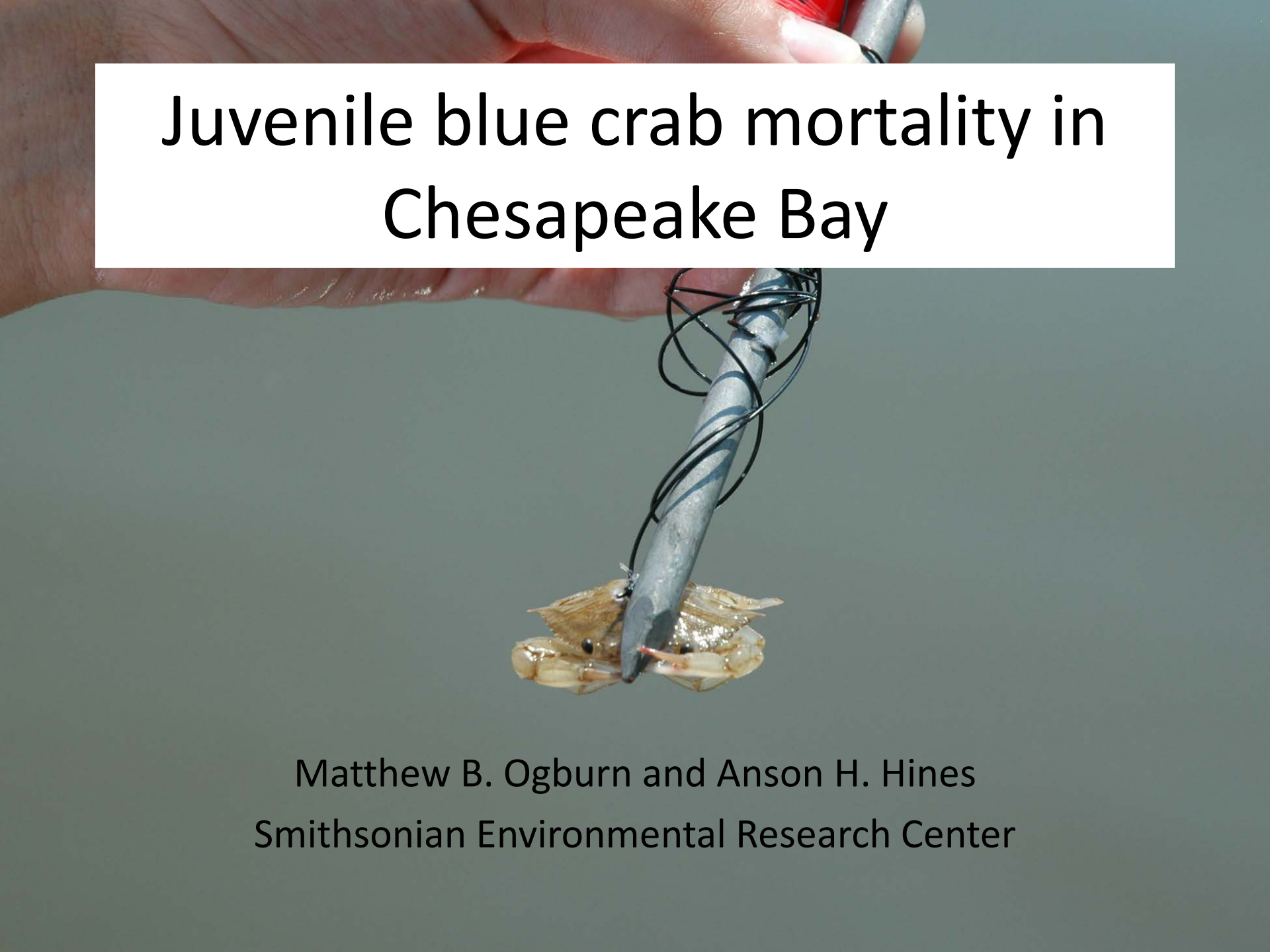
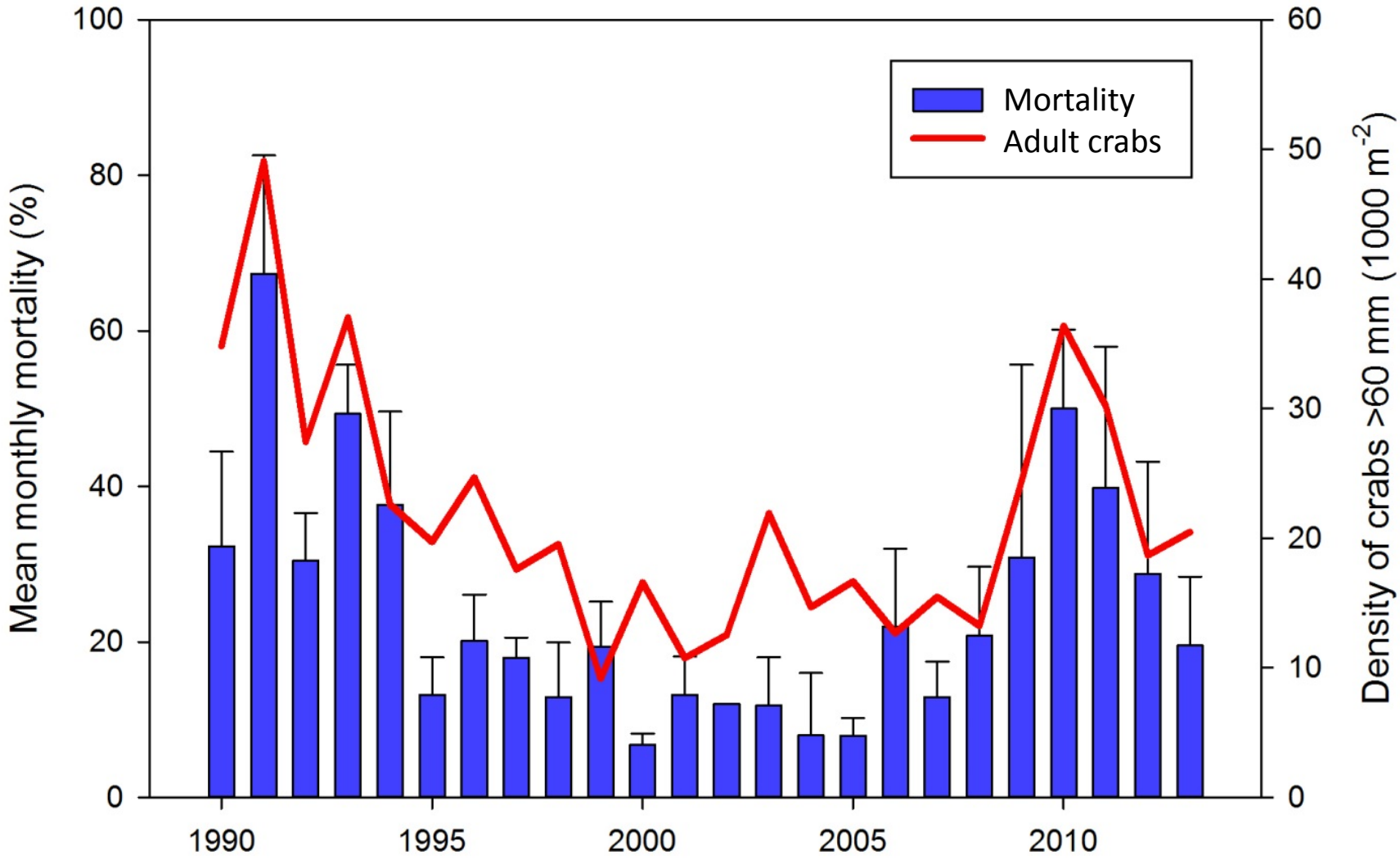
Juvenile blue crab mortality in Chesapeake Bay

