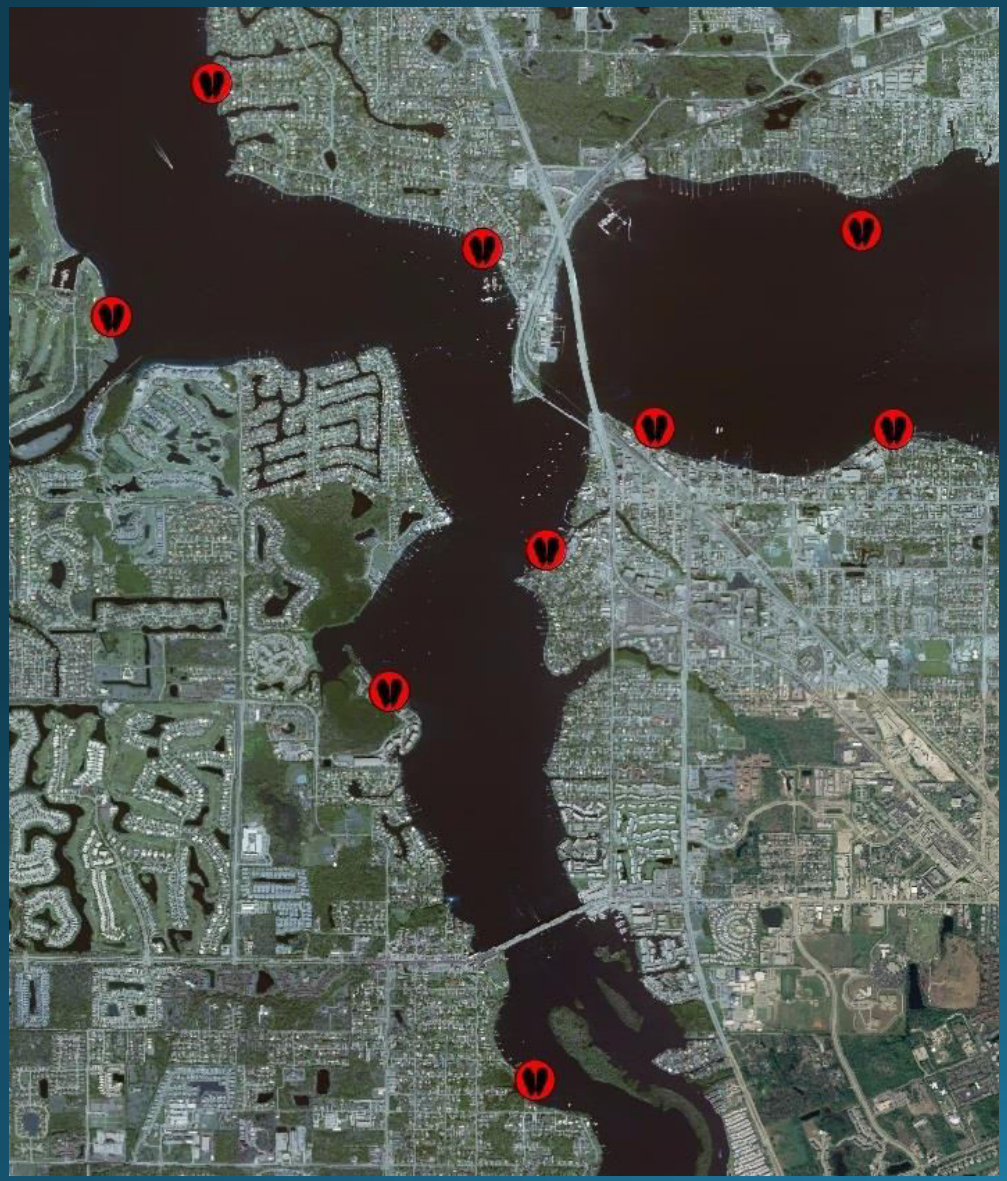
Oyster Monitoring in the St. Lucie Estuary

