

What oysters can tell us about estuaries

- Oysters are a “keystone” species
- Their health responds to water quality and salinity changes
- Dona and Roberts bays host numerous oyster colonies
- Oysters are long-time residents of the bays

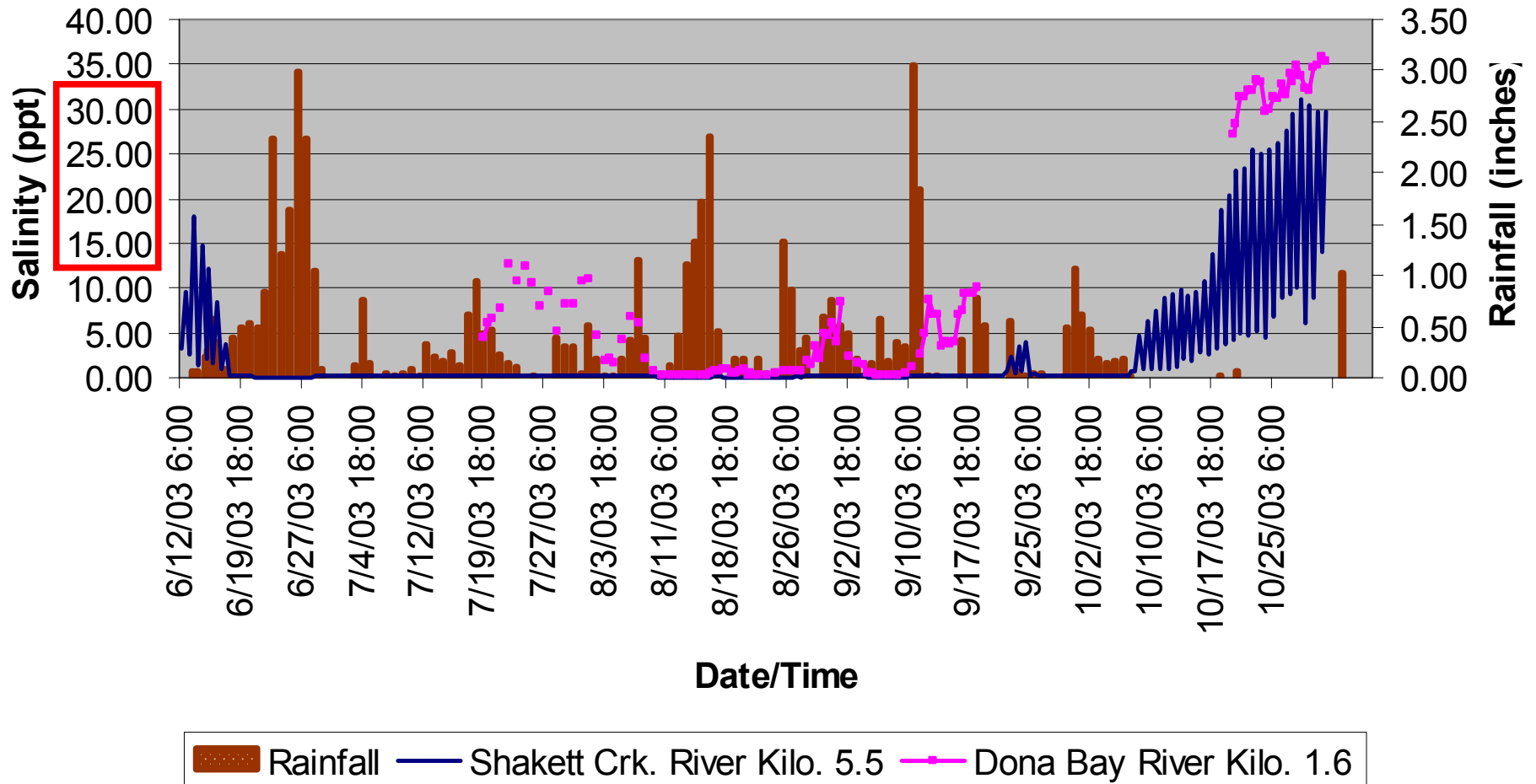


