Trends in Fishes and Invertebrates of Suisun Marsh

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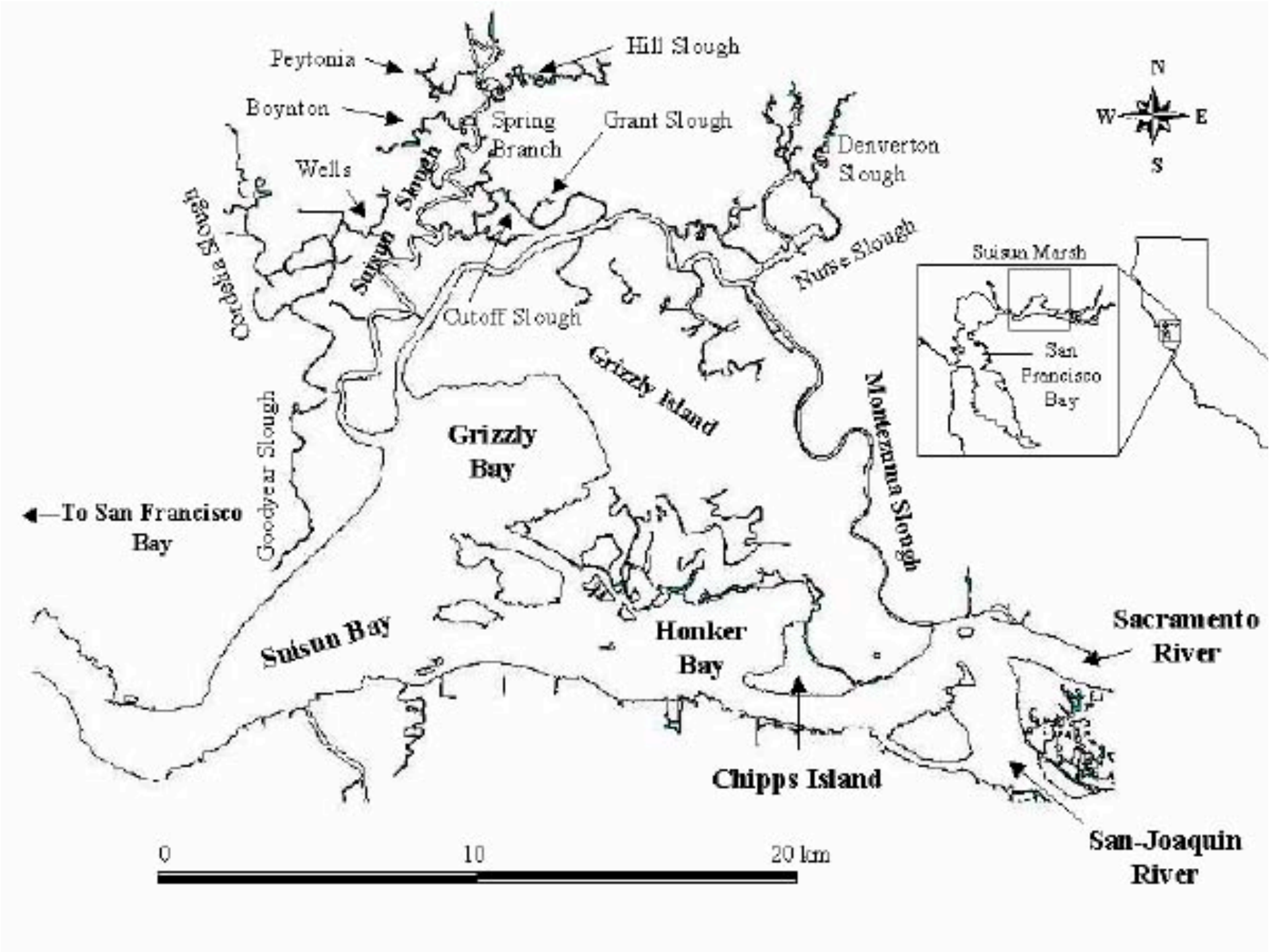
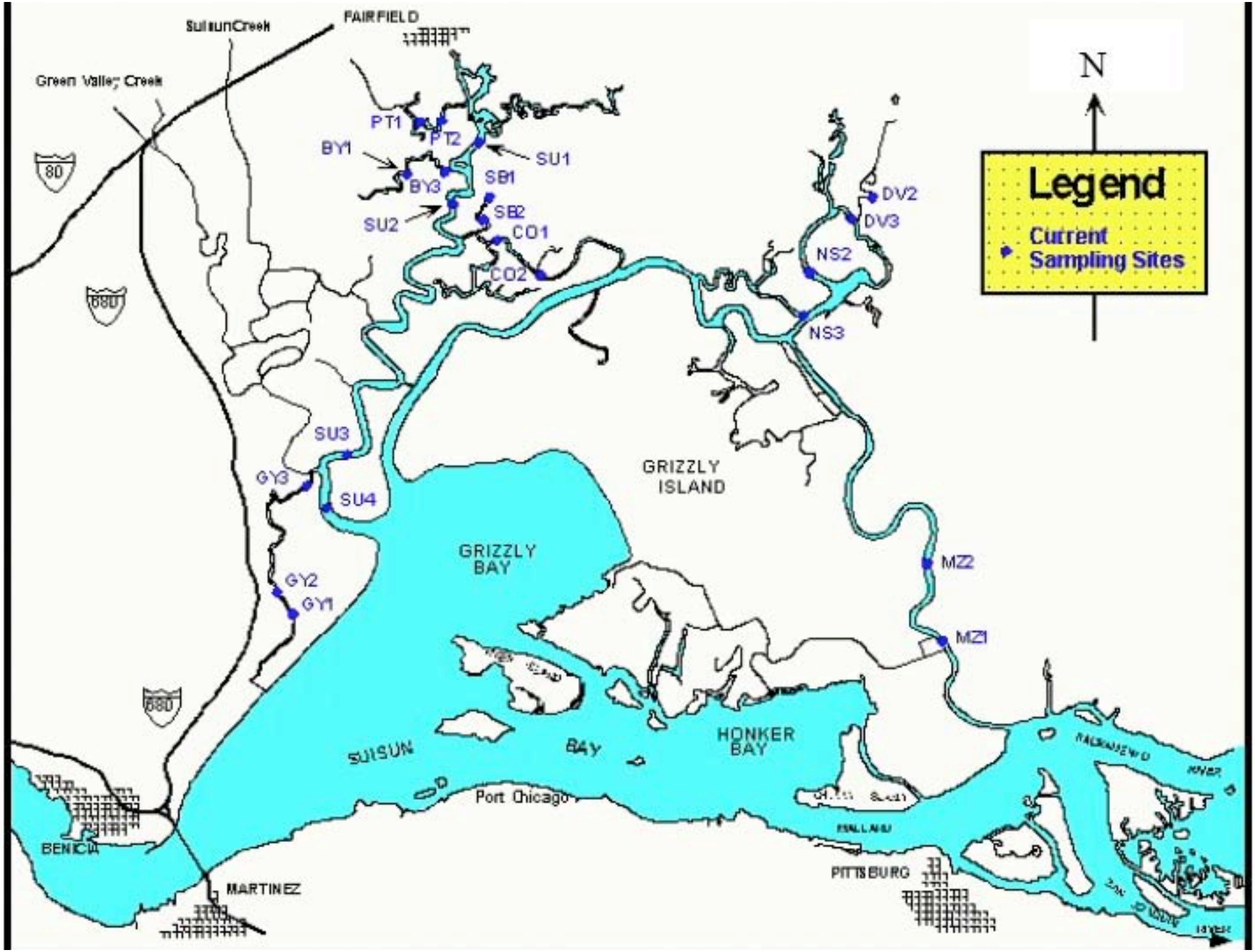
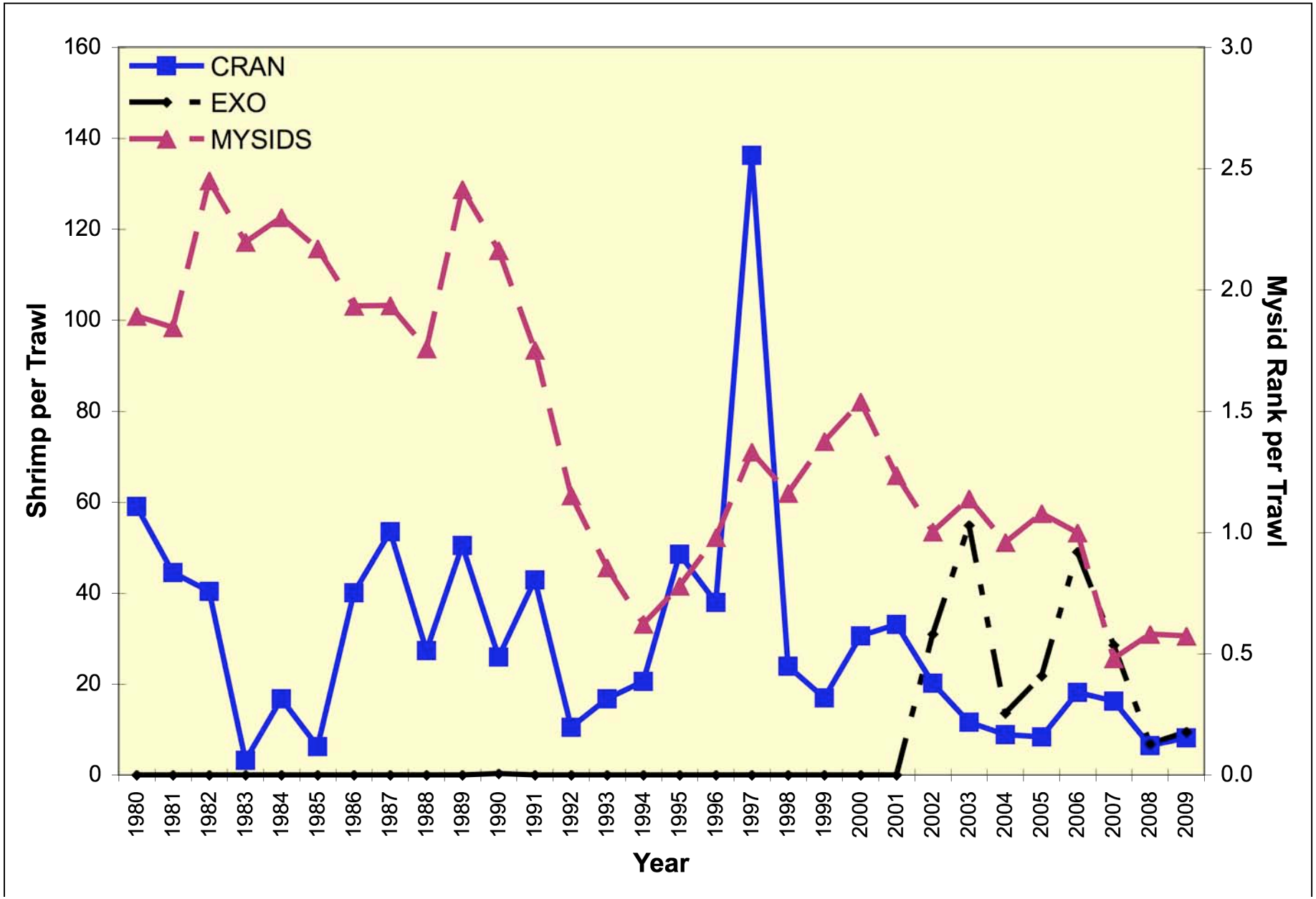
Trends in Fishes and Invertebrates of Suisun Marsh

