COMPARISON OF DIFFERENT DEPLOYMENT STRATEGIES FOR BAY SCALLOP SPAWNER SANCTUARIES IN NEW YORK

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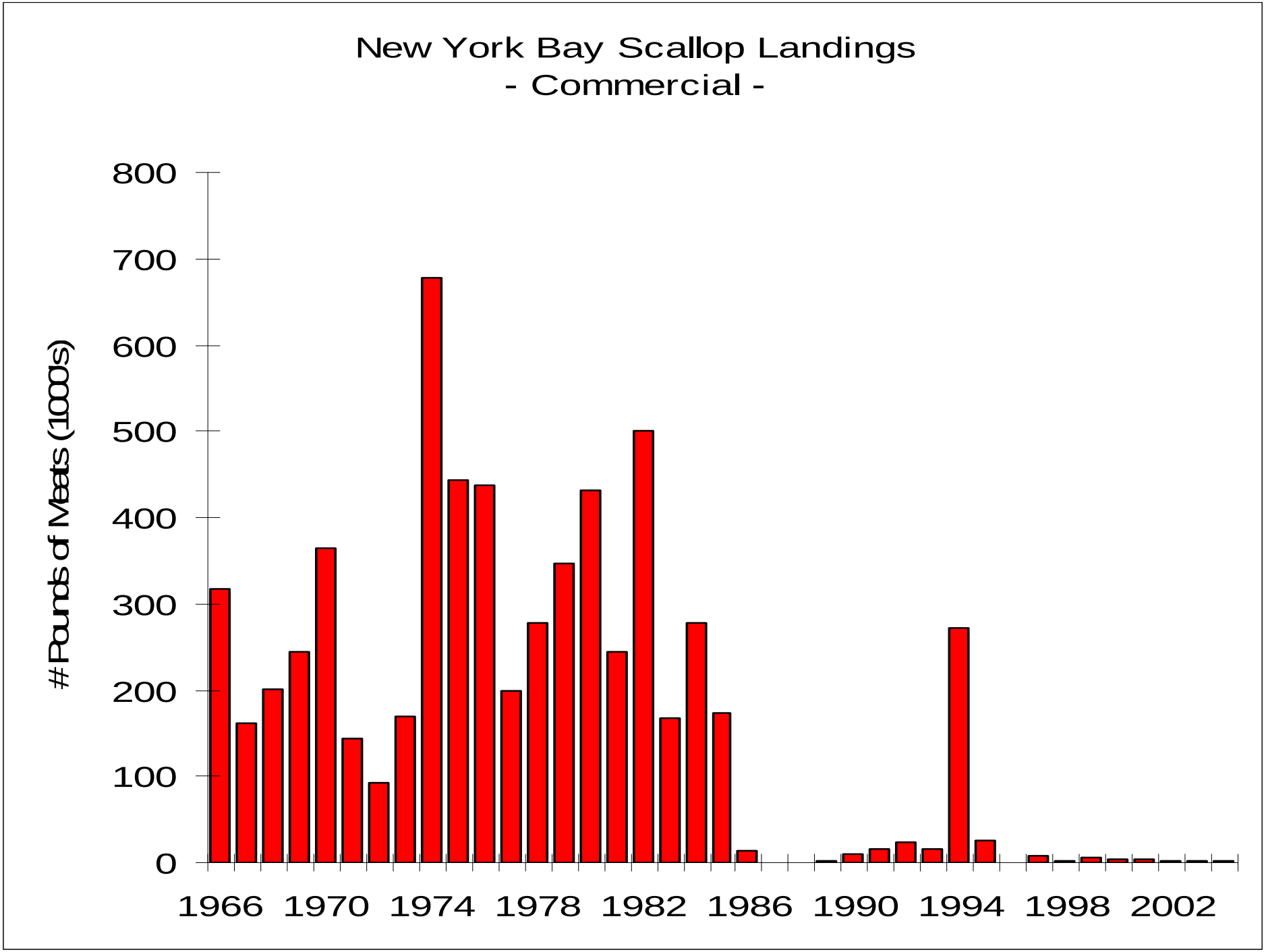

New York Bay Scallop Landings
- Commercial -
Pounds of Meats (1000s)
800
700
600
500
400
300
200
100
0
1966
1970
1974
1978
1982
1986
1990
1994
1998
2002

