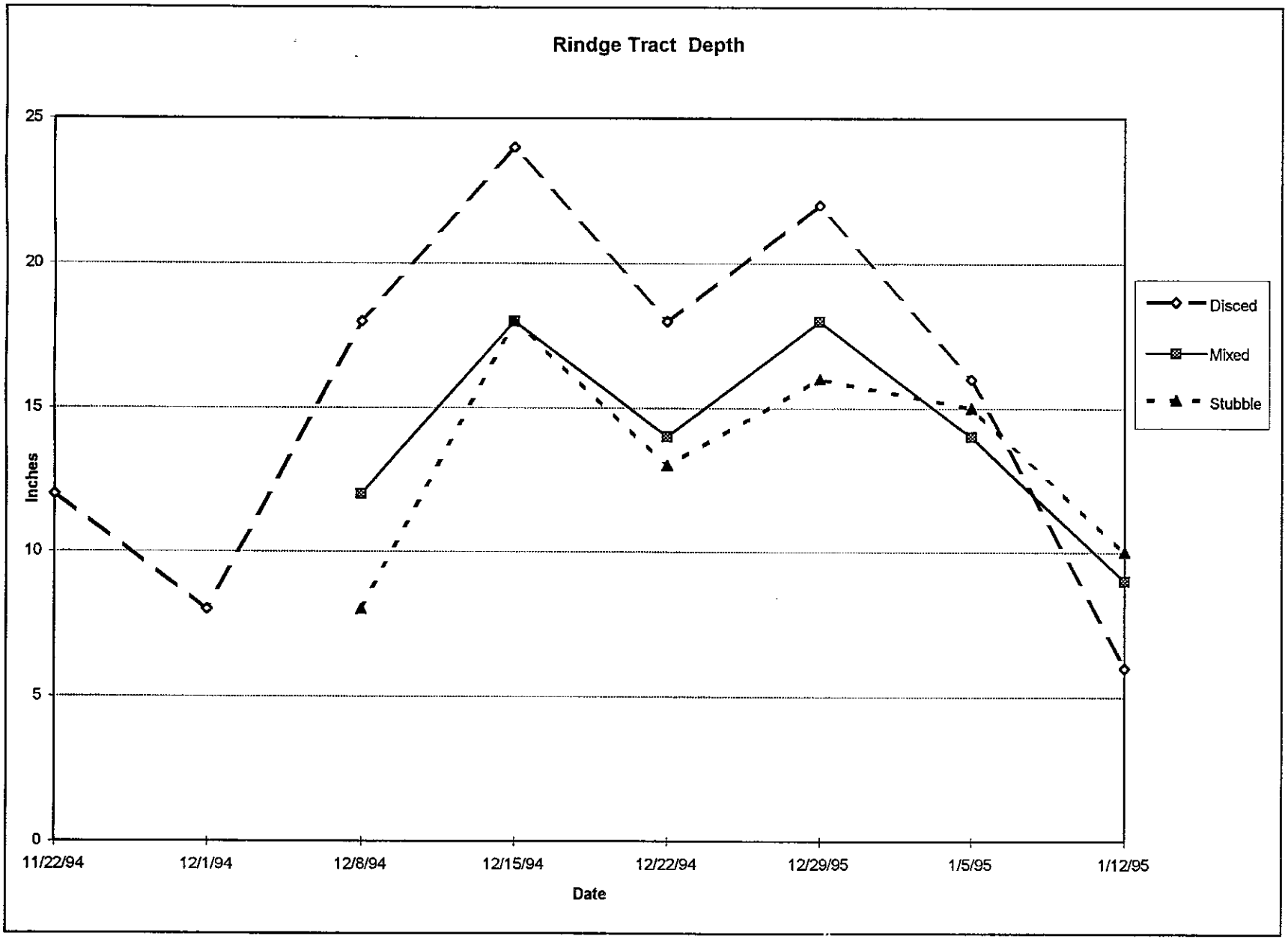

Staten Island Dissolved Oxygen
16.0
14.0
12.0
10.0
08.0
06.0
04.0
02.0
00.0
D.O.
10/20/93
10/27/94
11/3/94
11/10/94
11/17/94
11/22/94
12/1/94
12/8/94
12/15/94
12/22/94
12/29/94
1/5/95
1/12/95
Date
Deep
Shallow