- Introduction
- Long-term trends
- Recent trends

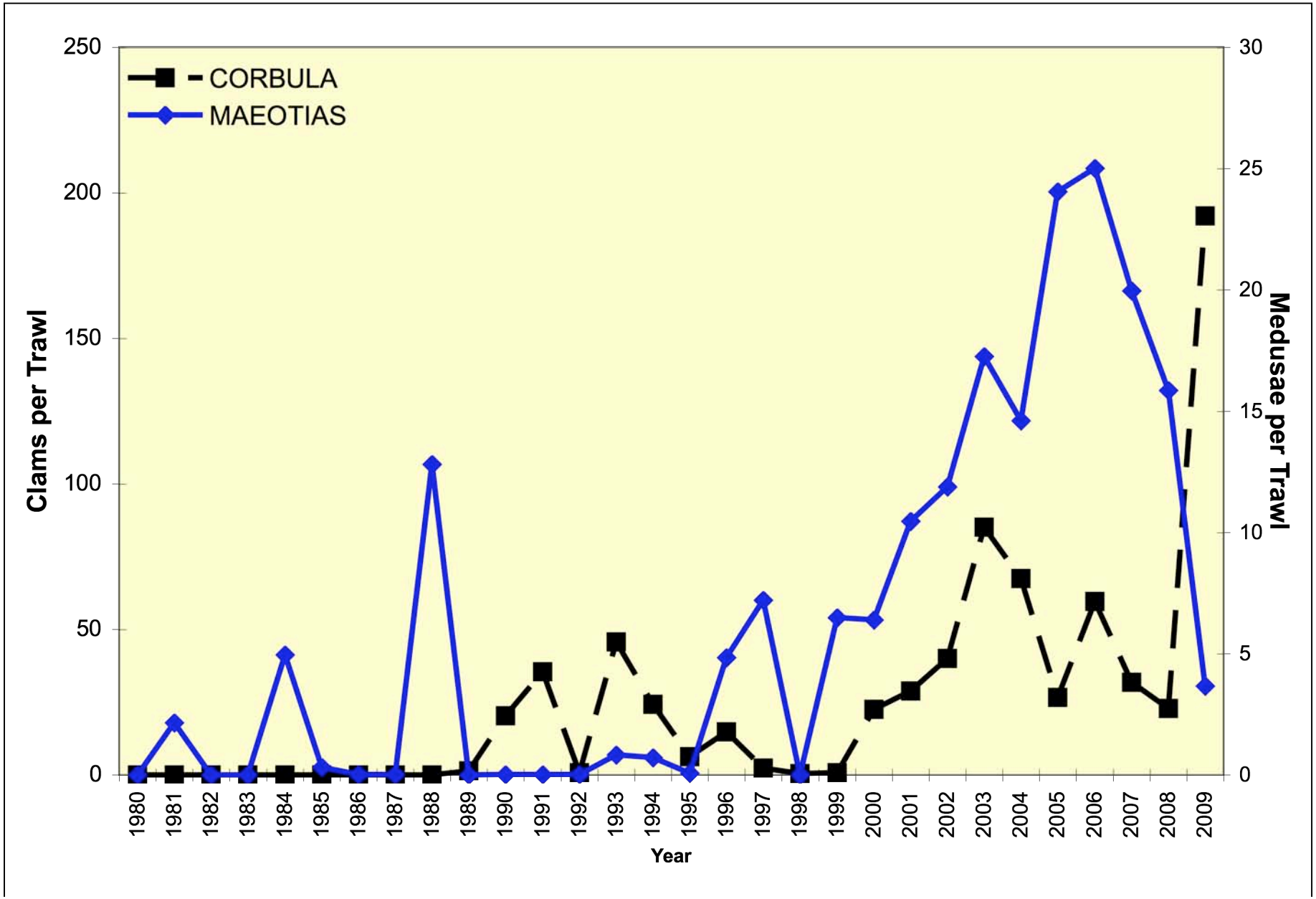

Peytonia
Hill Slough
Boynton
Spring Branch
Grant Slough
Denverton Slough
Wells
Suisun Slough
Cordelia Slough
Cutoff Slough
Nurse Slough
Grizzly Island
Grizzly Bay
Montezuma Slough
Goodyear Slough
To San Francisco Bay
Suisun Bay
Honker Bay
Chipps Island
Sacramento River
San-Joaquin River
0
10
20 km
N
W
E
S
Suisun Marsh
San Francisco Bay