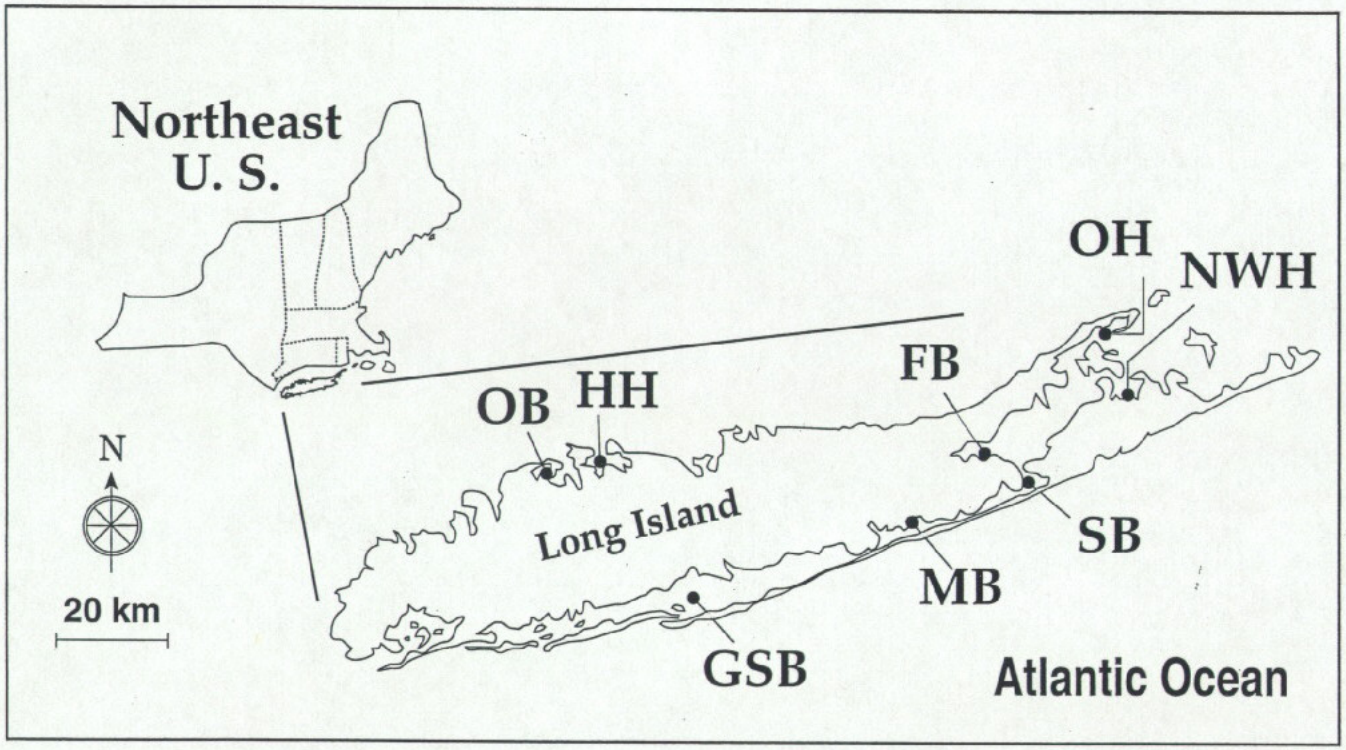
New York
Bay Scallop
Planting
Methods:

Overwintering
and/or
for
Spawner
Sanctuaries

Study Objectives:

- Evaluate Use of Suspended ADPI Bags for Bay Scallop Spawner Sanctuaries

- Compare ADPI Bag System
  to High Density Free-Plantings



NWH = NW Harbor

Free-Planted Sectors

25 m	SI	EH	SI	EH
	25 m	25 m	25 m	25 m

Ave. Initial Planting Density = 95-132/ m^2
~235,000-277,000 Planted/Year

ADPI Arrays

36 Arrays (3 bags ea): SI or EH

15 mm mesh

50, 100, or 200 per tier (bag)