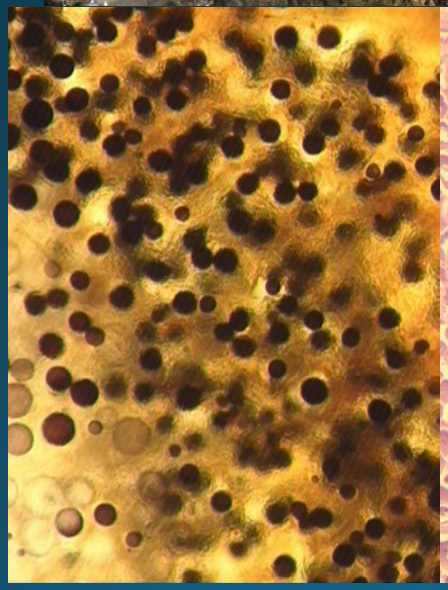
Melanie Parker, Florida Fish & Wildlife Research Institute

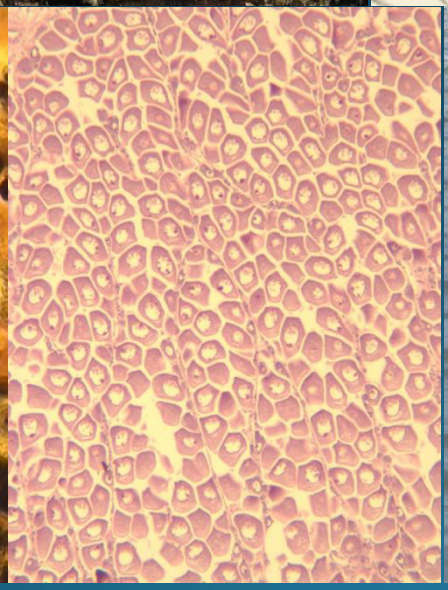
Study Sites

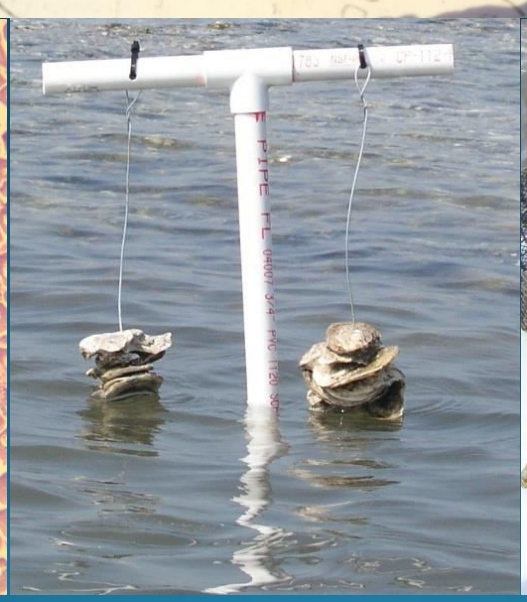


- Started monitoring in 2005, now in our 12th year
- St. Lucie North Fork
- St. Lucie South Fork
- St. Lucie Middle Estuary
- 3 stations in each site