Suisun Creek
FAIRFIELD
Green Valley Creek
N
Legend
Current Sampling Sites
PT1
PT2
BY1
BY3
SU1
SB1
SB2
SU2
CO1
CO2
DV2
DV3
NS2
NS3
SU3
GY3
SU4
GY2
GY1
MZ2
MZ1
GRIZZLY ISLAND
GRIZZLY BAY
HONKER BAY
SUISUN BAY
Port Chicago
BENICIA
MARTINEZ
PITTSBURG
80
680
680

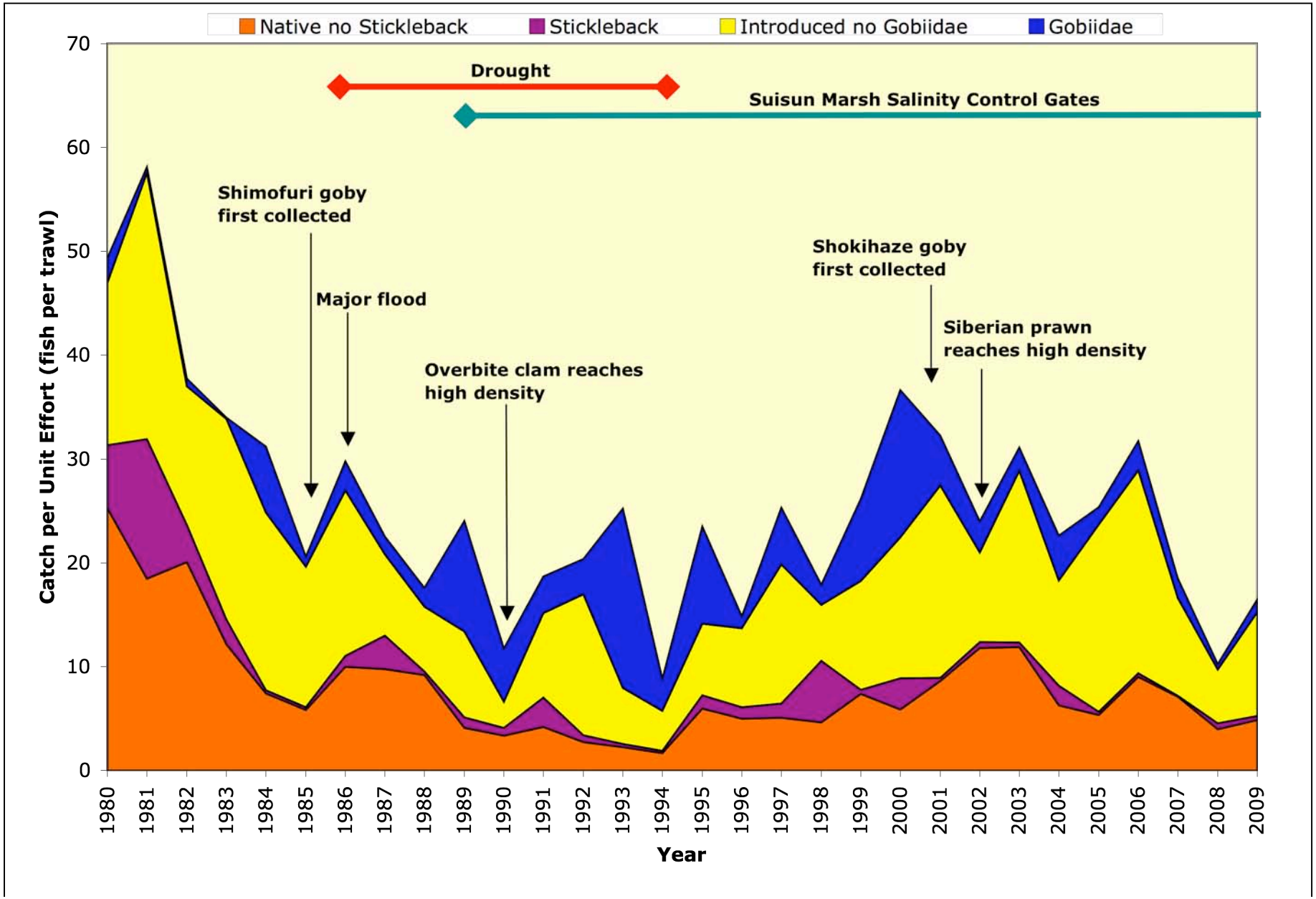
Long Term Trends: Shrimps



Long Term Trends: Clams & Jellyfish