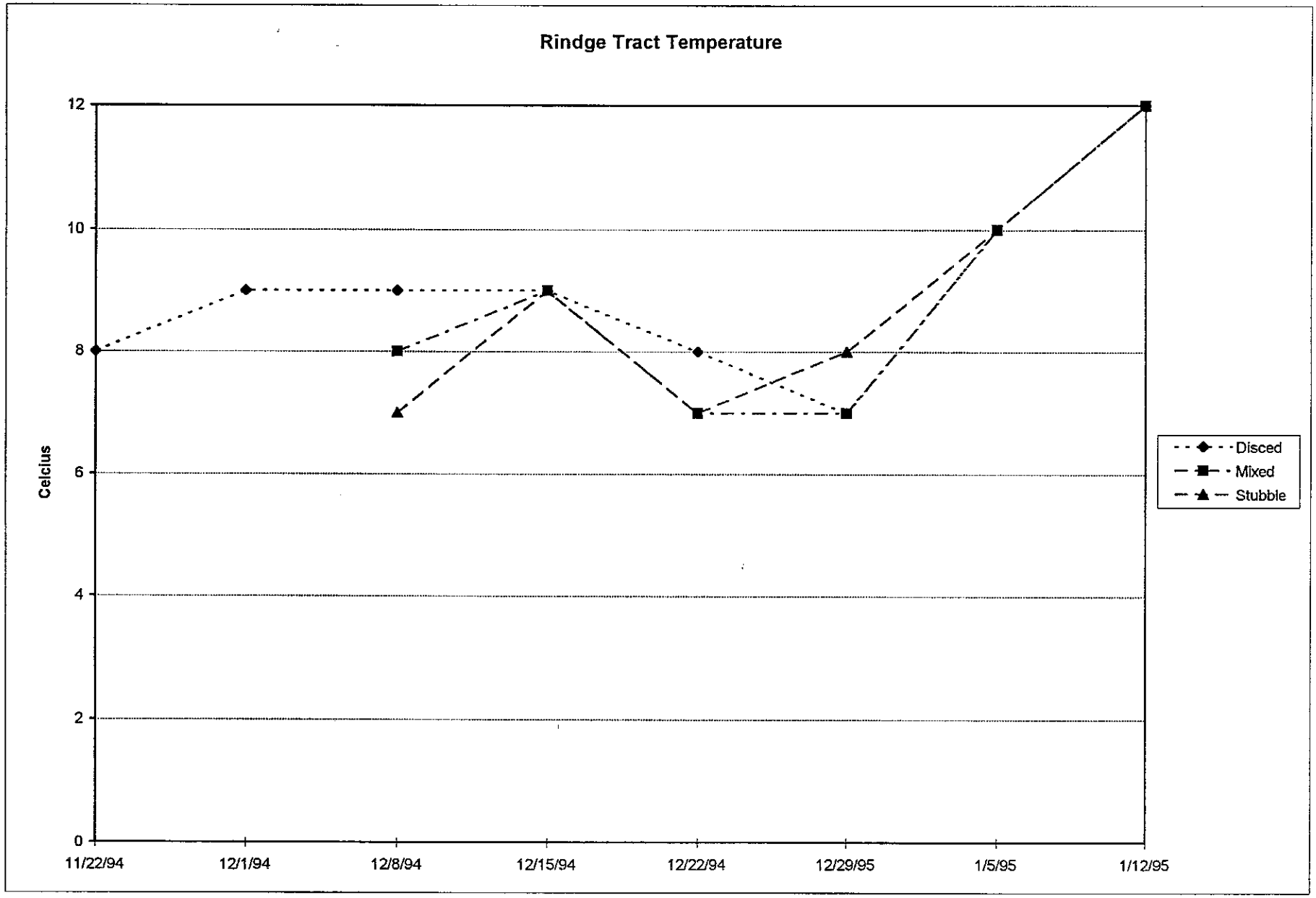

Staten Island Conductivity
500
450
400
350
300
250
200
150
100
50
0
mmh
10/20/93
10/27/94
11/3/94
11/10/94
11/17/94
11/22/94
12/1/94
12/8/94
12/15/94
12/22/94
12/29/94
1/5/95
1/12/95
Date
Deep
Shallow