Ecological Parameters







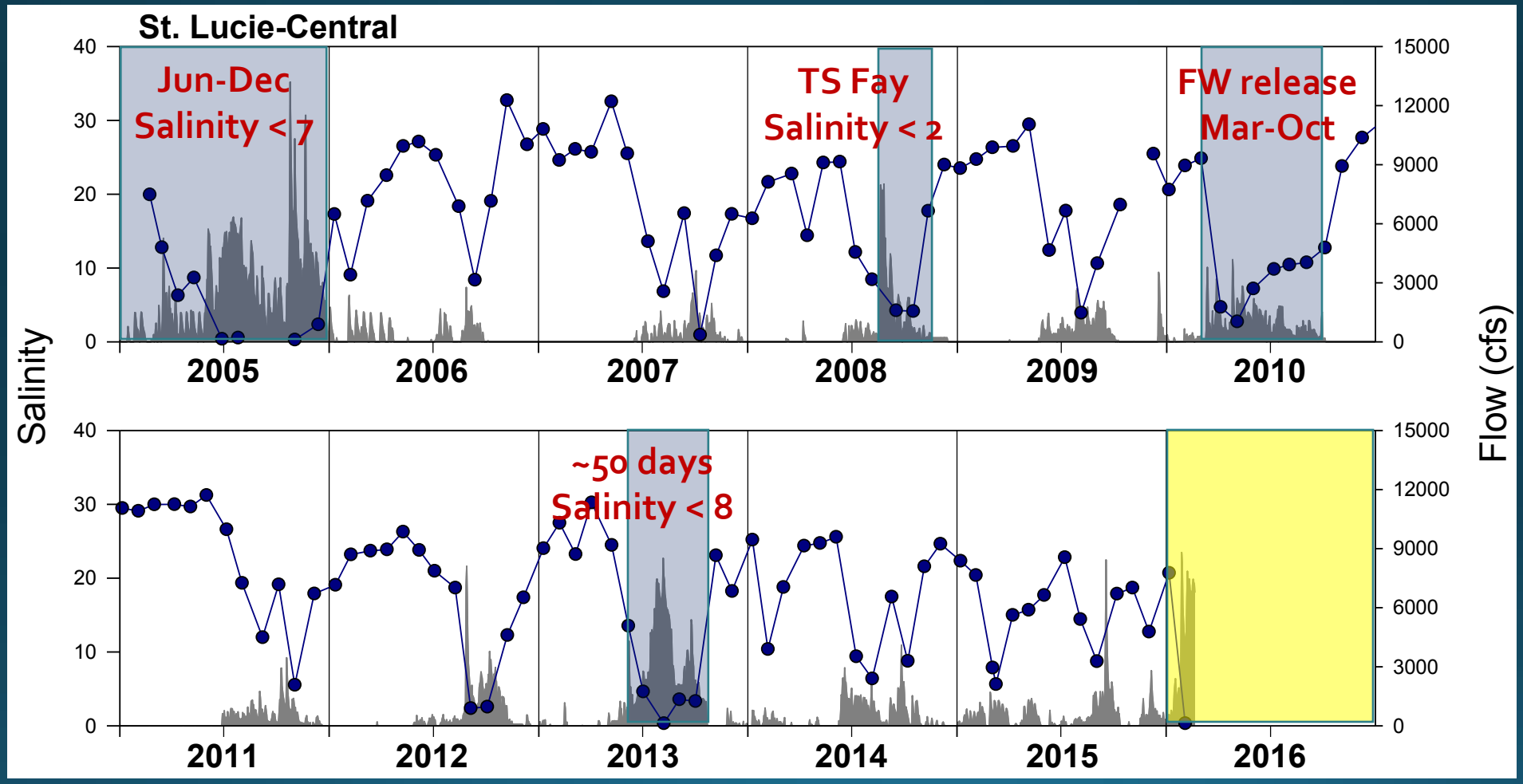
Salinity

Important factor in determining distribution and health of oyster populations

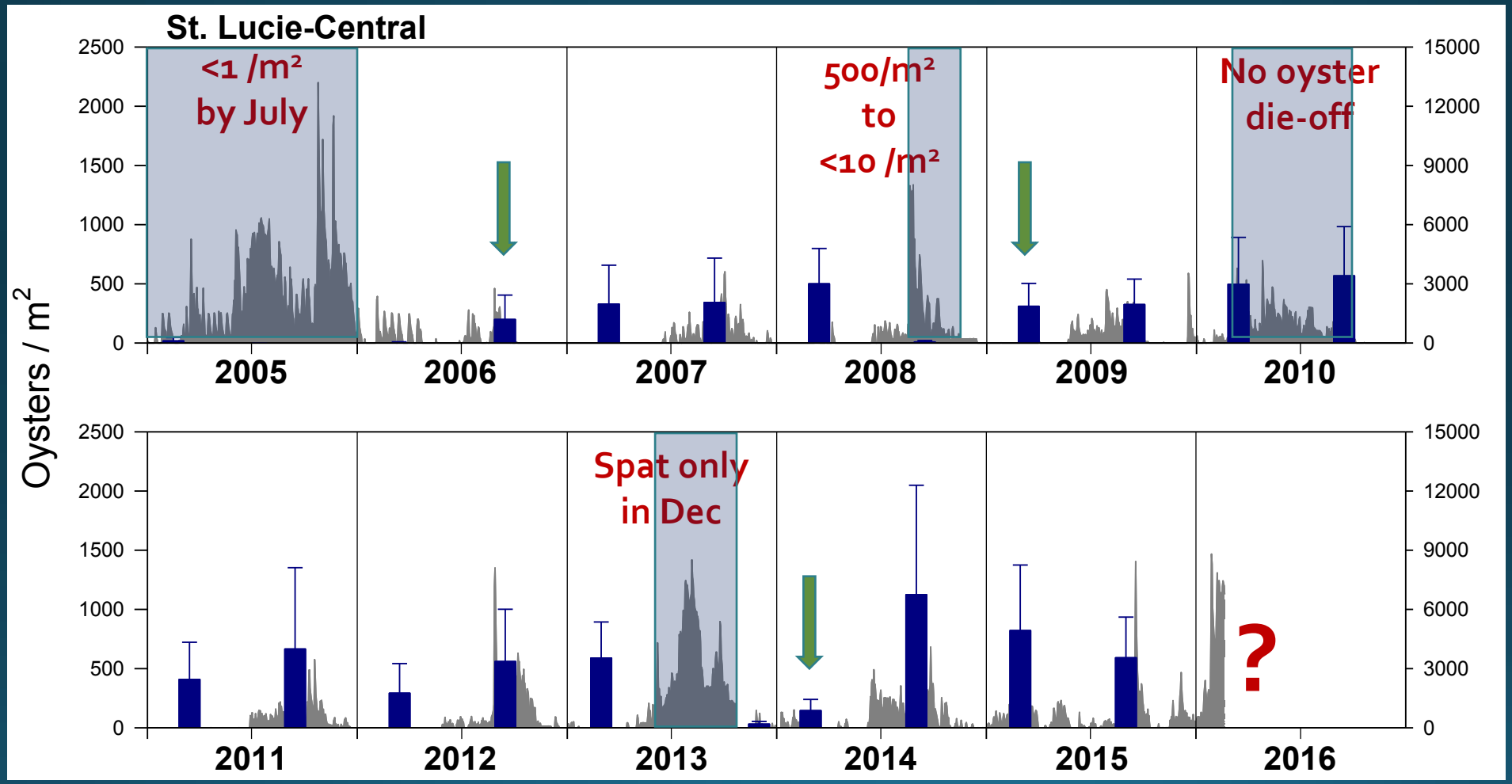
Low salinity → acute stress and death

- Interaction of salinity and temperature also important
  - Florida oysters commonly experience temperatures near upper physiological tolerance limits
  - Energetic capacity to deal with additional stresses may be diminished or lost