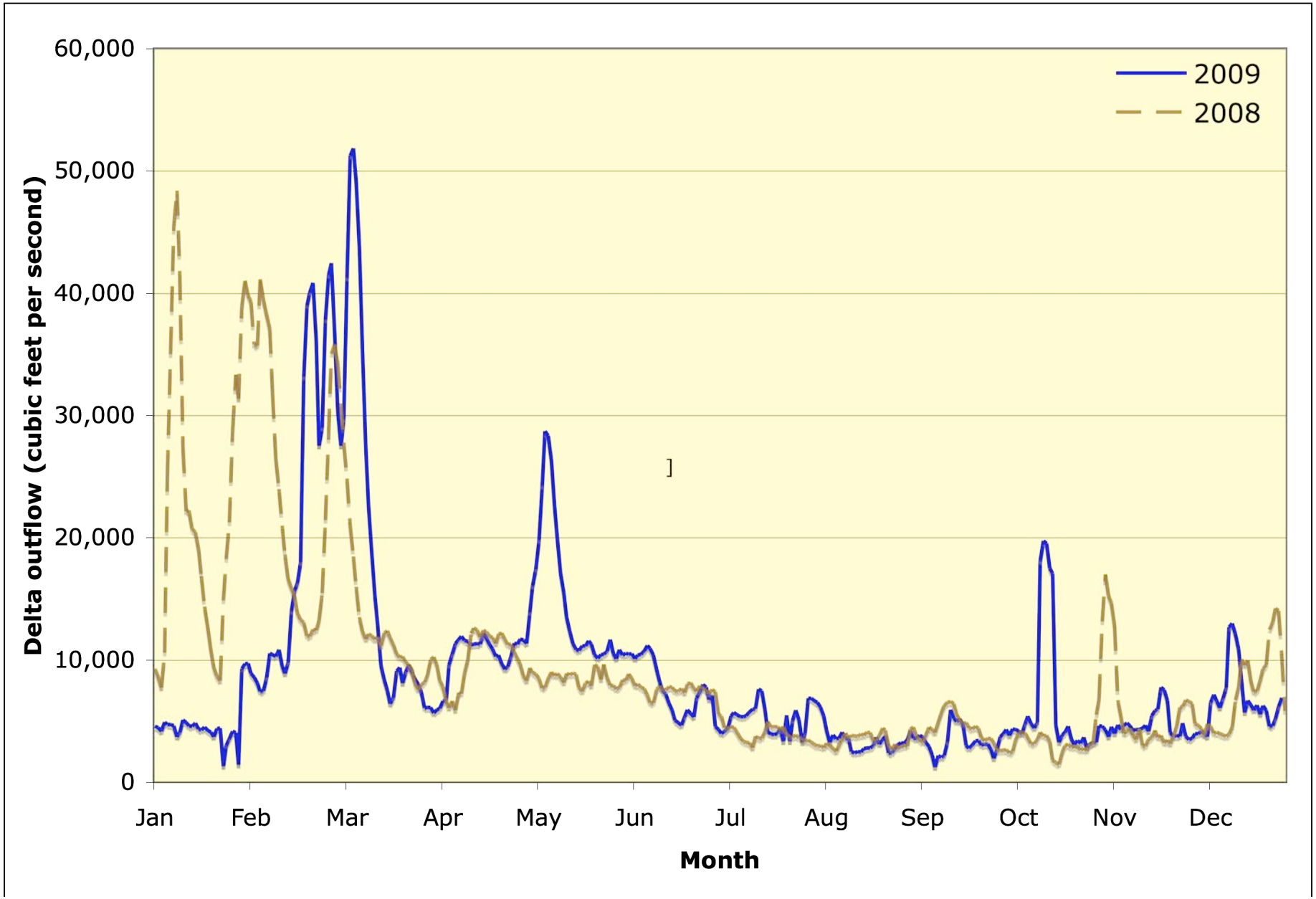
Long Term Trends: Fishes



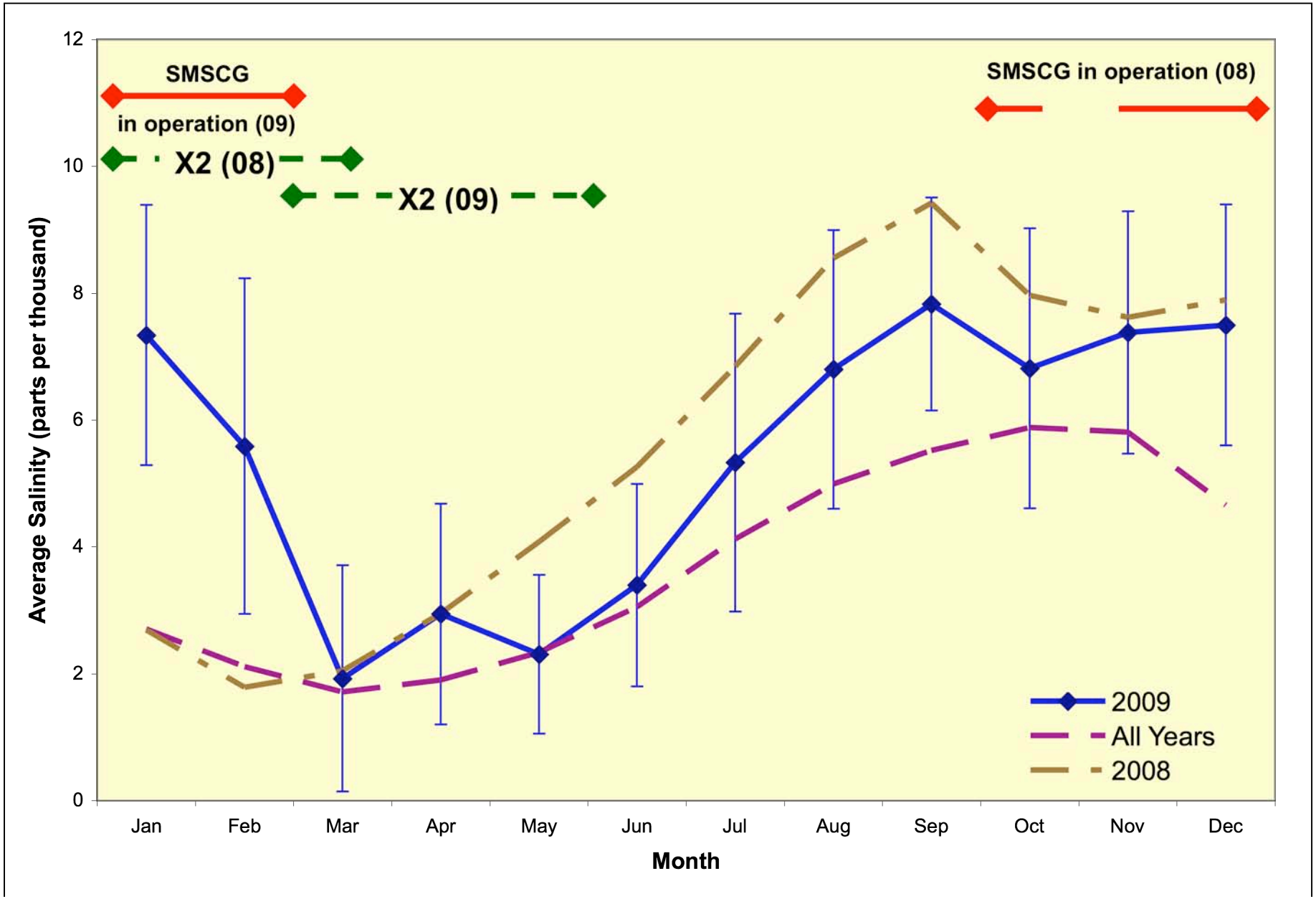
Long Term Trends: Main Points

- Fishes and mysids:
  - Decline from mid-’80s to mid-’90s
  - Higher abundances from mid-’90s to mid-’00s
- Overbite clam: more abundant in 2000s
- Fishes, shrimps, and Black Sea jellyfish: declining from 2006 to 2009