Oyster sampling locations for Dona and Roberts bays



How rainfall and runoff affect oyster habitat

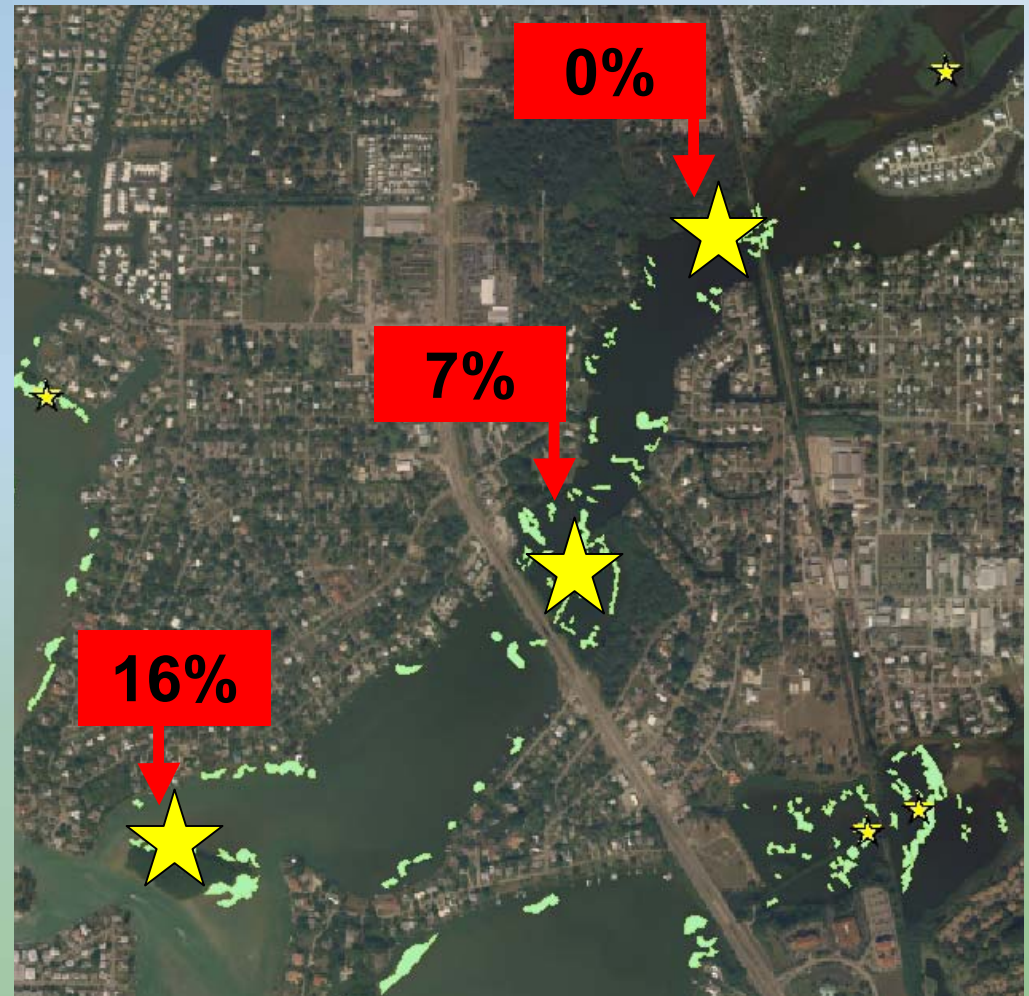
Wet Season 2003 Salinity at Shakett Creek & Dona Bay Compared to Rainfall In the Dona and Roberts Bay Watershed