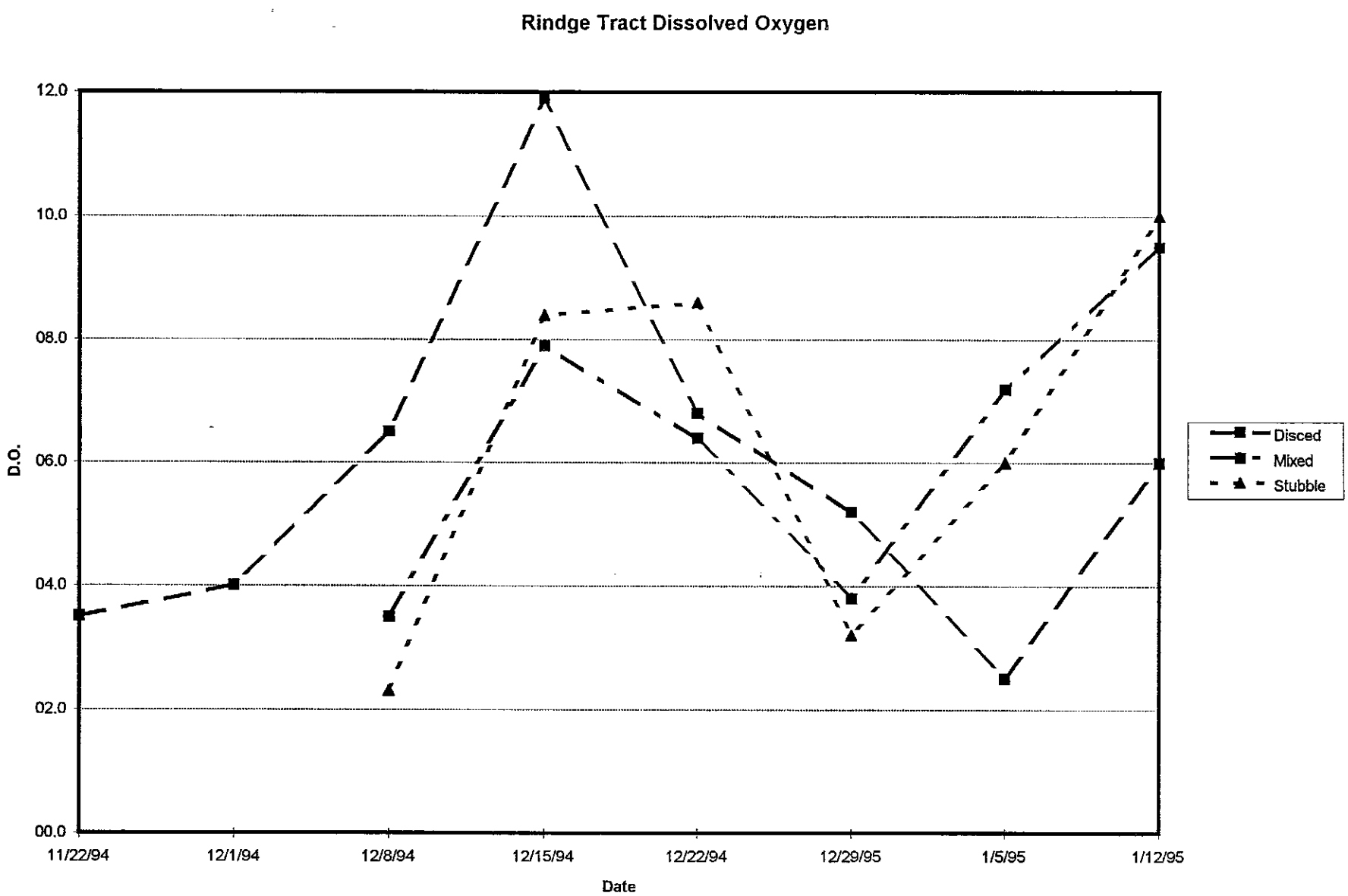

Staten Island pH
8.2
8.0
7.8
7.6
7.4
7.2
7.0
6.8
6.6
6.4
6.2
pH
10/20/93
10/27/94
11/3/94
11/10/94
11/17/94
11/22/94
12/1/94
12/8/94
12/15/94
12/22/94
12/29/94
1/5/95
1/12/95
Date
Deep
Shallow