Initial Planting Density = 117/234/468/ m^2
12,600 Planted/Year

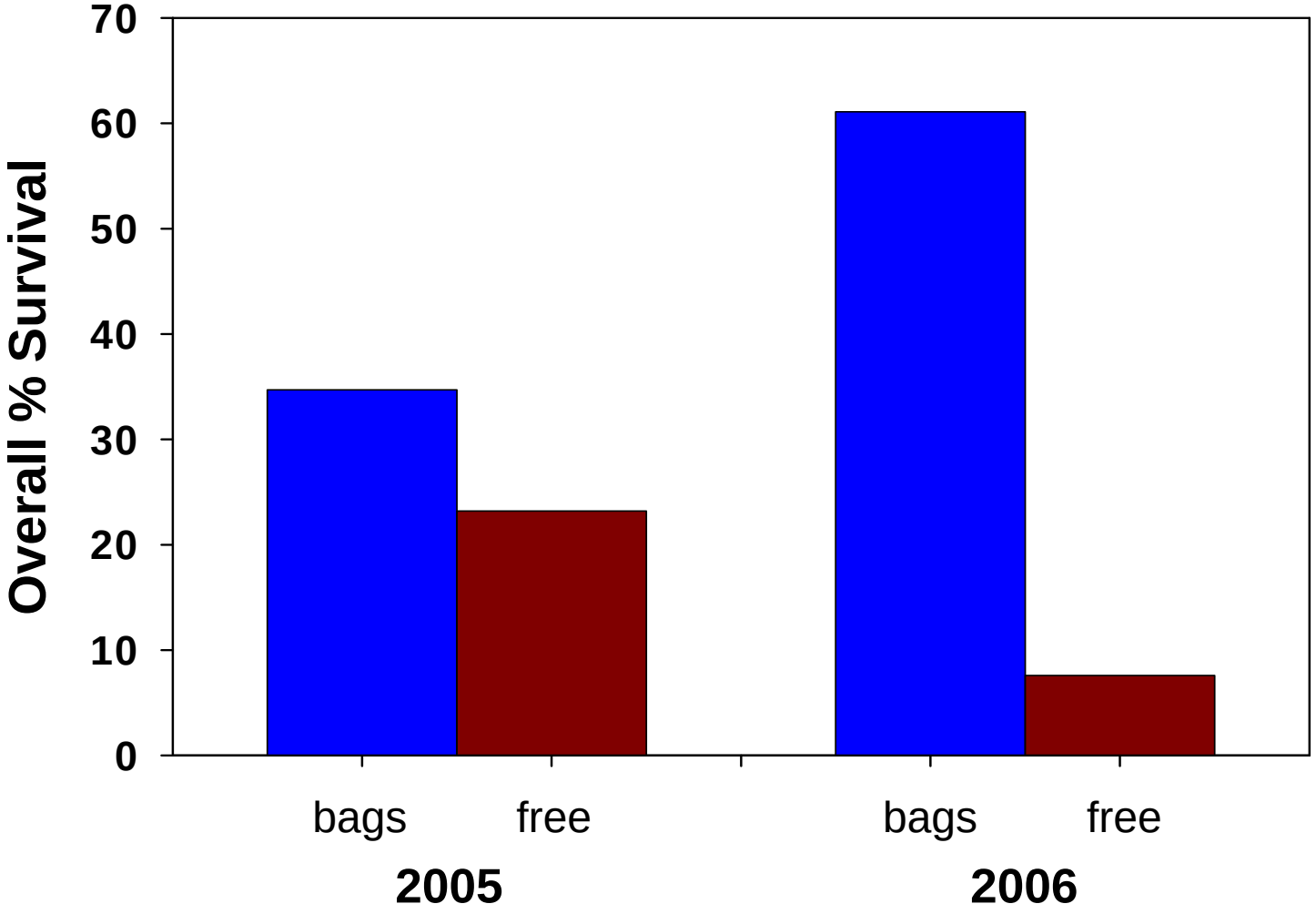
2005: Scallops Planted 30 Mar – 1 Apr — Initial Mean Size = 38-40 mm