How rainfall and runoff affect oyster habitat

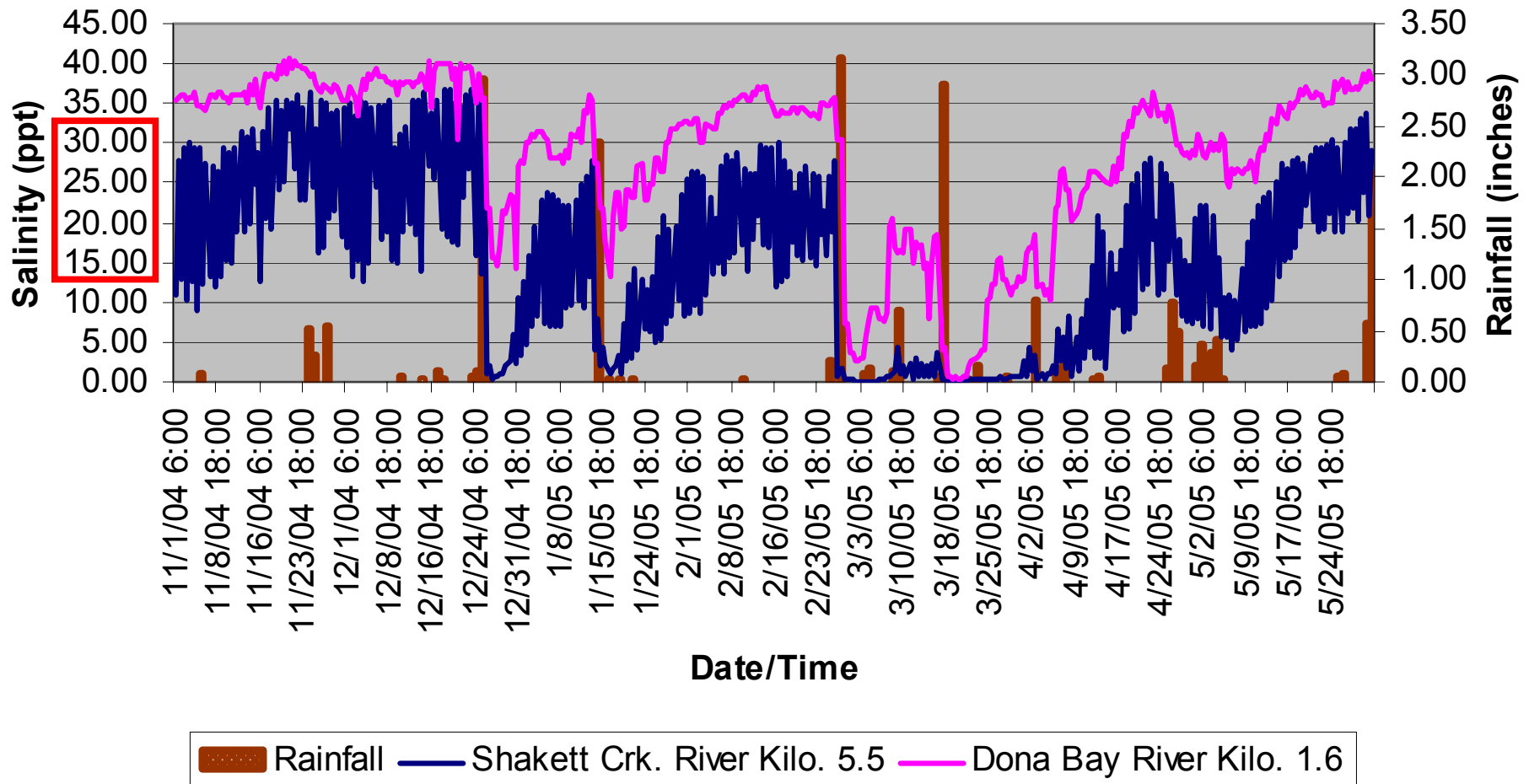
- Summer 2003 – a very wet, wet season
- Lots of rain, lots of runoff
- +/- 21.8 billion gallons of fresh water discharged at the lower Cow Pen Slough canal weir to Dona Bay
- Oysters suffered