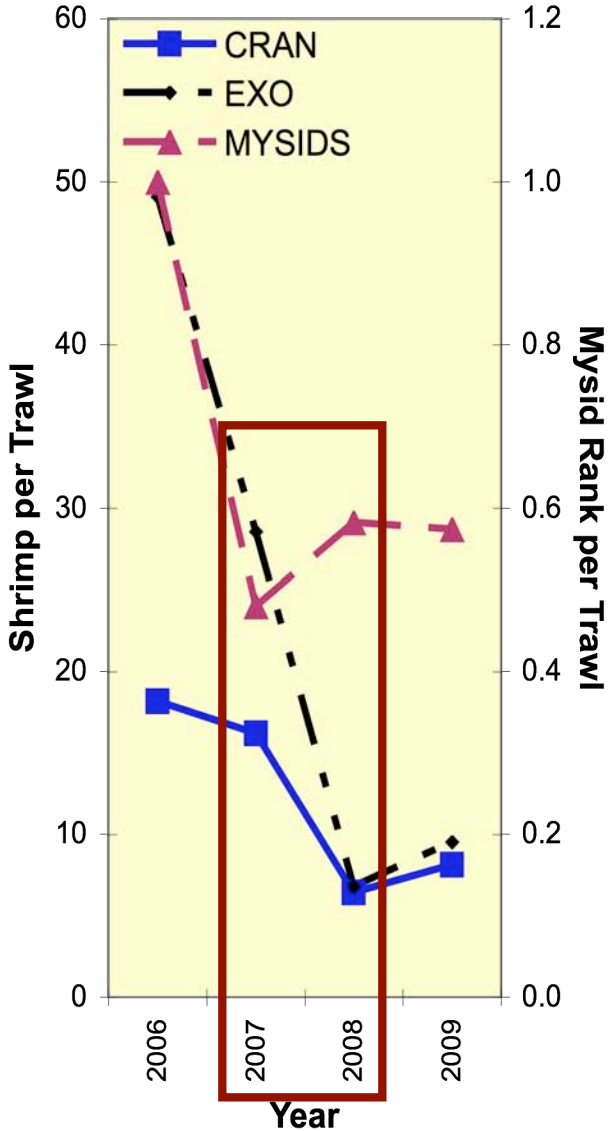
2008 and 2009

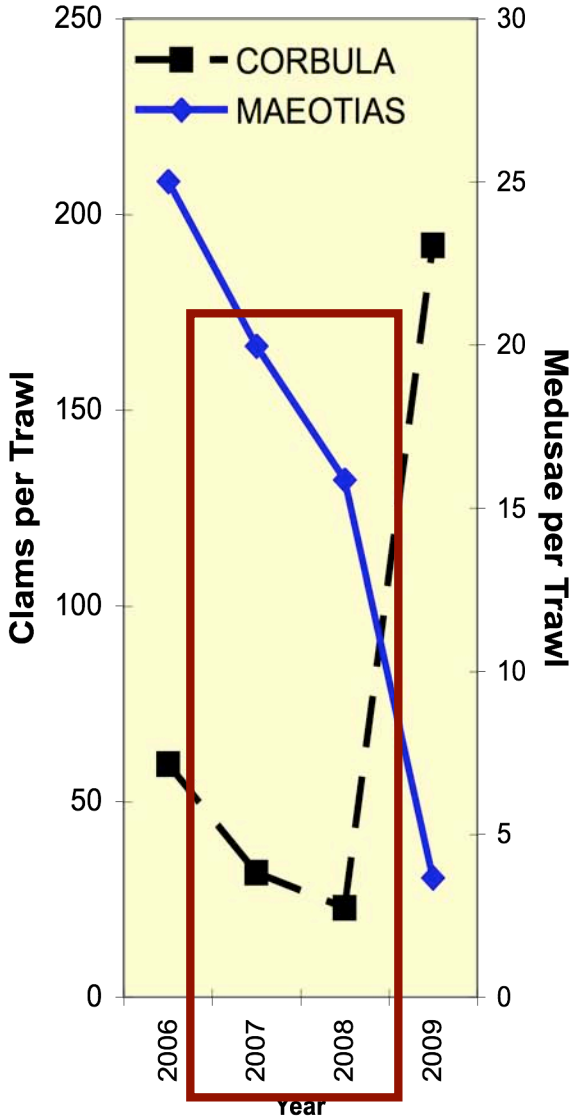


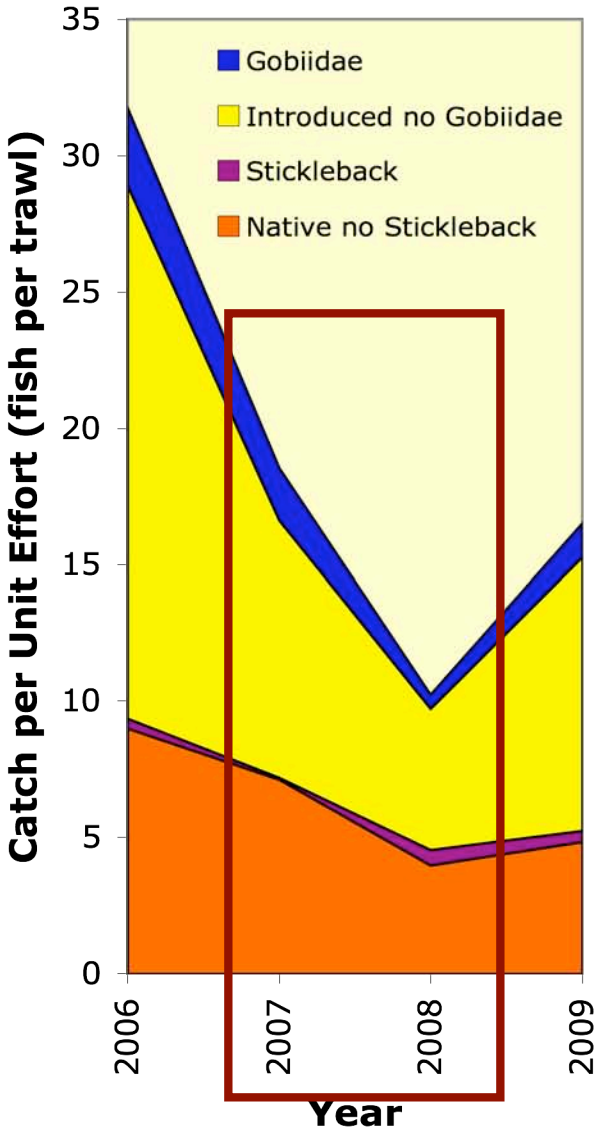
2008 and 2009



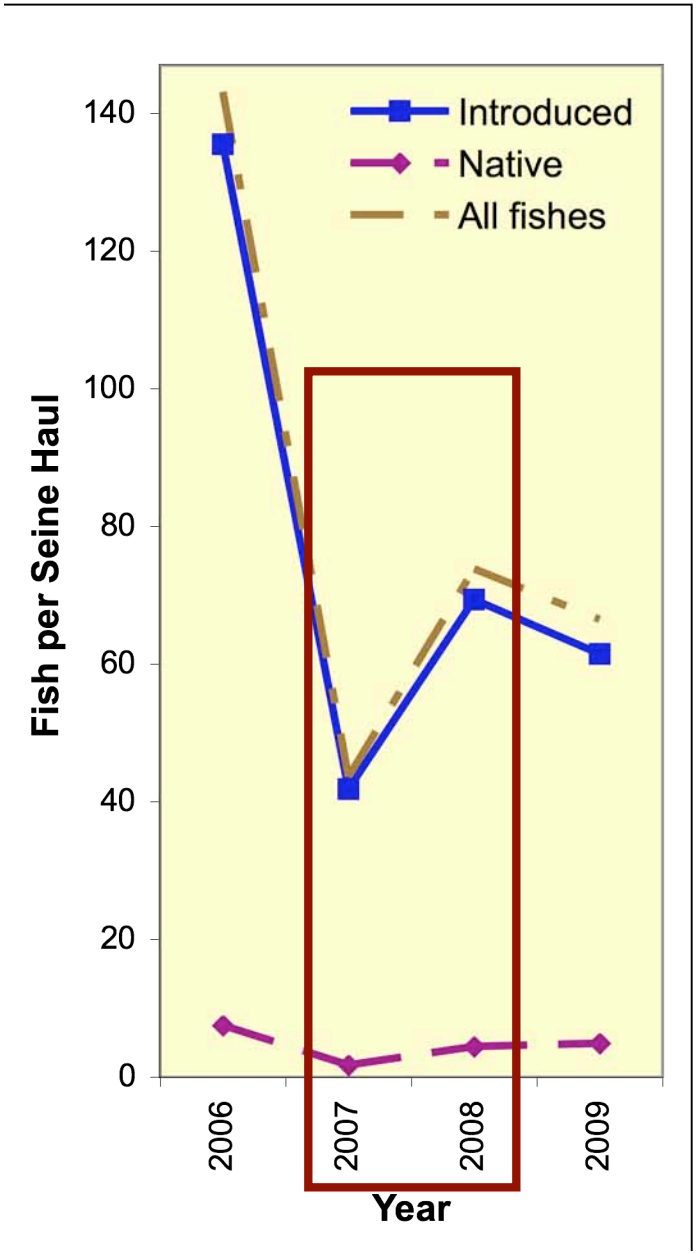
2007 to 2008: Otter Trawls





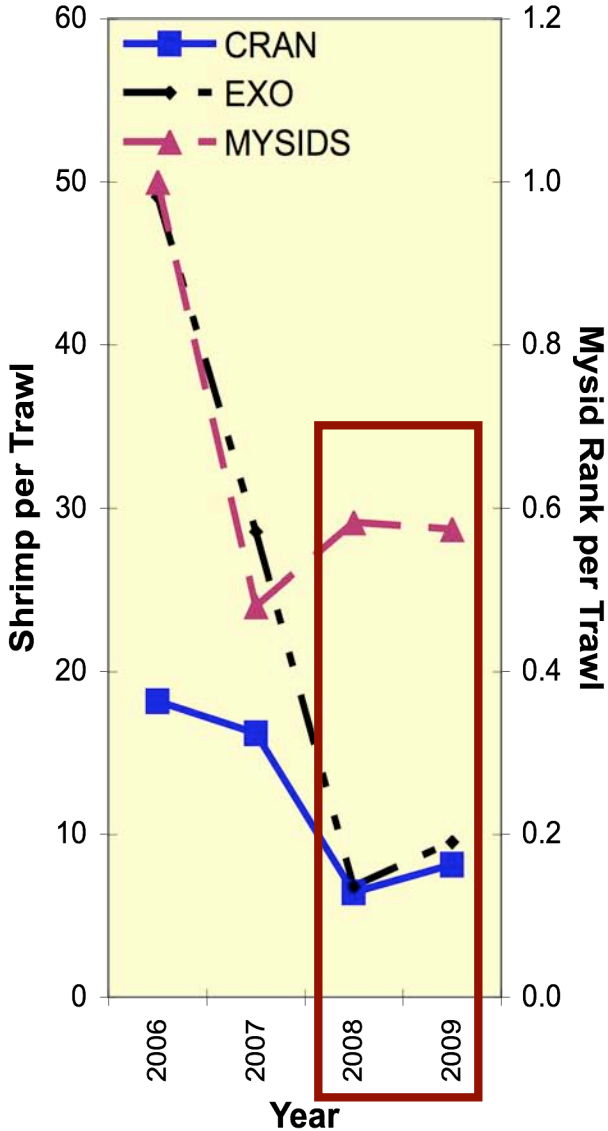


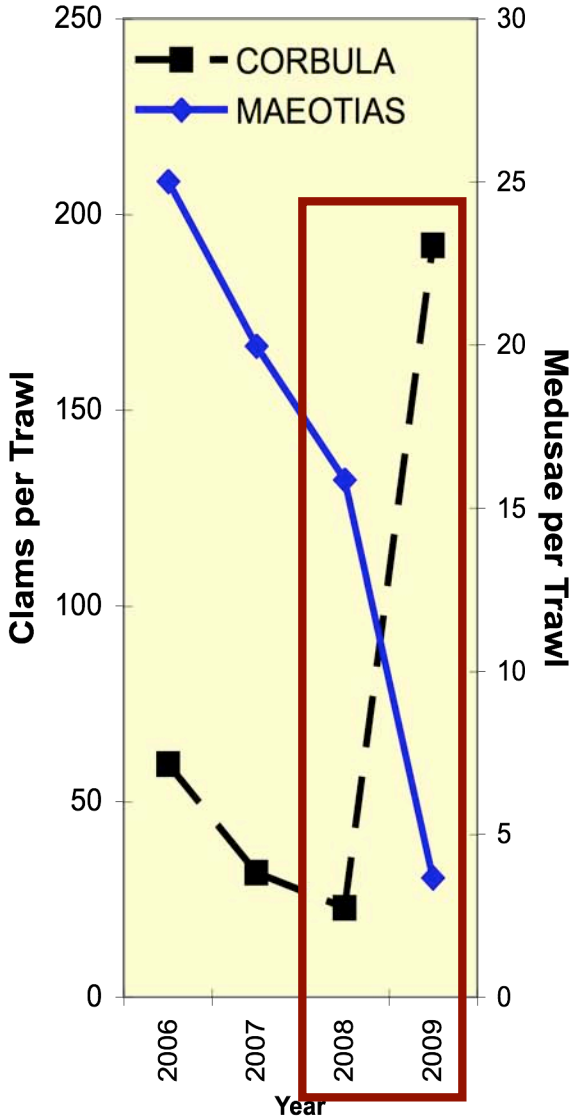
2007 - 2008

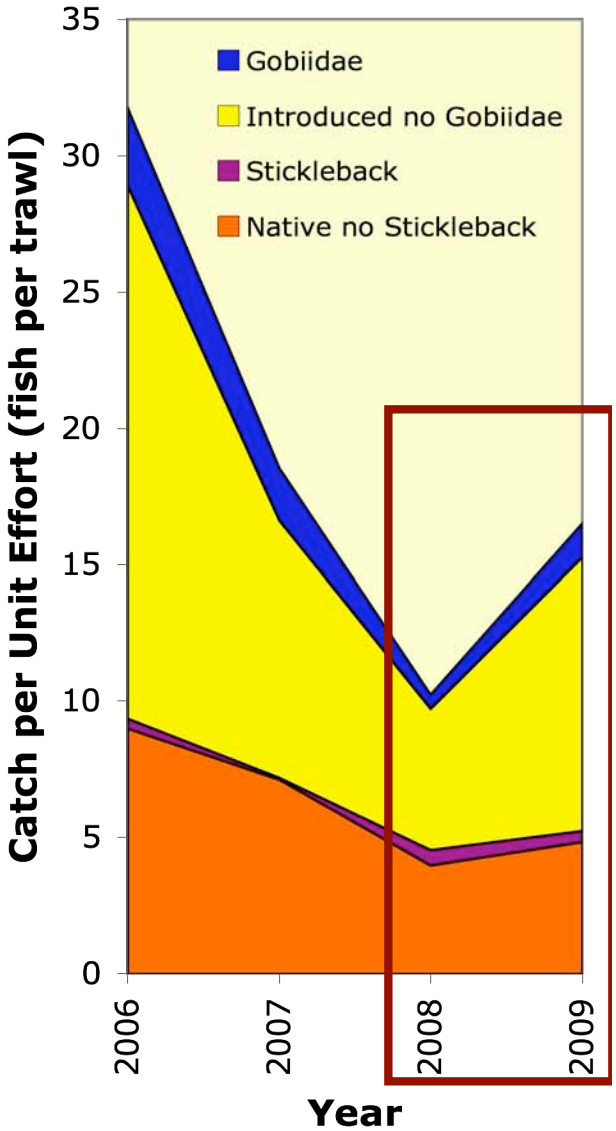


2007-2008				
Species	BS % CPUE Change	BS Catch Difference	OT % CPUE Change	OT Catch Difference
common carp	184%	+12	-36%	-85
Mississippi silverside	158%	+1212	-21%	-11
striped bass	**364%**	**+554**	**-49%**	**-675**
prickly sculpin	358%	+12	-41%	-31
shimofuri goby	365%	+121	-35%	-37
tule perch	225%	+17	-63%	-308
yellowfin goby	**159%**	**+199**	**-86%**	**-309**