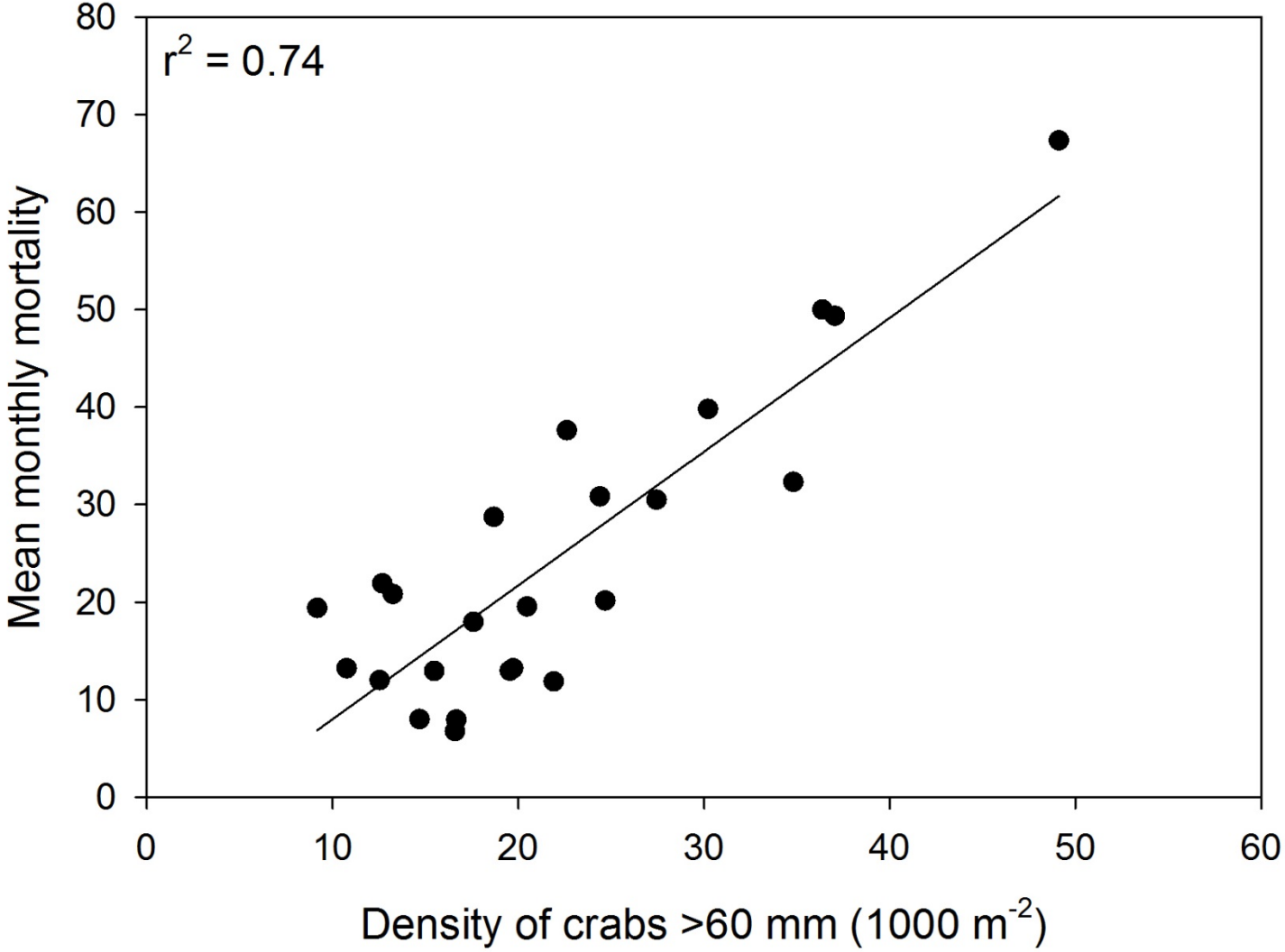


Matthew B. Ogburn and Anson H. Hines
Smithsonian Environmental Research Center

Research questions

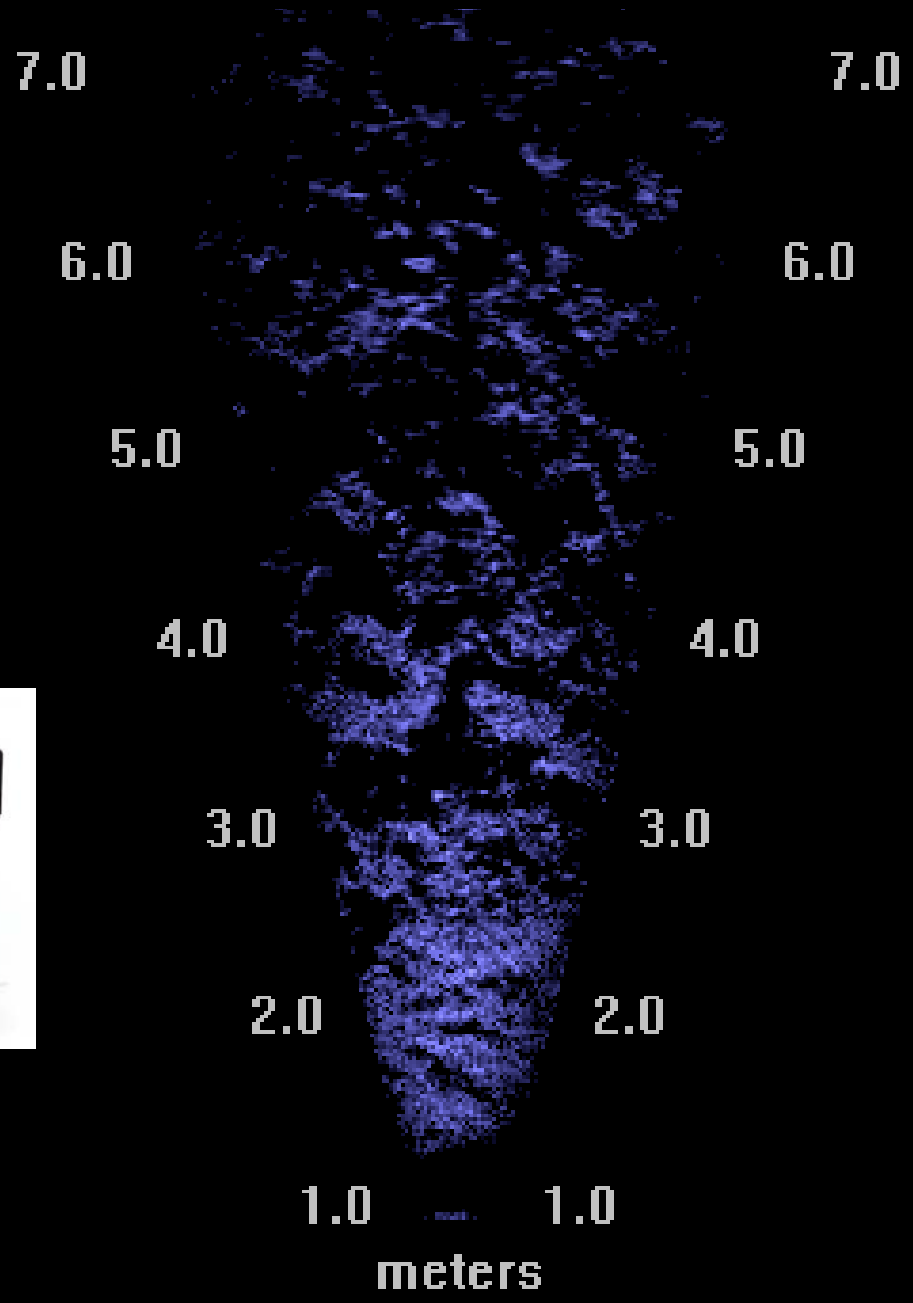
- How does juvenile mortality vary over time?
- What predators are causing mortality?
- Is there spatial variation?
- Is there an interaction between recruitment and mortality?


Mortality
Adult crabs
Mean monthly mortality (%)
Density of crabs >60 mm (1000 m-2)
100
80
60
40
20
0
60
50
40
30
20
10
0
1990
1995
2000
2005
2010