% live oysters



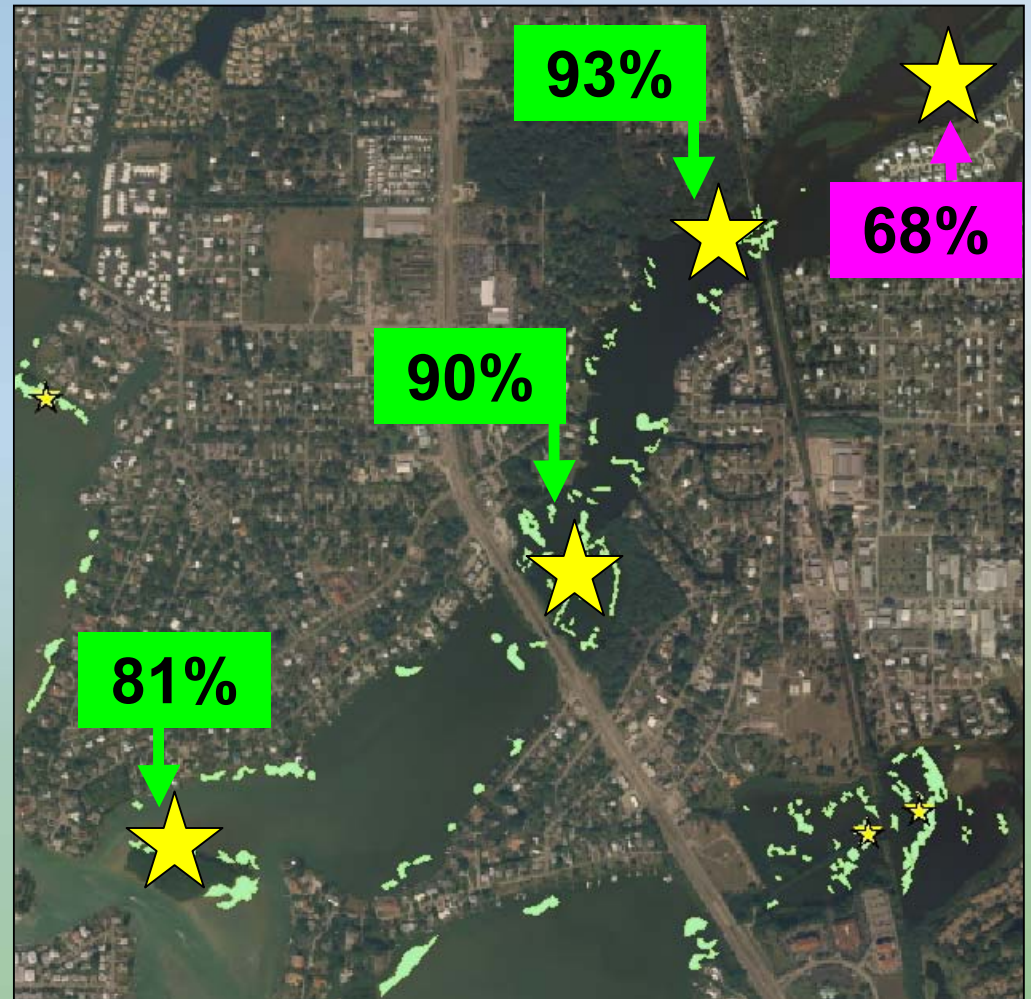
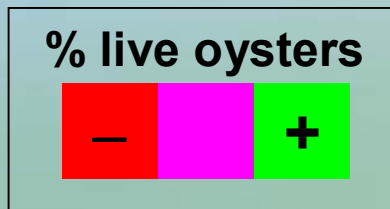
How rainfall and runoff affect oyster habitat

Dry Season 2004-2005 Salinity at Shakett Creek & Dona Bay Compared to Rainfall In the Dona and Roberts Bay Watershed