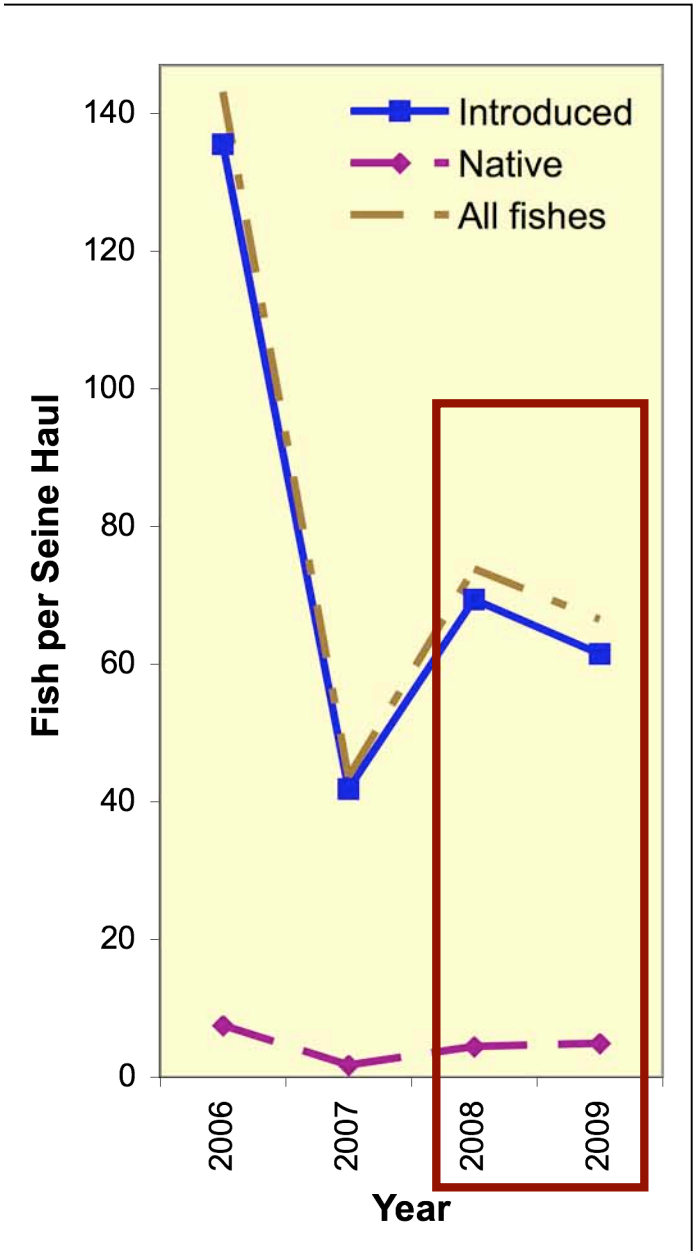
2008 to 2009: Otter Trawls





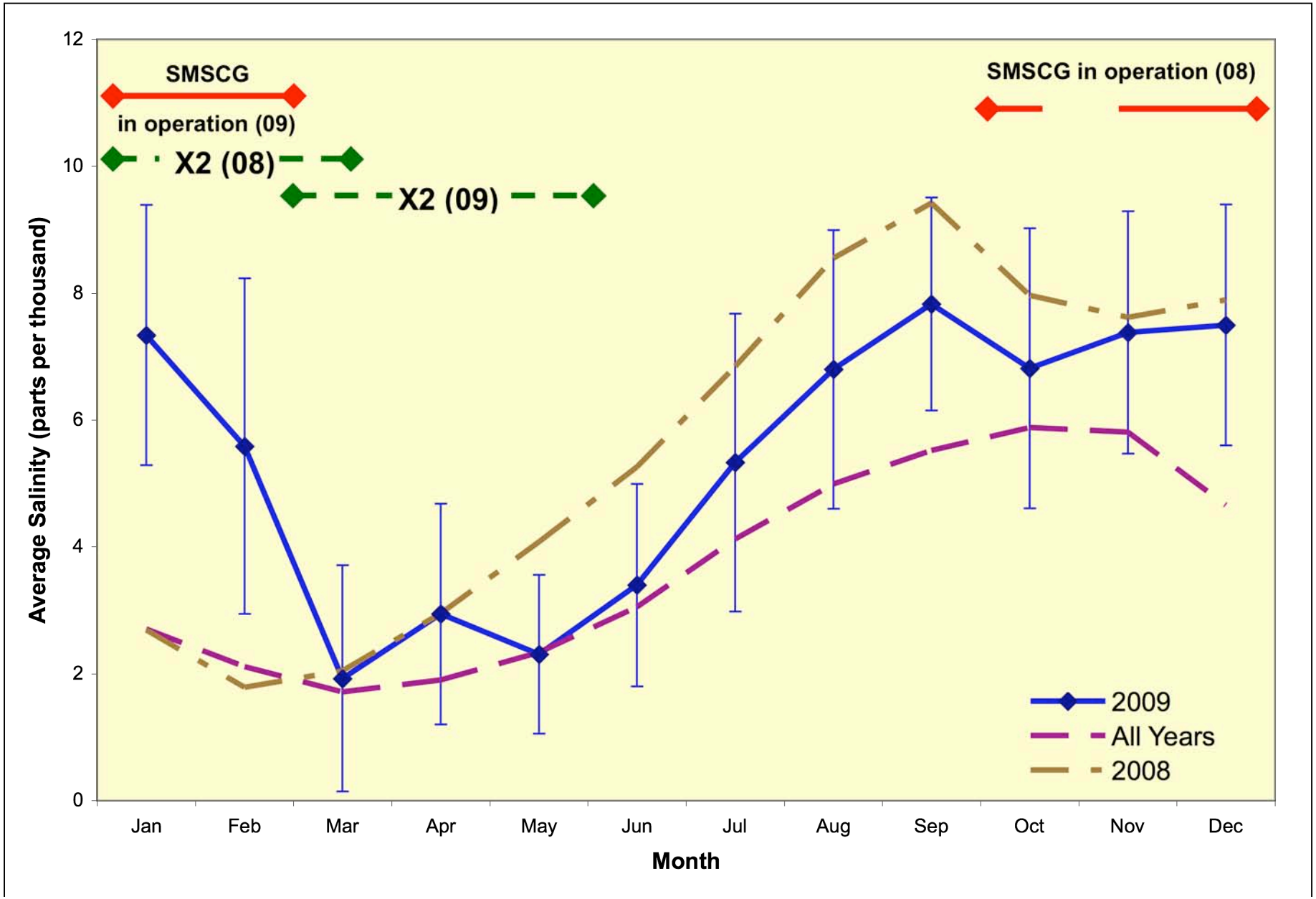


2008 - 2009



2008-2009				
Species	BS % CPUE Change	BS Catch Difference	OT % CPUE Change	OT Catch Difference
common carp	-54%	-15	-26%	-53
Mississippi silverside	2%	+70	-39%	-20
striped bass	**-64%**	**-502**	**235%**	**+1270**
prickly sculpin	141%	+24	36%	+10
shimofuri goby	48%	+81	217%	+132
tule perch	63%	+20	192%	+294
yellowfin goby	**-48%**	**-280**	**99%**	**+40**

2008 and 2009



2008 and 2009: So?