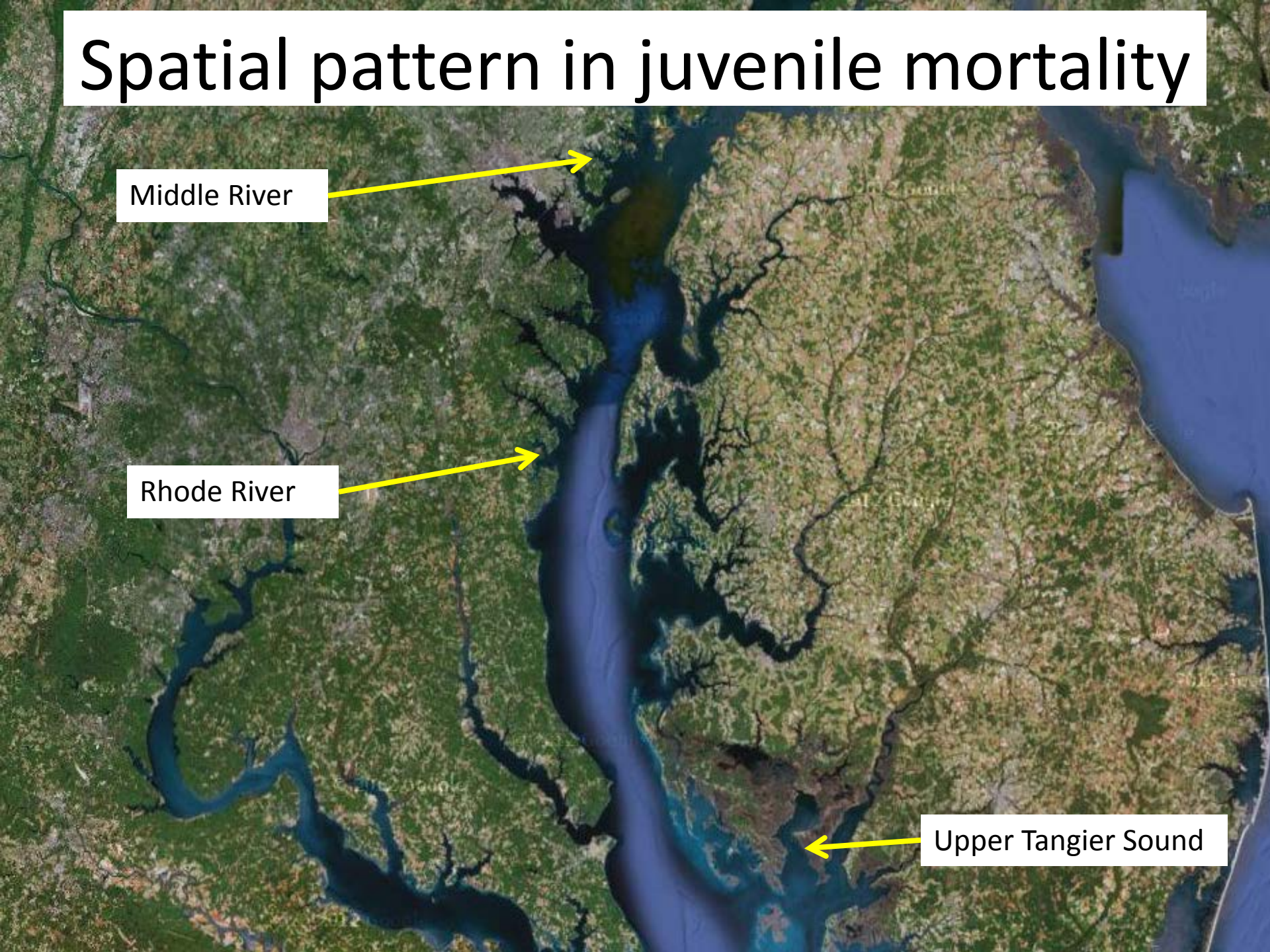


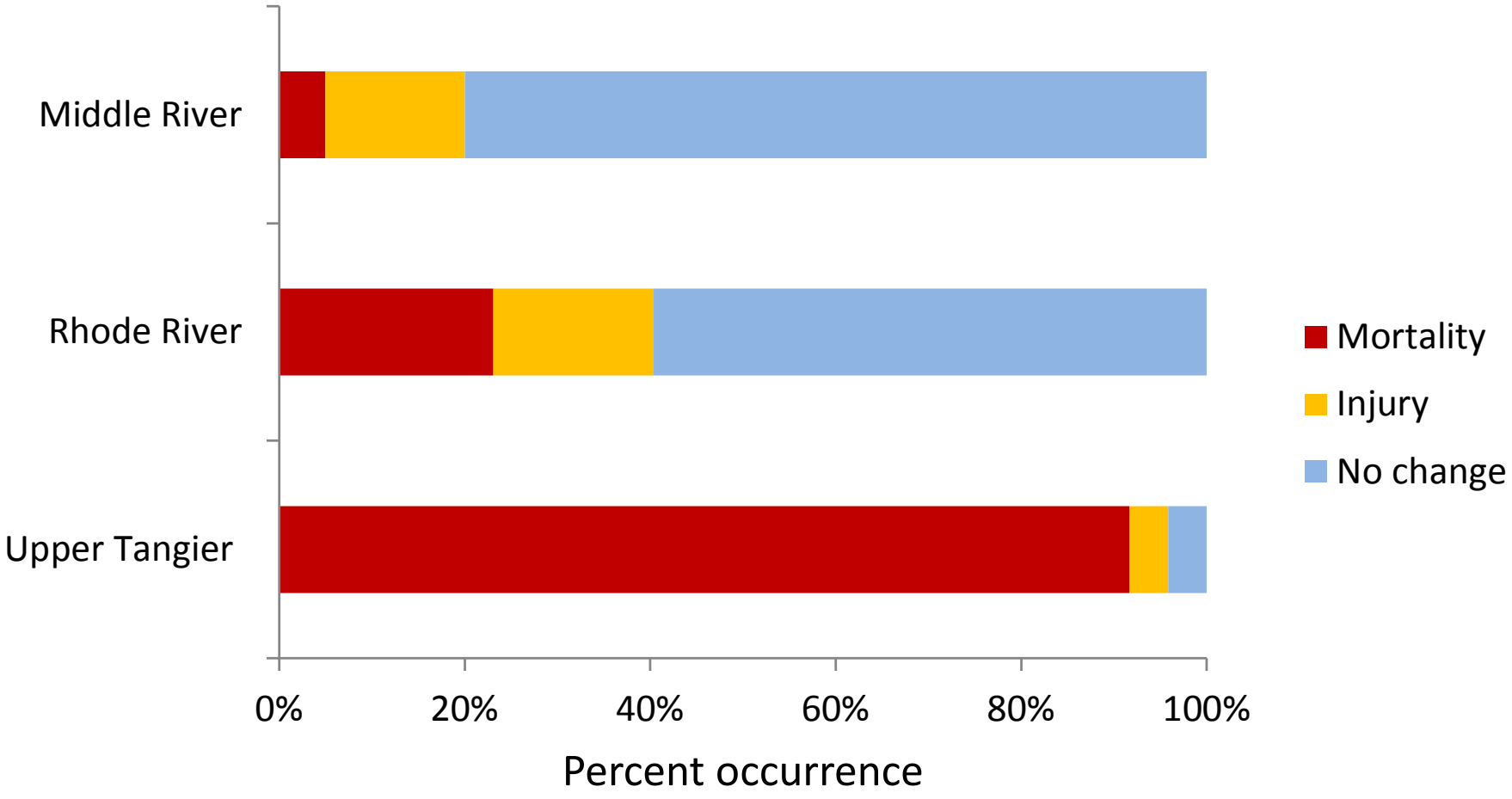
Hines et al. In Prep

Who are the juvenile crab predators in the Rhode River?