2006: Scallops Planted 3 – 7 Apr — Initial Mean Size = 33-35 mm

Design of ADPI Bag Arrays

2006

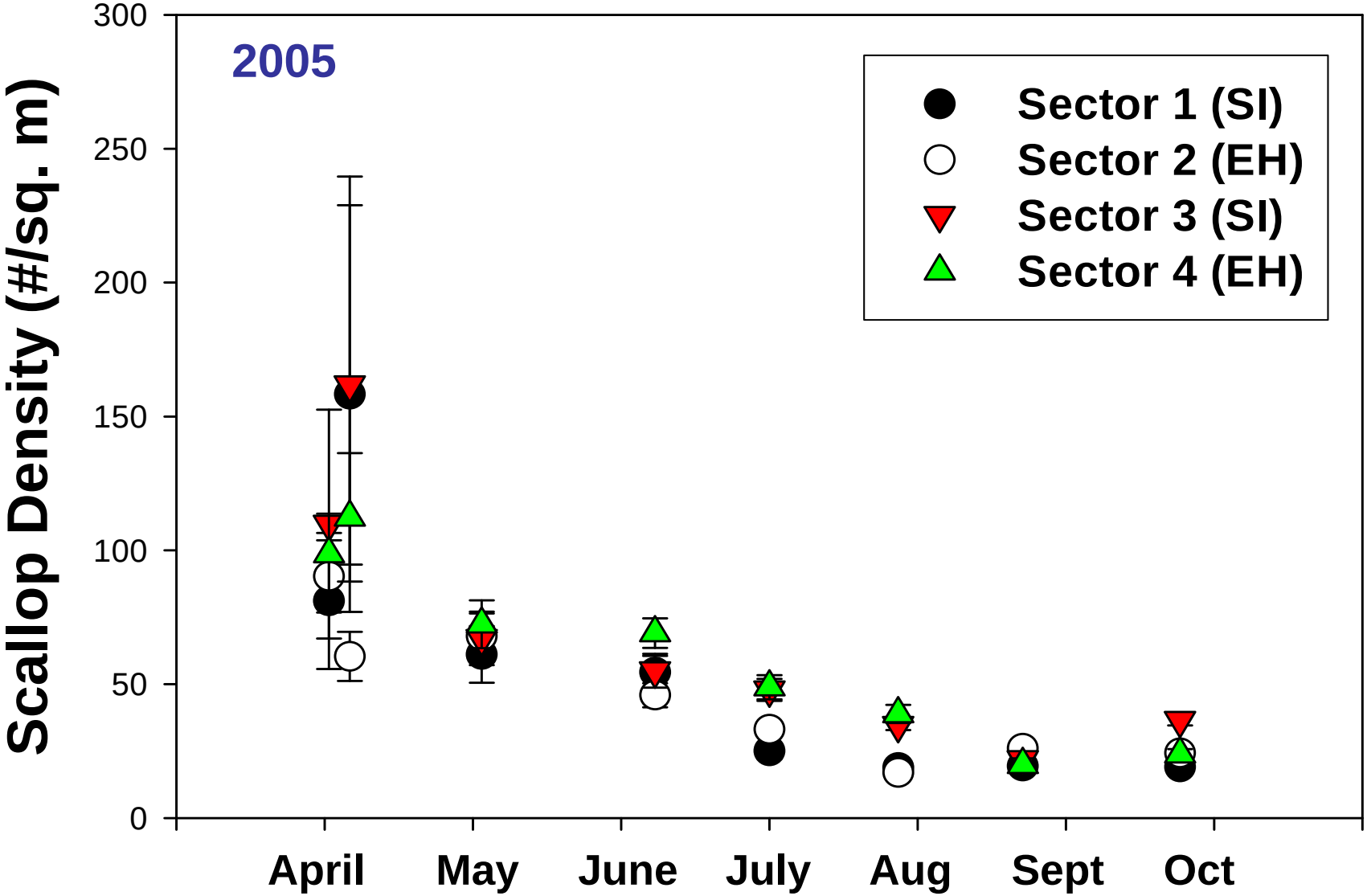
Overall Survival: ADPI Bags vs Free-Plants