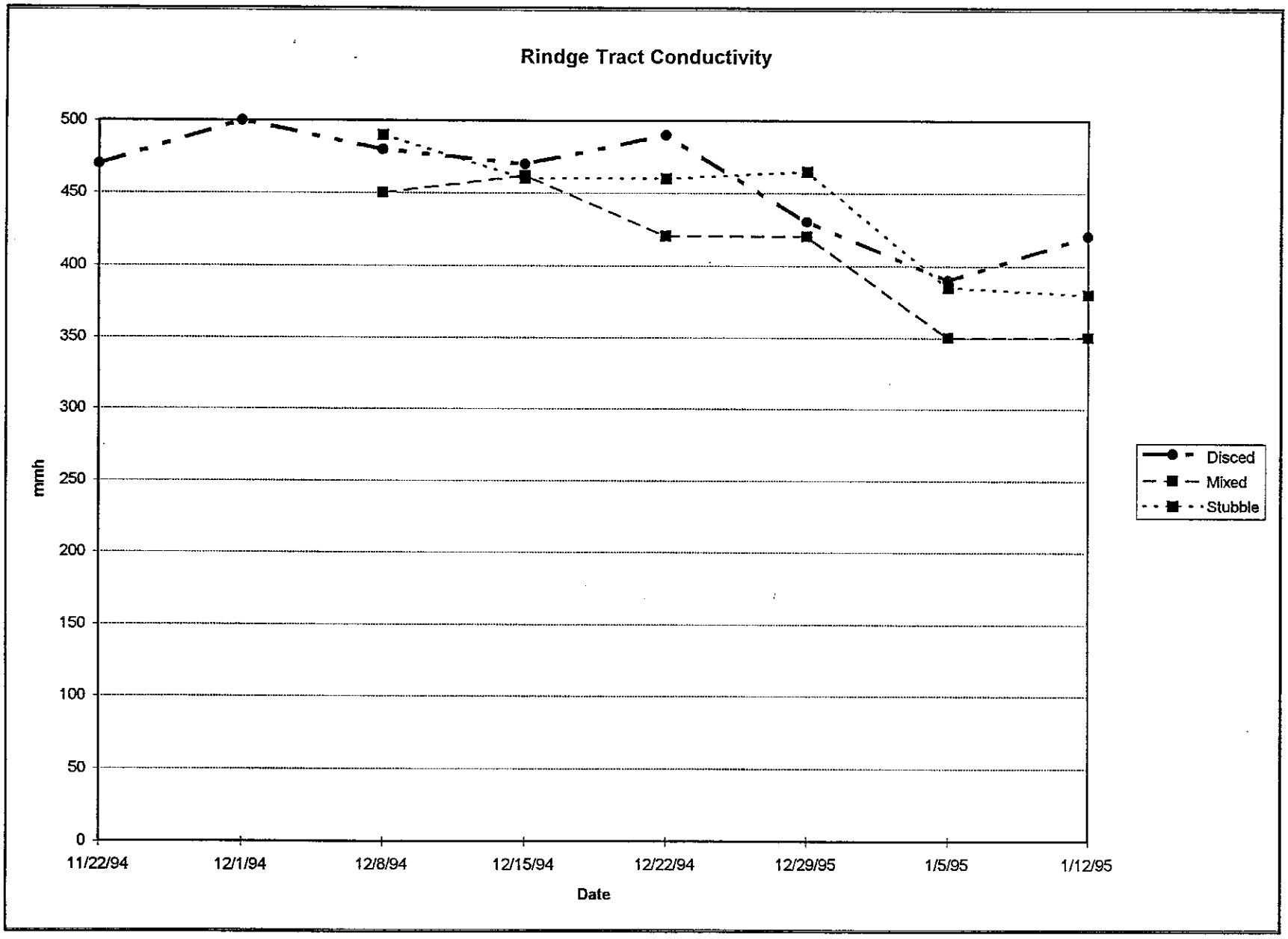
RINDGE TRACT

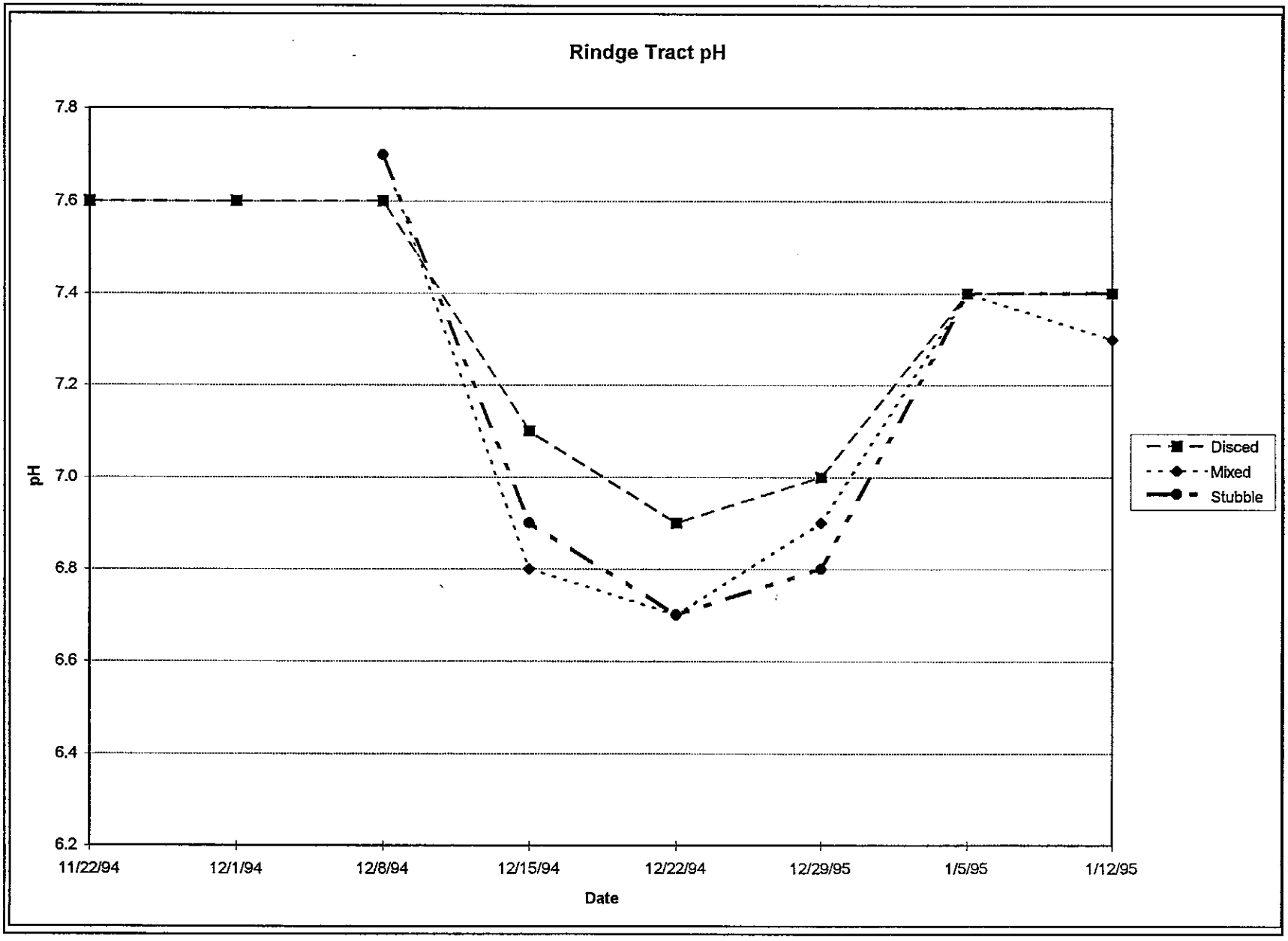
- Study period: 11/15/94 - 1/12/95
- Flooded fields consisted of disced stubble, partially-disced stubble, un-disced stubble.
- Water depth averaged 14.5".
- Water quality did not change substantially over time.
- Midge and mosquito larvae were found; mosquitoes were less plentiful than midges.


Rindge Tract Depth
25
20
15
10
5
0
Inches
11/22/94
12/1/94
12/8/94
12/15/94
12/22/94
12/29/95
1/5/95
1/12/95
Date
Disced
Mixed
Stubble


Rindge Tract Temperature
Celcius
12
10
8
6
4
2
0
11/22/94
12/1/94
12/8/94
12/15/94
12/22/94
12/29/95
1/5/95
1/12/95
Disced
Mixed
Stubble


Rindge Tract Dissolved Oxygen
12.0
10.0
08.0
06.0
04.0
02.0
00.0
D.O.
11/22/94
12/1/94
12/8/94
12/15/94
12/22/94
12/29/95
1/5/95
1/12/95
Date
Disced
Mixed
Stubble