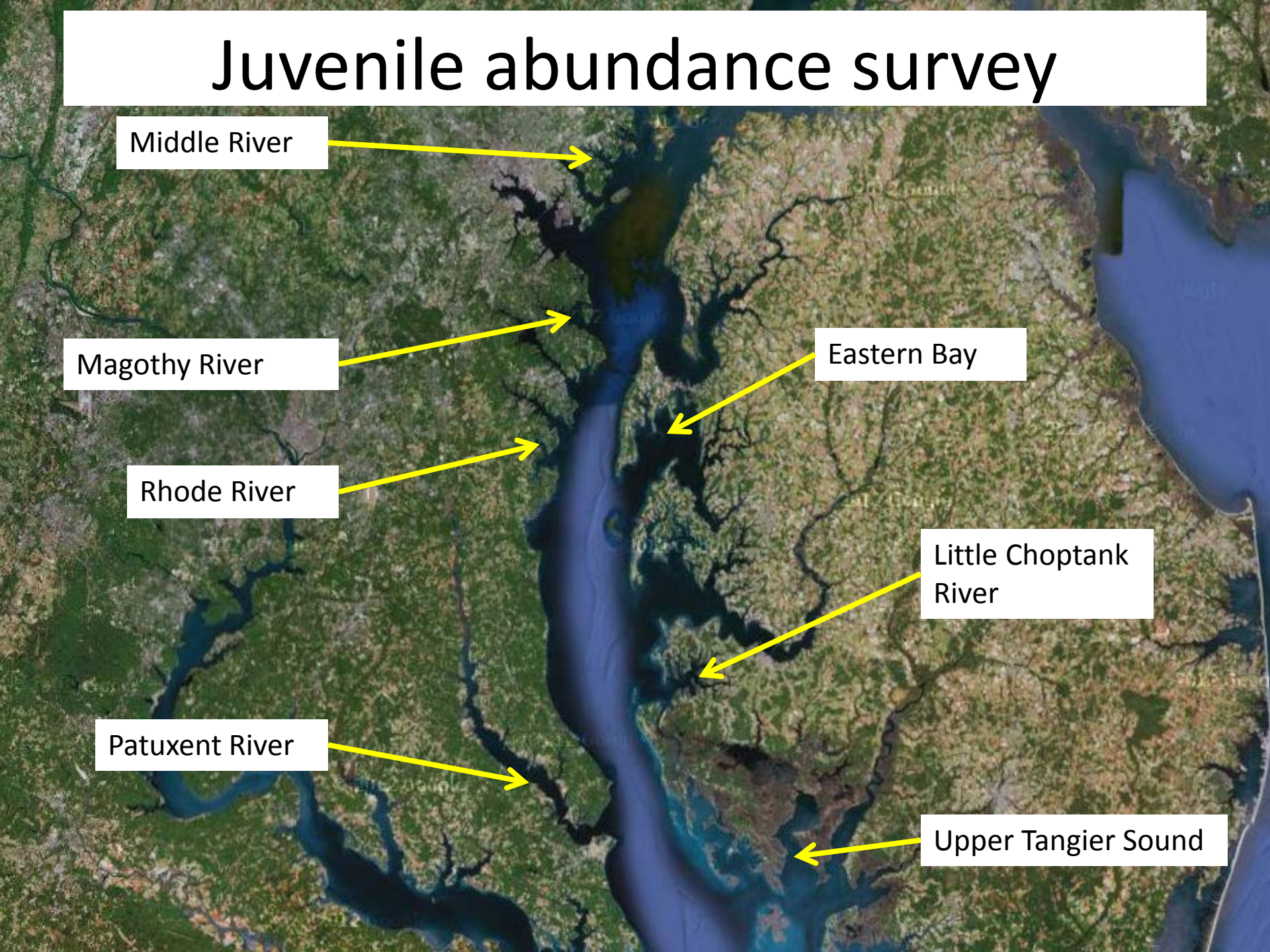
Spatial pattern in juvenile mortality

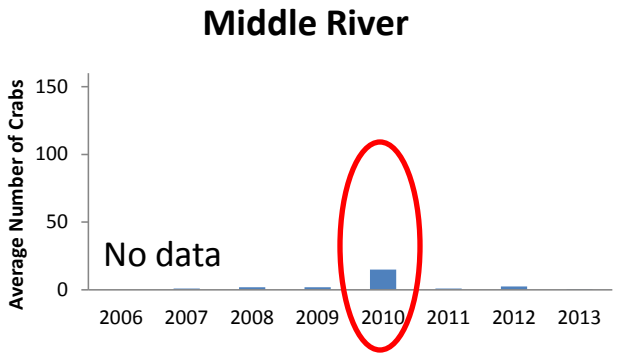


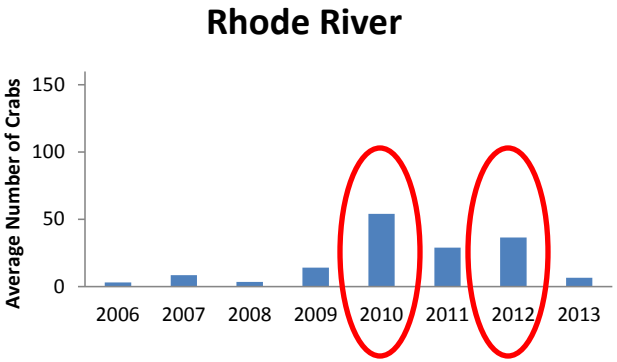

Middle River
Rhode River
Upper Tangier
0%
20%
40%
60%
80%
100%
Percent occurrence
Mortality
Injury
No change