(mid-August: ~4.5 months after planting)



Density of Free-Planted Bay Scallops

(Mean +/- 1 SE)



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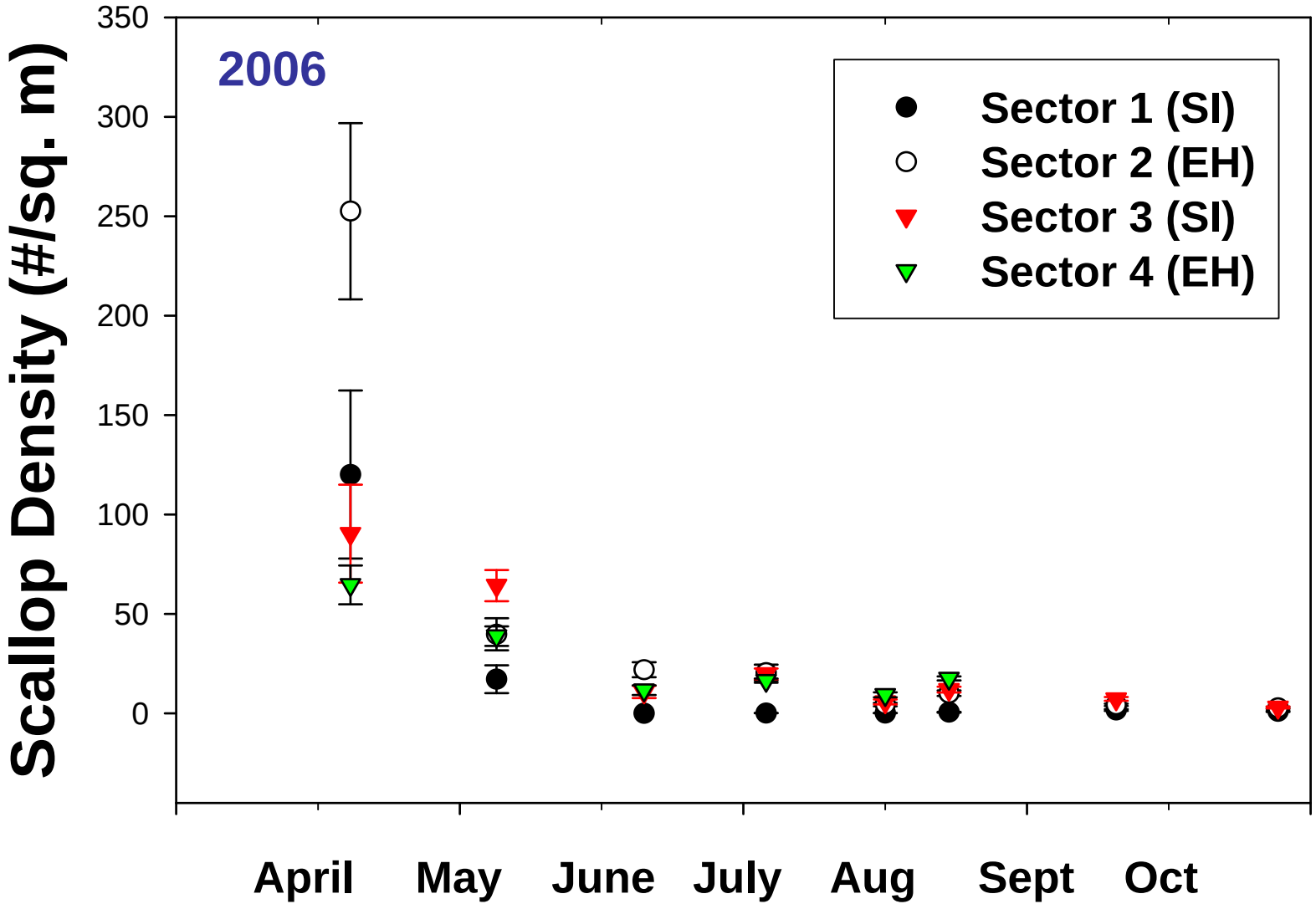
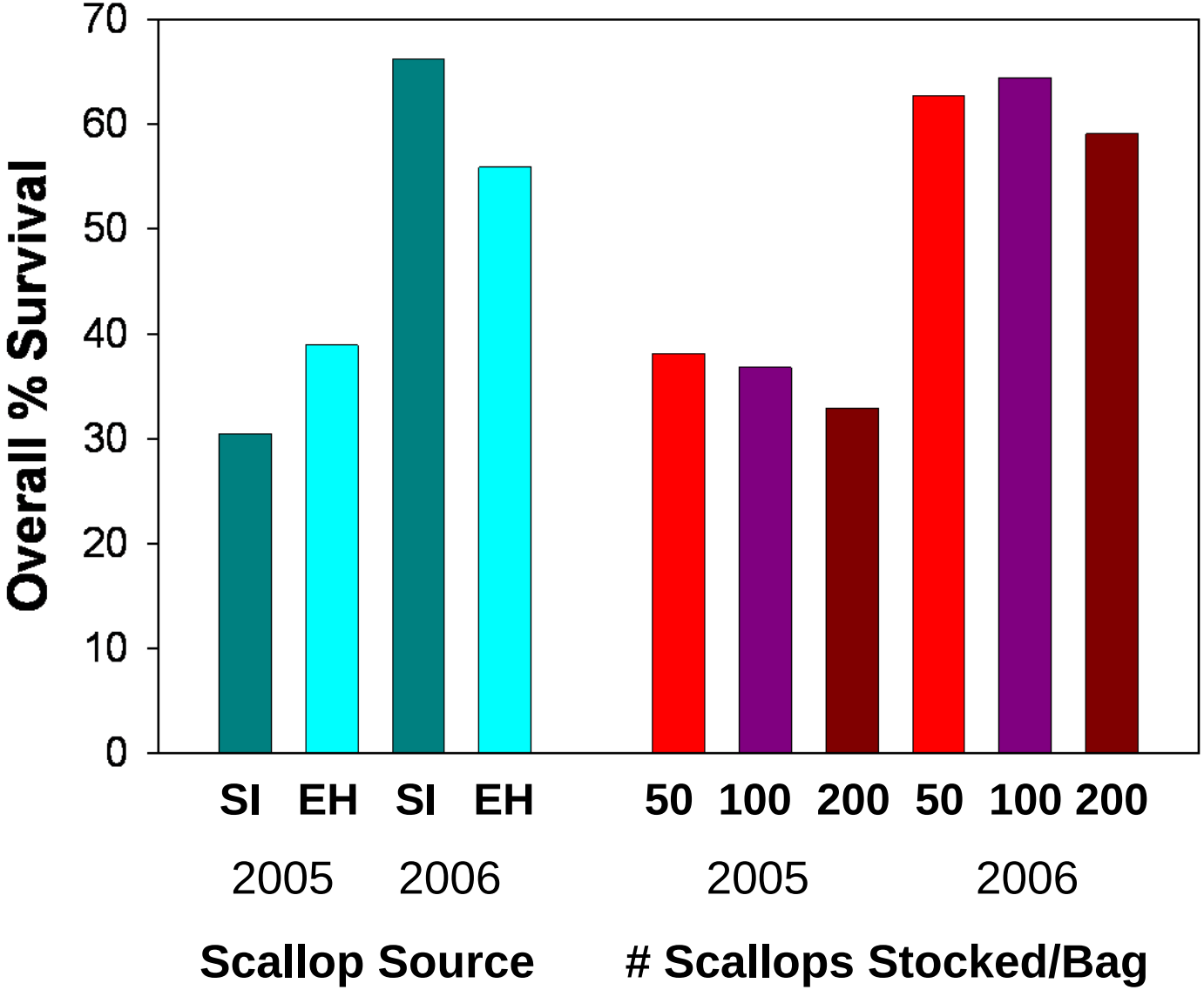