Flow and Salinity



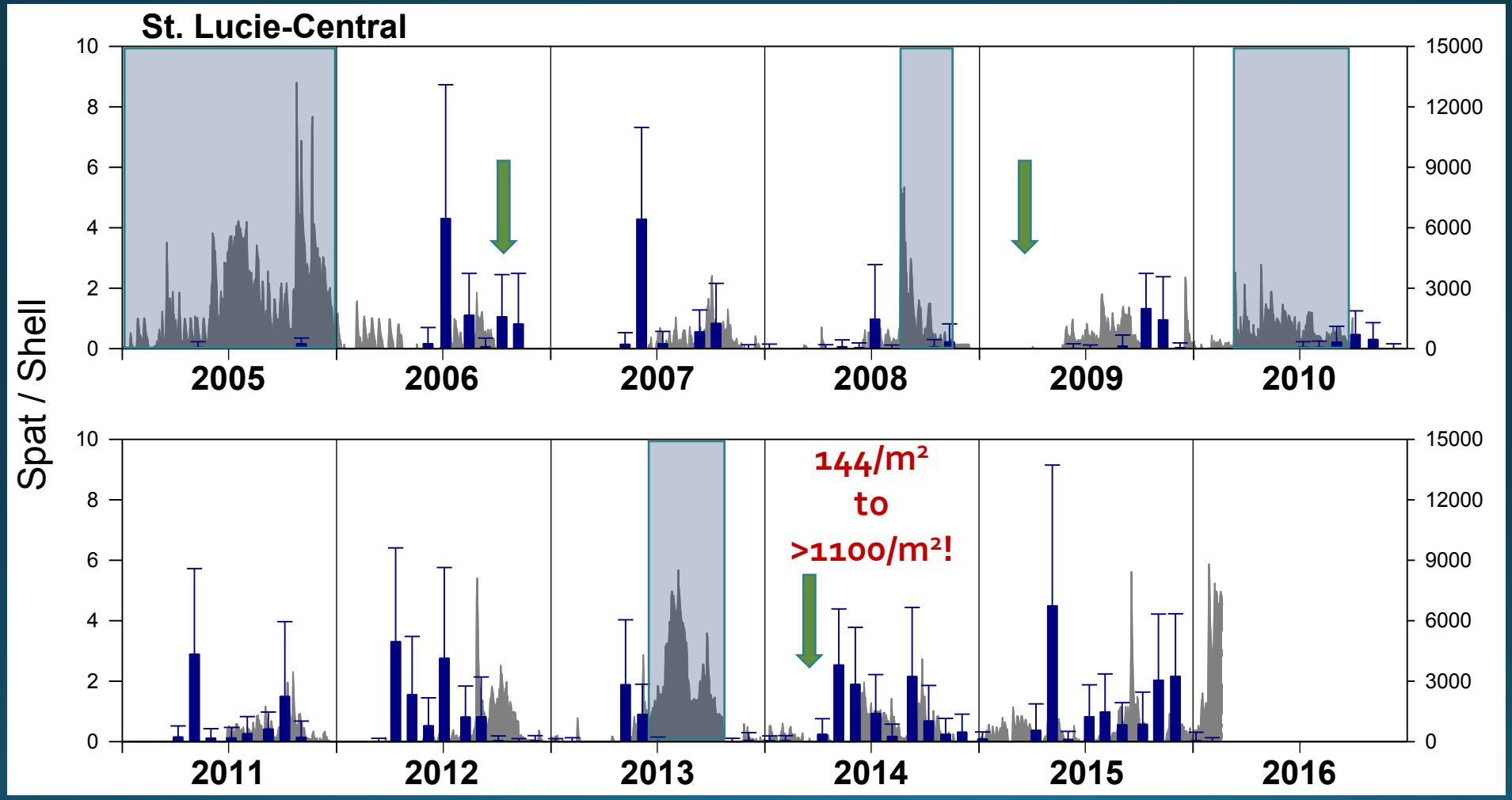
Settled Oyster Density



Larval Recruitment

- Spat typically settling from Mar through Dec
- Bimodal – spring and fall peak
- Spat often detected again shortly after an oyster die-off
  - Small relict populations and/or an exogenous larval source?

Larval Recruitment and Recovery



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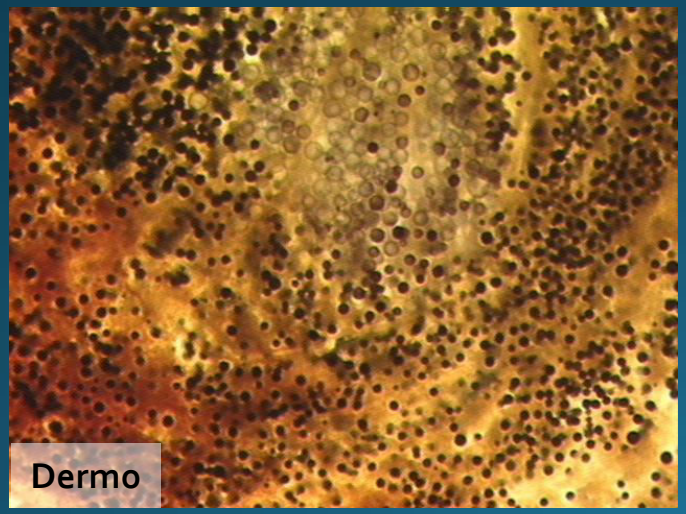
Salinity

High salinity → high disease and predation rates

- Dermo (*Perkinsus marinus*) – protozoan parasite, favors warm, salty waters
- Oyster drills (*Stramonita haemastoma*)
- Stone crabs (*Menippe* spp.)
- Oysters weakened by disease more susceptible to predators