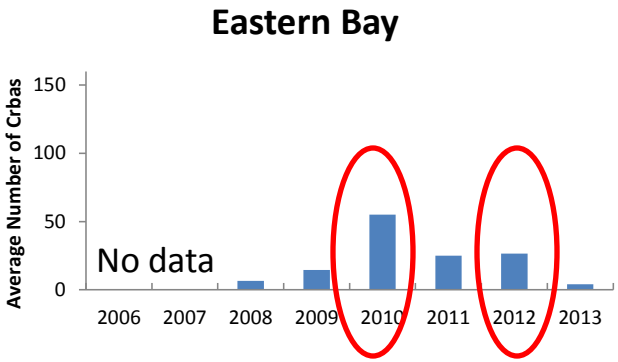
Juvenile recruitment to upper Bay

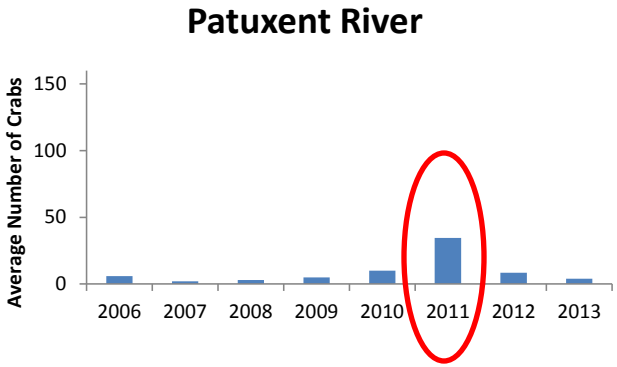
Juvenile abundance survey

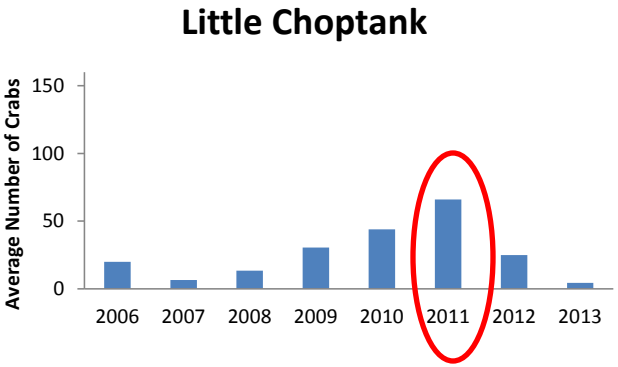


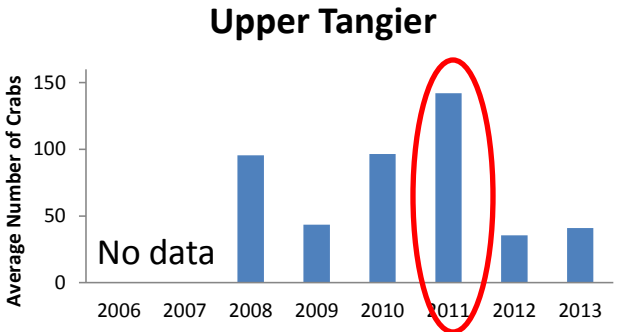

Middle River
Average Number of Crabs
150
100
50
0
No data
2006
2007
2008
2009
2010
2011
2012
2013

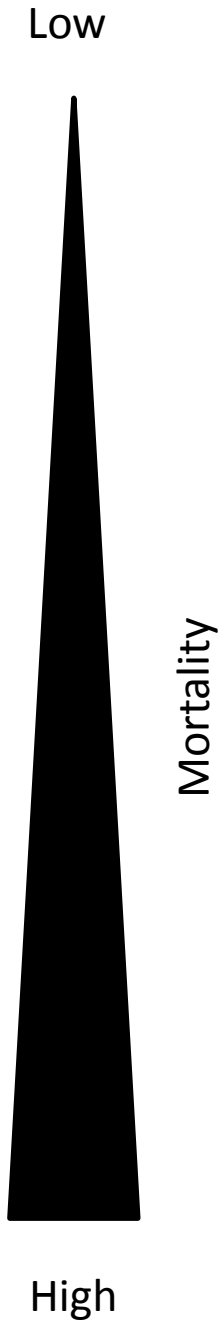

Rhode River
Average Number of Crabs
150
100
50
0
2006
2007
2008
2009
2010
2011
2012
2013


Eastern Bay
Average Number of Crbas
150
100
50
0
No data
2006
2007
2008
2009
2010
2011
2012
2013


Patuxent River
Average Number of Crabs
150
100
50
0
2006
2007
2008
2009
2010
2011
2012
2013


Little Choptank
Average Number of Crabs
150
100
50
0
2006
2007
2008
2009
2010
2011
2012
2013


Upper Tangier
Average Number of Crabs
150
100
50
0
No data
2006
2007
2008
2009
2010
2011
2012
2013


Low
Mortality
High

Summary

- Relative mortality in the Rhode River varies with baywide adult crab abundance.
- Adult blue crabs are the main predators of juveniles in the Rhode River.
- Relative mortality decreases as juveniles move up the Bay.
- The spatial pattern of recruitment likely plays an important role in determining the natural mortality rate.

Two new tagging projects in 2014-2015