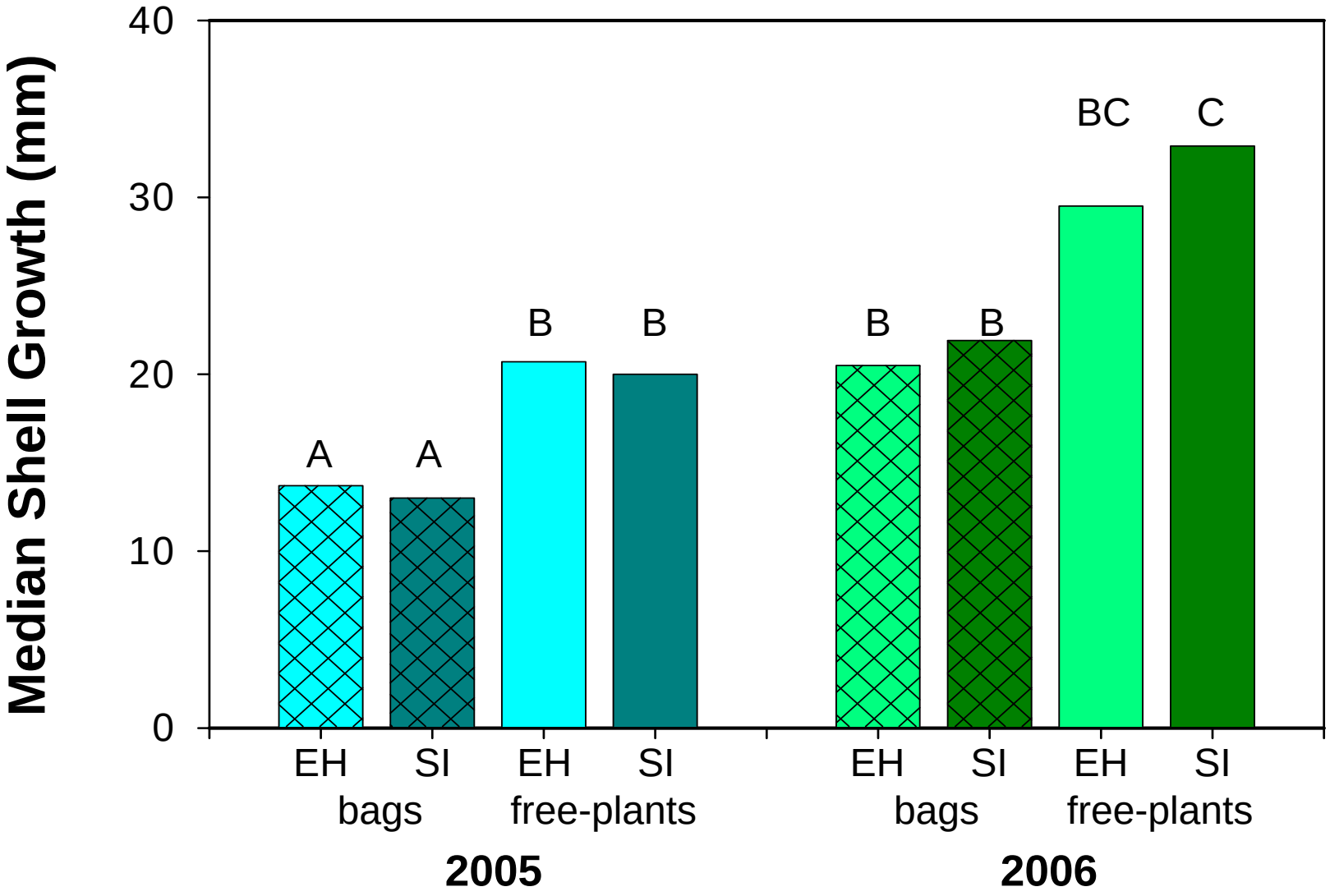
Overall Survival: ADPI Bags

(Mid-August: ~ 4.5 Months After Planting)



Scallop Shell Growth

(~6.5 months after planting)



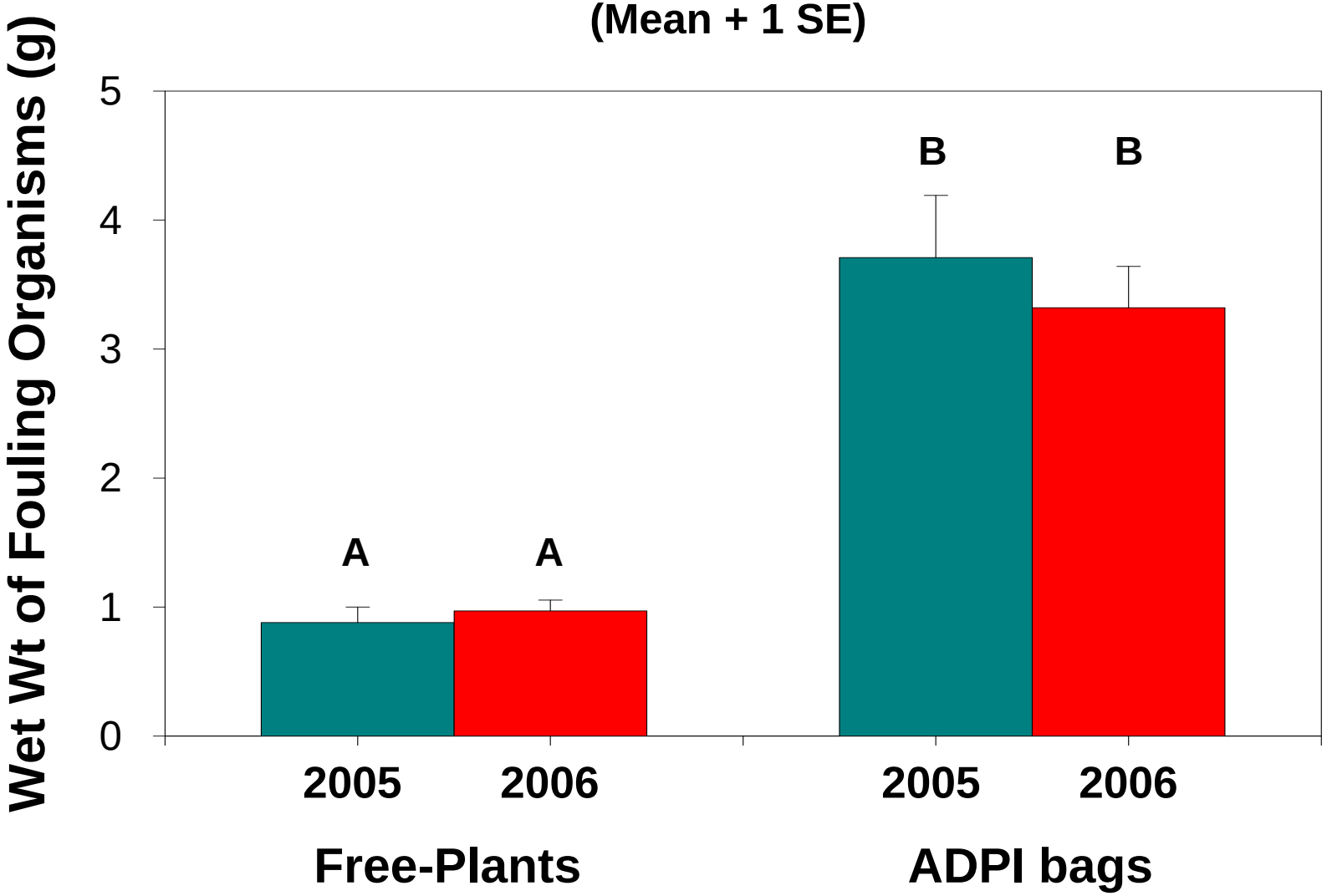
K-W 1-way ANOVA ($p<.001$) / Dunn's Test ($p<.05$)