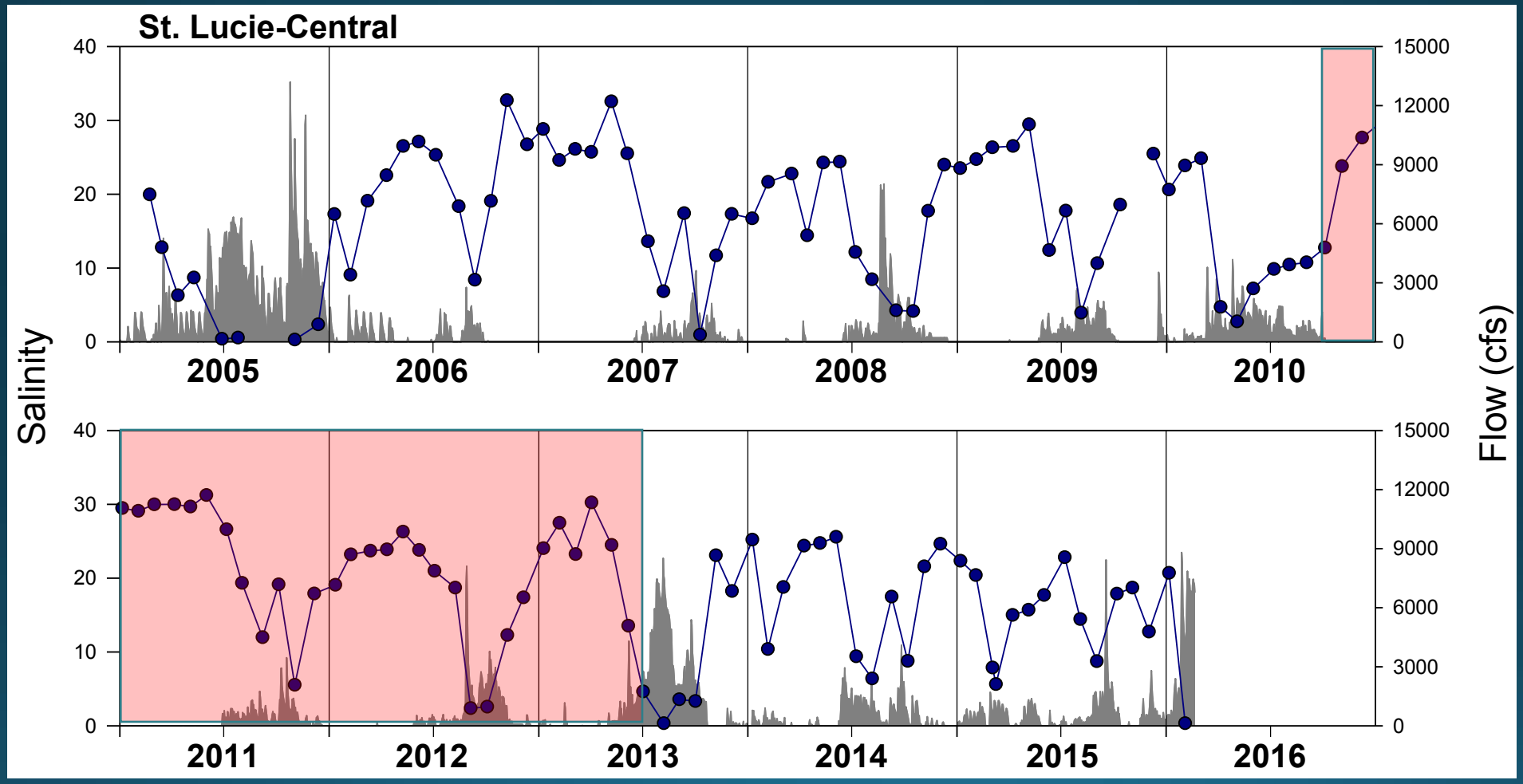
Short-term salinity decreases can benefit oysters by decreasing parasite and predator densities