2008

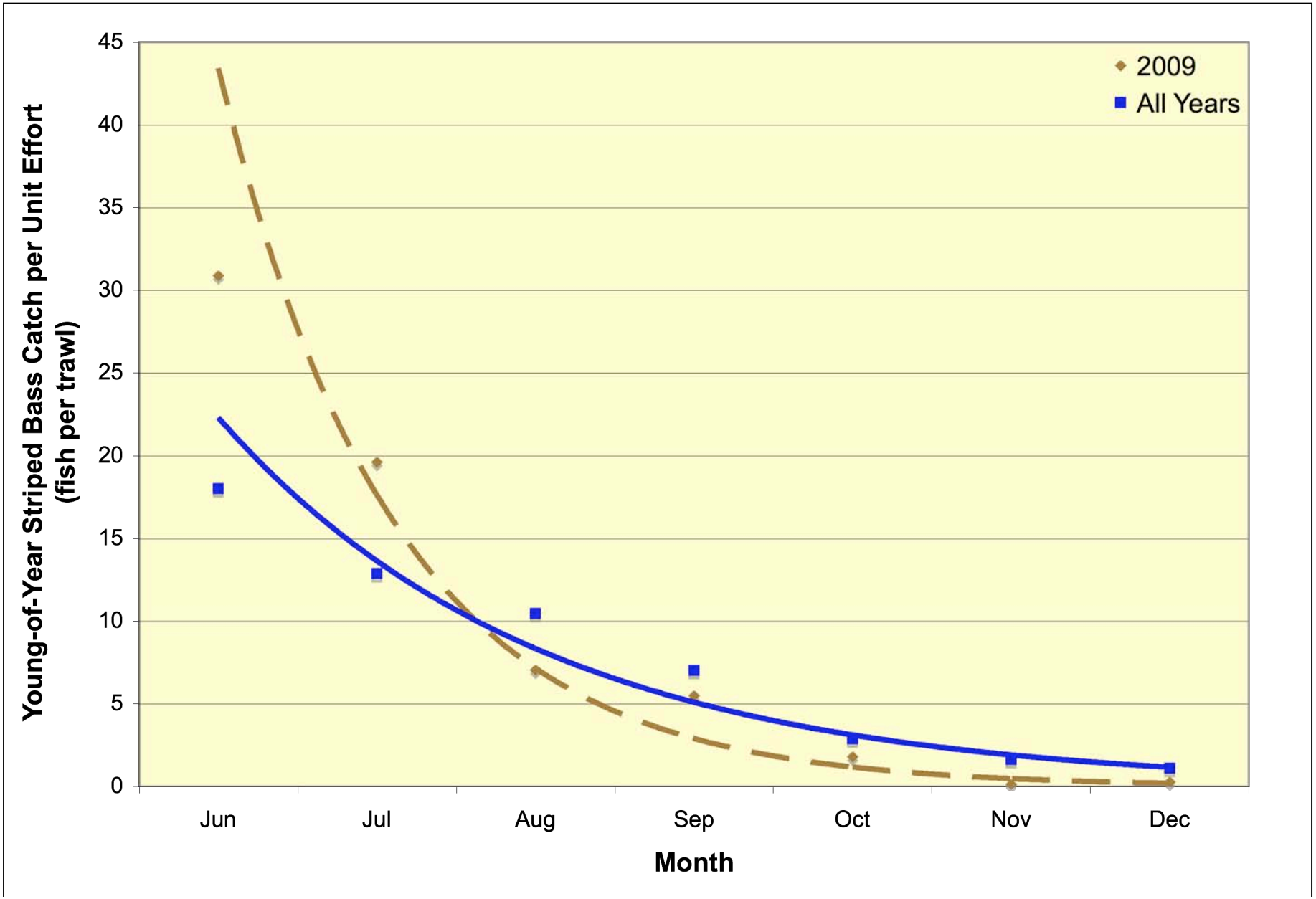
- Higher Delta outflows in winter
- Low recruitment
- Limited pelagic food
- Fish move inshore, fewer invertebrates in open waters

2009

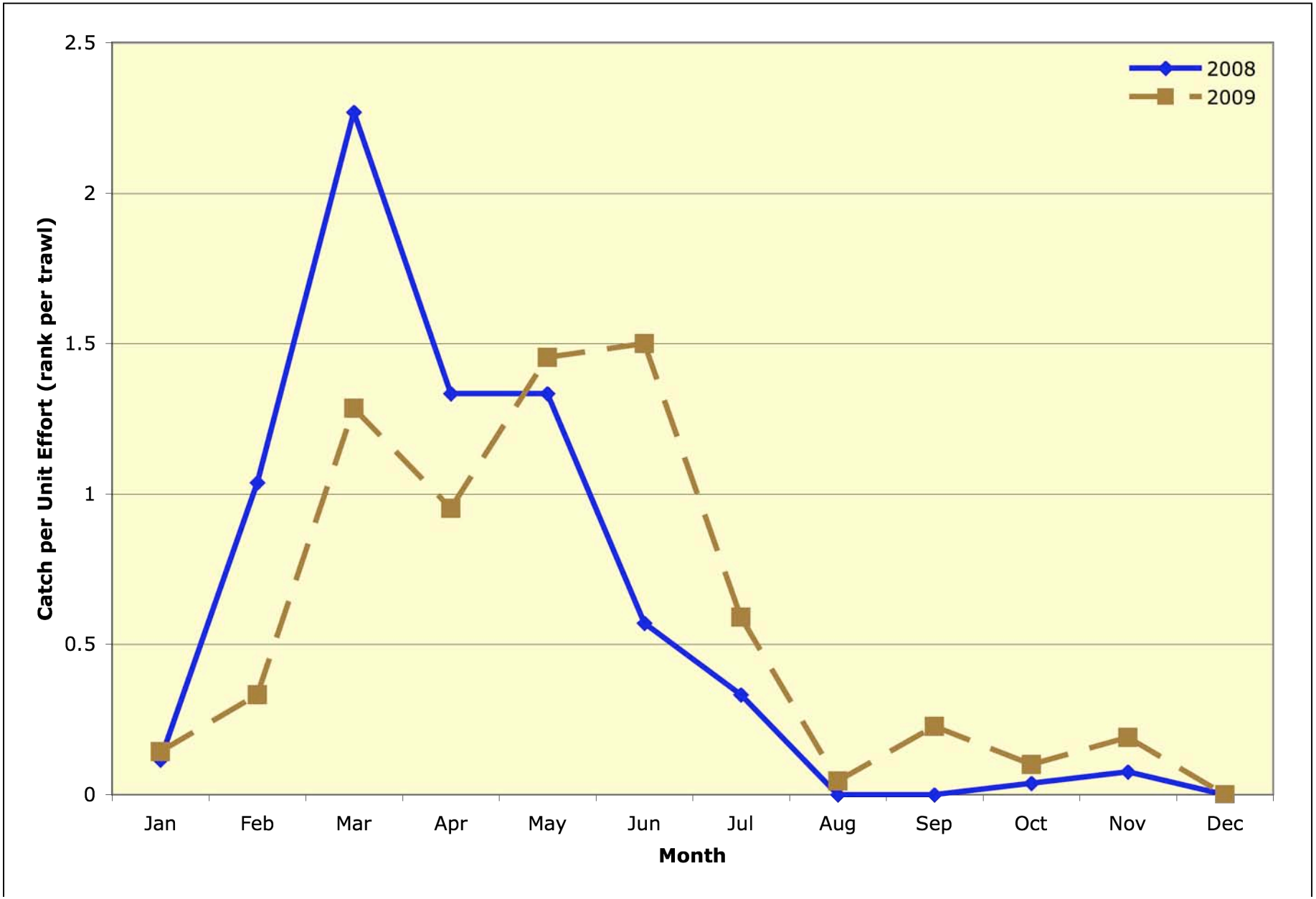
- Higher Delta outflows in spring
- Higher recruitment
- More pelagic food
- More fish and invertebrates in open waters

BUT...

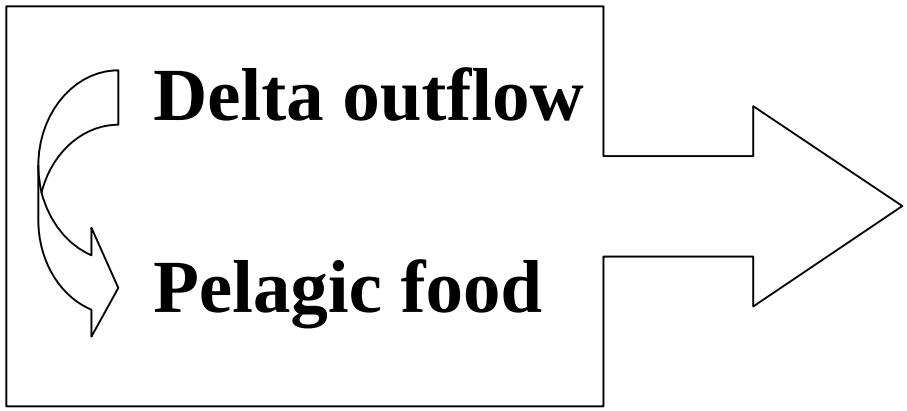
2009 Young-of-Year Stripers



2009 Mysids


2.5
2
1.5
1
0.5
0
Catch per Unit Effort (rank per trawl)
2008
2009
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month

Suisun Marsh Fishes and Invertebrates: Conclusions



Fishes/invertebartes: what, when, how many, and where

...and

Oxygen