Array

Free-plant

Fouling Organisms: August ’05, ‘06

(Mean + 1 SE)

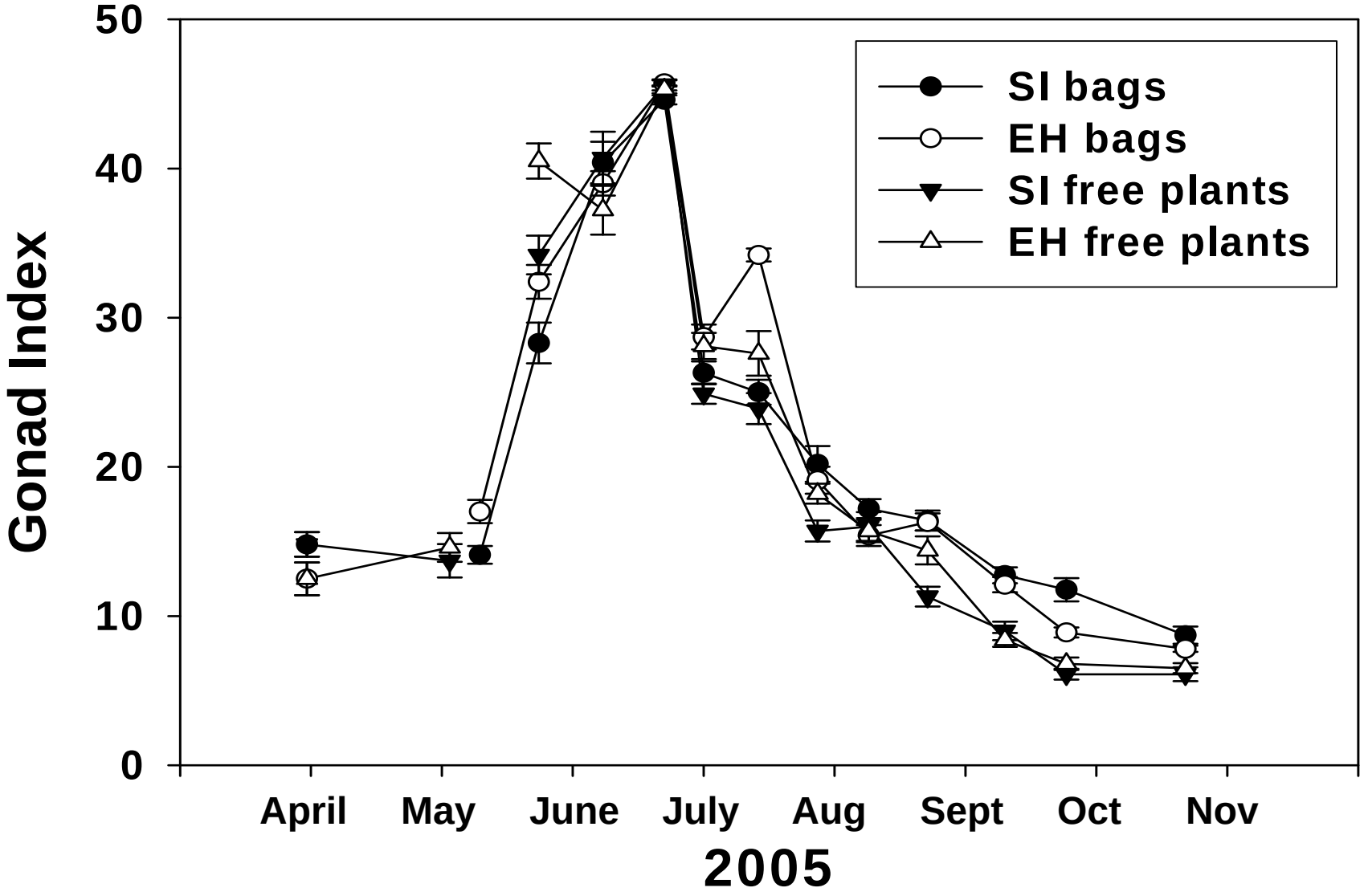


K-W 1-way ANOVA (p<.001) / Dunn’s Test (p<.05)