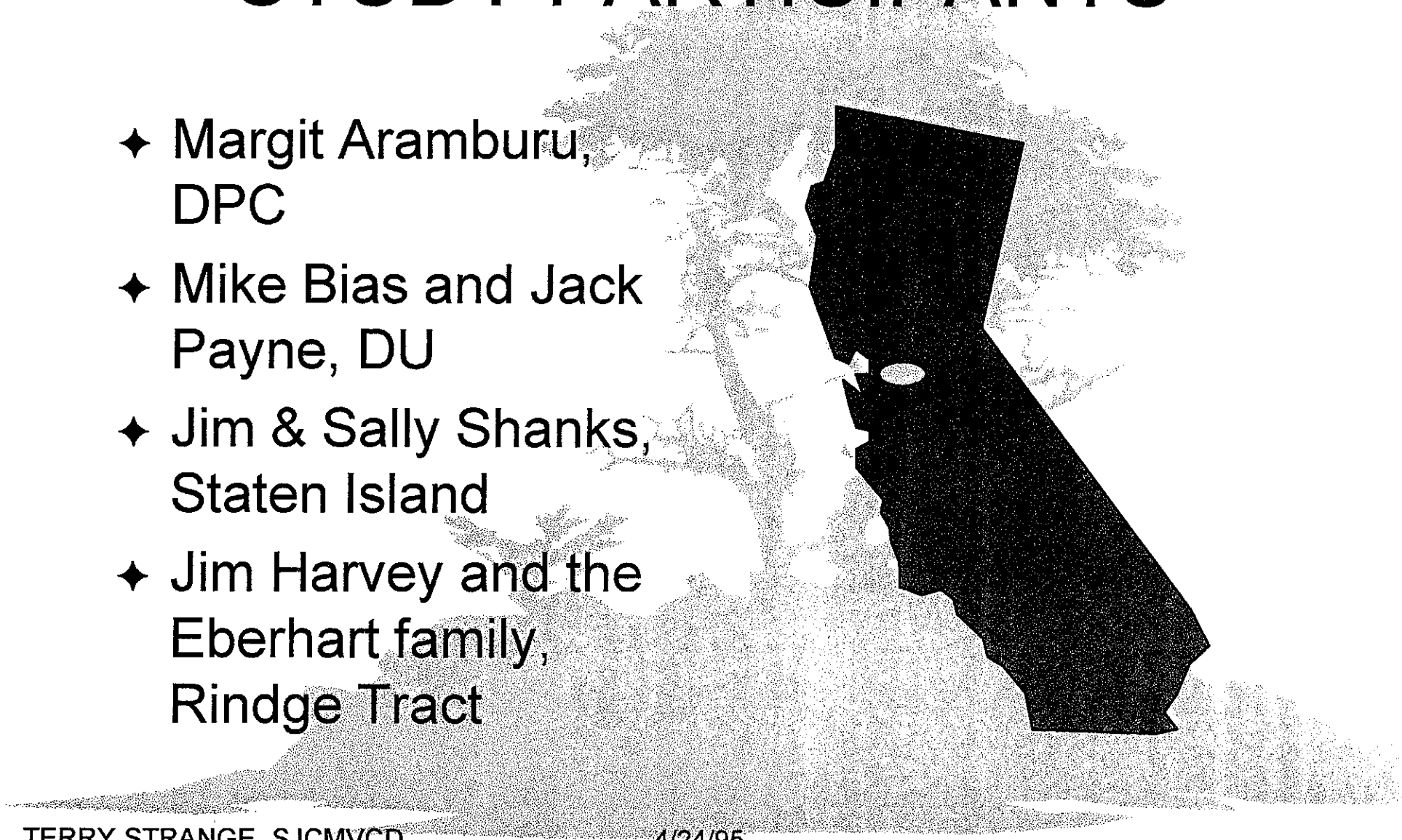

Rindge Tract Conductivity
500
450
400
350
300
250
200
150
100
50
0
mmh
11/22/94
12/1/94
12/8/94
12/15/94
12/22/94
12/29/95
1/5/95
1/12/95
Date
Disced
Mixed
Stubble


Rindge Tract pH
7.8
7.6
7.4
7.2
7.0
6.8
6.6
6.4
6.2
pH
11/22/94
12/1/94
12/8/94
12/15/94
12/22/94
12/29/95
1/5/95
1/12/95
Date
Disced
Mixed
Stubble

CONCLUSIONS

- Water depth and time of flooding influenced mosquito and midge abundance.
- Waterfowl were found at both study sites.
- Results were inconclusive: a more intensive study will be performed in 1995-96.

STUDY PARTICIPANTS



- Margit Aramburu, DPC
- Mike Bias and Jack Payne, DU
- Jim & Sally Shanks, Staten Island
- Jim Harvey and the Eberhart family, Rindge Tract