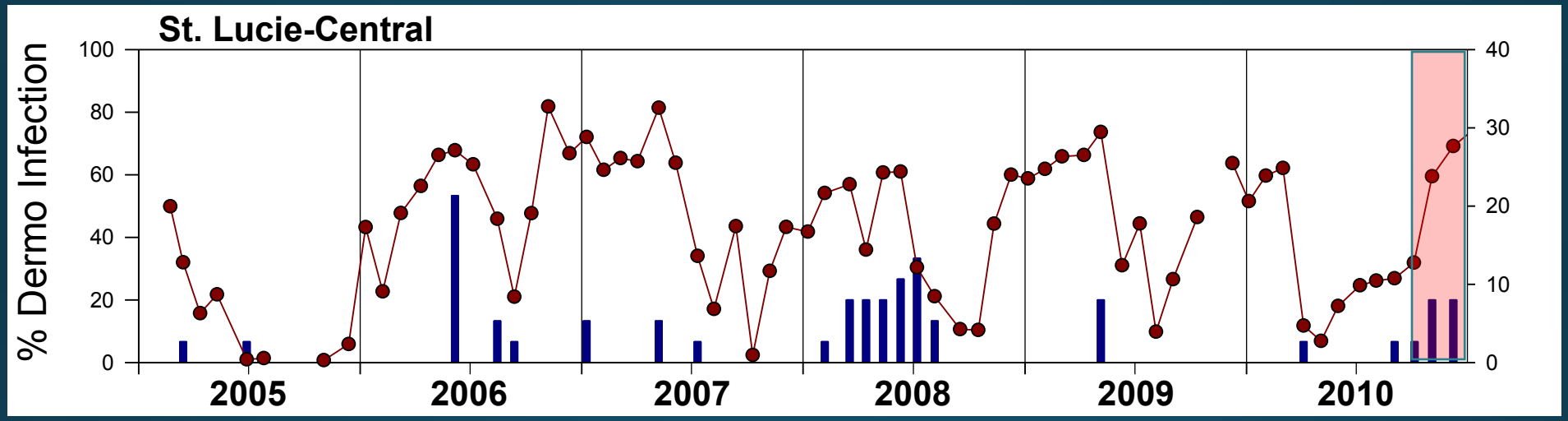
Dermo

Oyster drill laying eggs

SLE Flow and Salinity

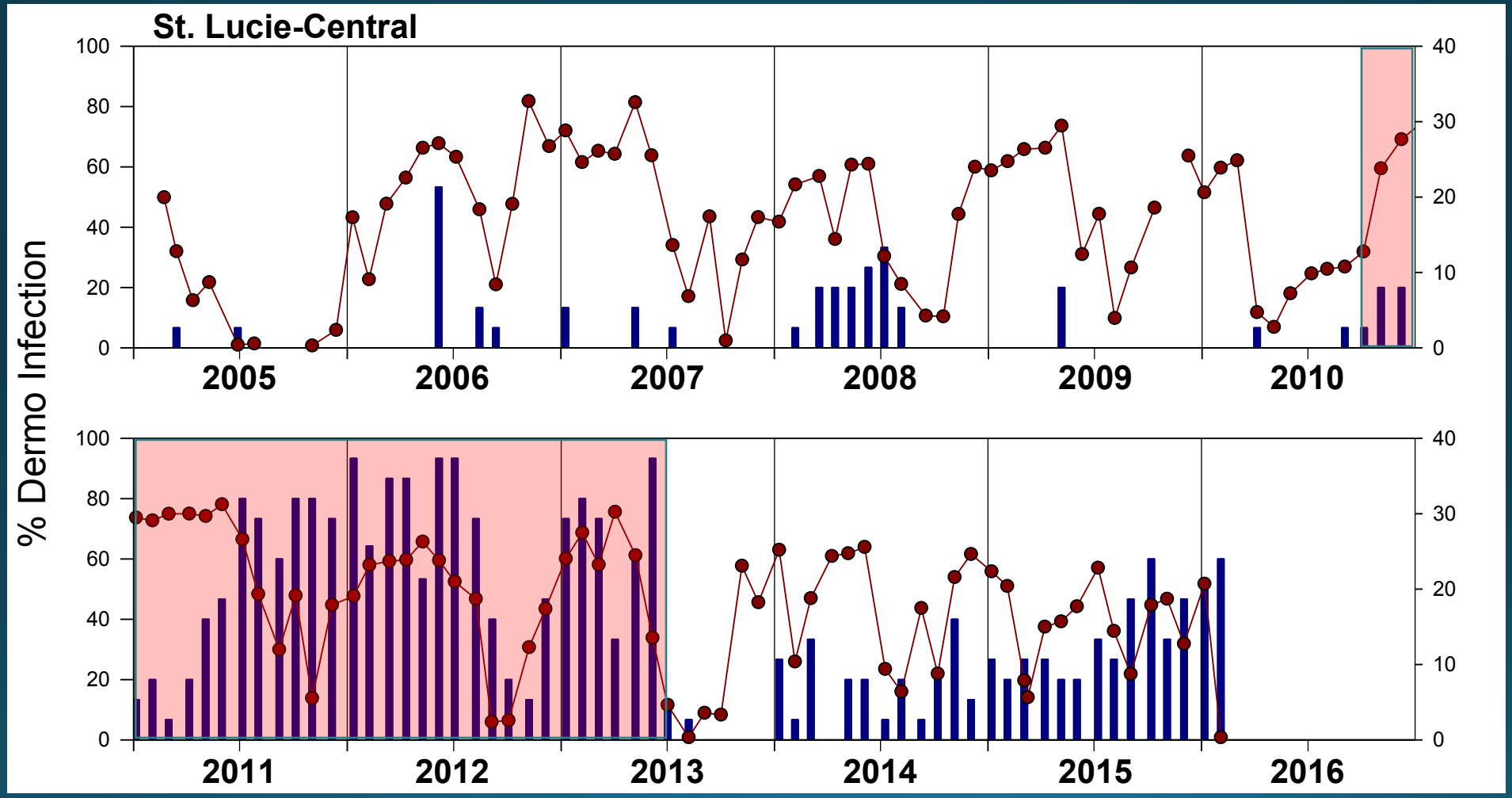


Dermo Infection Prevalence



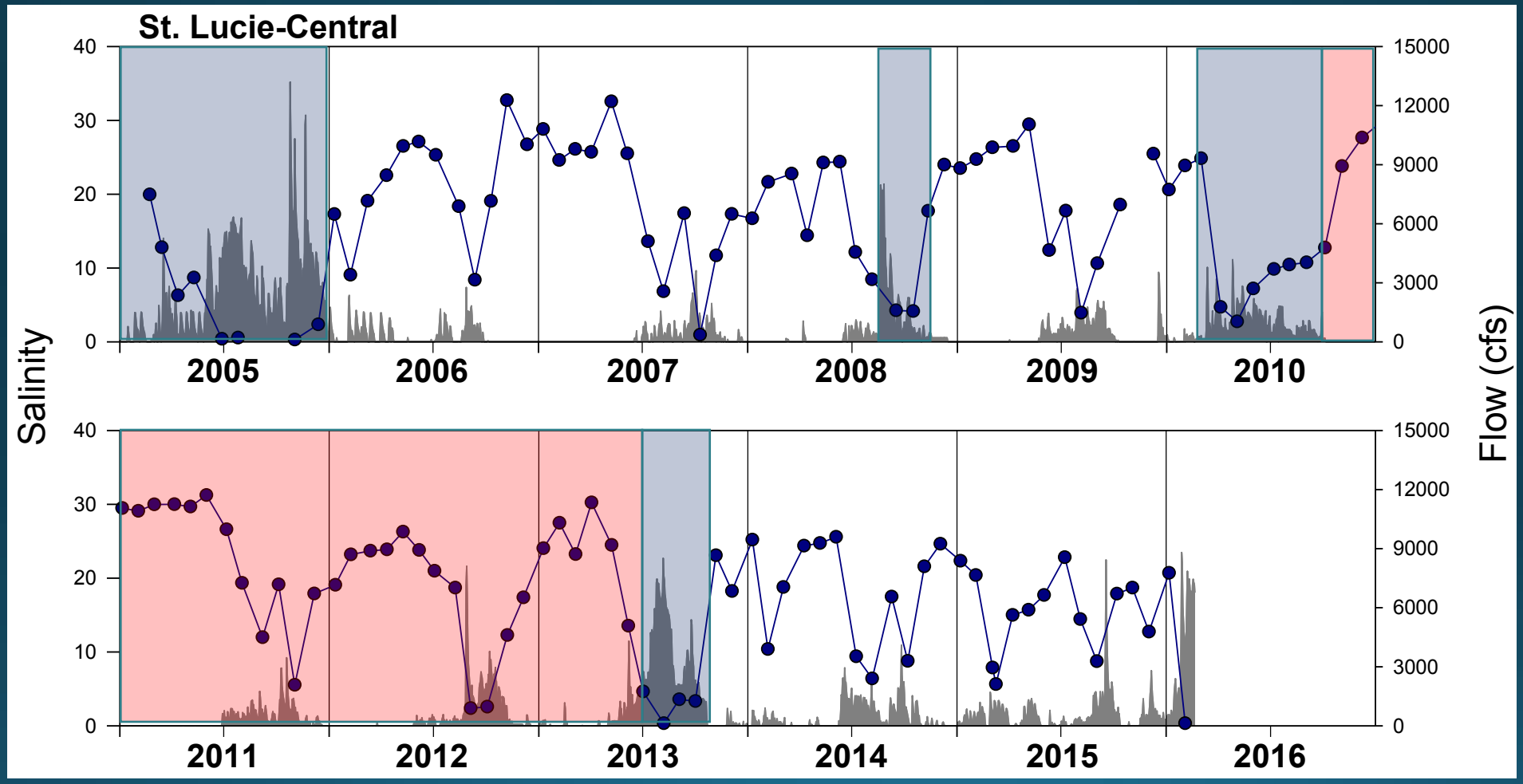
- Dermo prevalence sporadic and intermittent
- Annual means ranged from 1% to 17%

Dermo Infection Prevalence



- Annual means 50% to 64% from 2011 through 2013

What will happen in 2016?



Thank you!