2005

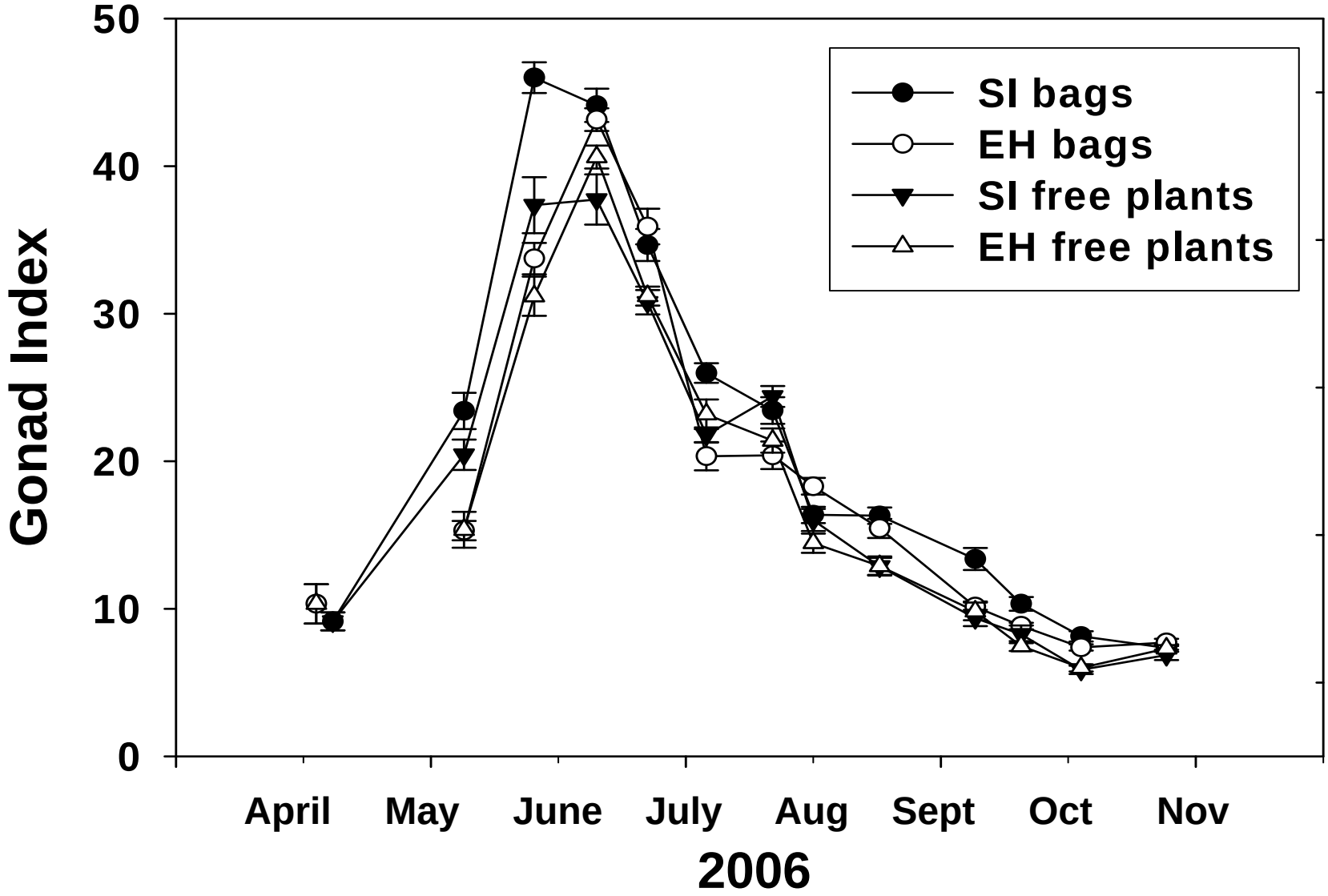
Temporal Spawning Patterns

(Mean +/- 1 SE)



Temporal Spawning Patterns

(Mean +/- 1 SE)



7 June 2005

SUMMARY

- **High density free-plants:**

  59% mean survival to 1st spawning, 2+ mos after planting (2005);
  10% mean survival to 1st spawning, 2 mos after planting (2006)

  More rapid decline in #'s in 2006: possibly due to lack of eelgrass, smaller initial size, and/or higher initial density

- **Scallop survival usually better in ADPI bags compared to free-plants; less tilting of ADPI bags in 2006 reflected in higher survival vs 2005**

- **Scallop shell growth: less in ADPI bags vs free-plants**

- **Bio-fouling levels much higher on scallops in ADPI bags vs free-plants**

- **Spawning of scallops in ADPI bags and on bottom peaked at ~ same time in respective years, at similar levels of reproductive investment (GI)**