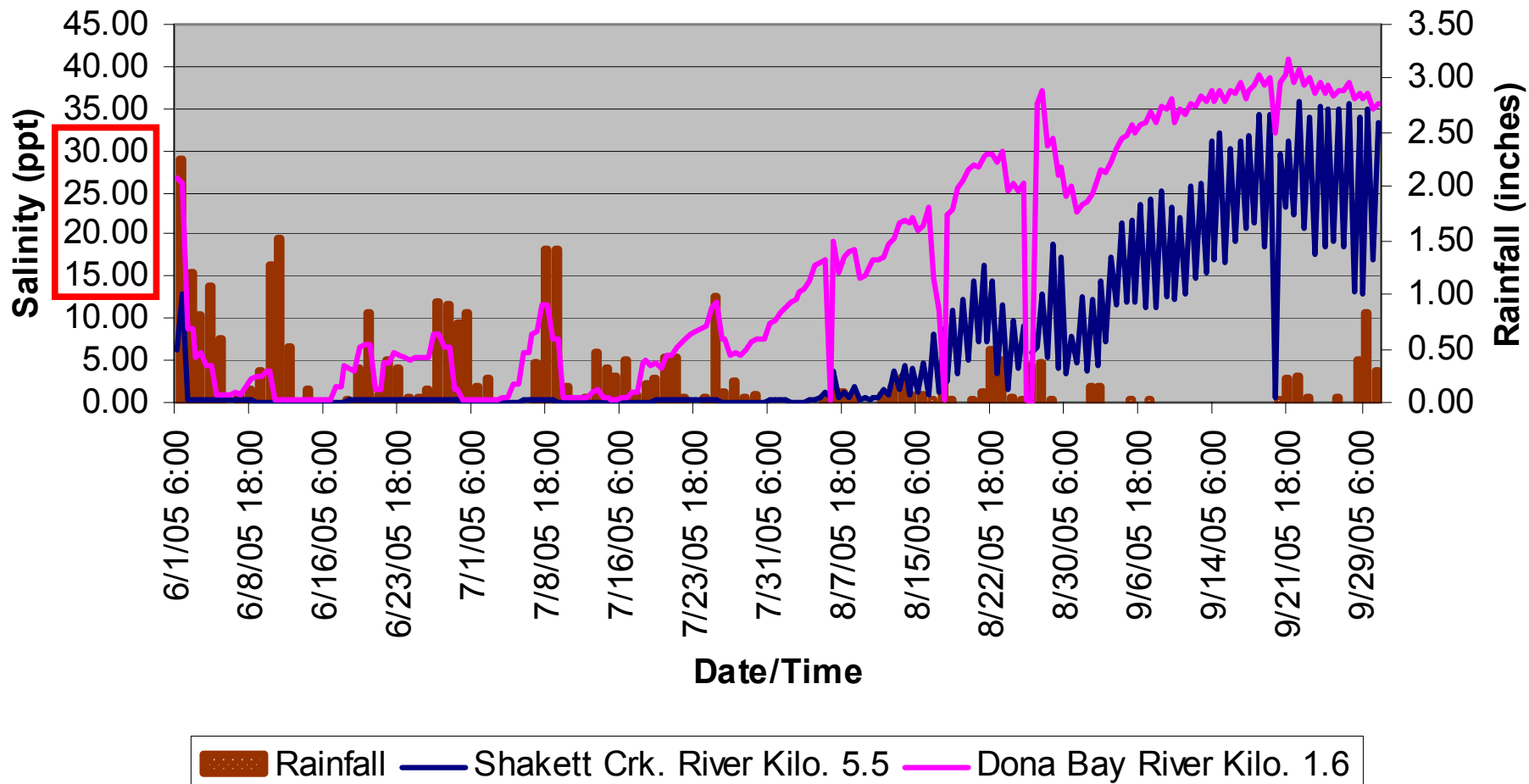
How rainfall and runoff affect oyster habitat

- 2004 – A fairly typical weather year; good for oysters
- Winter 2005 – slightly wetter than our typical dry season
- Habitat hospitable for oysters



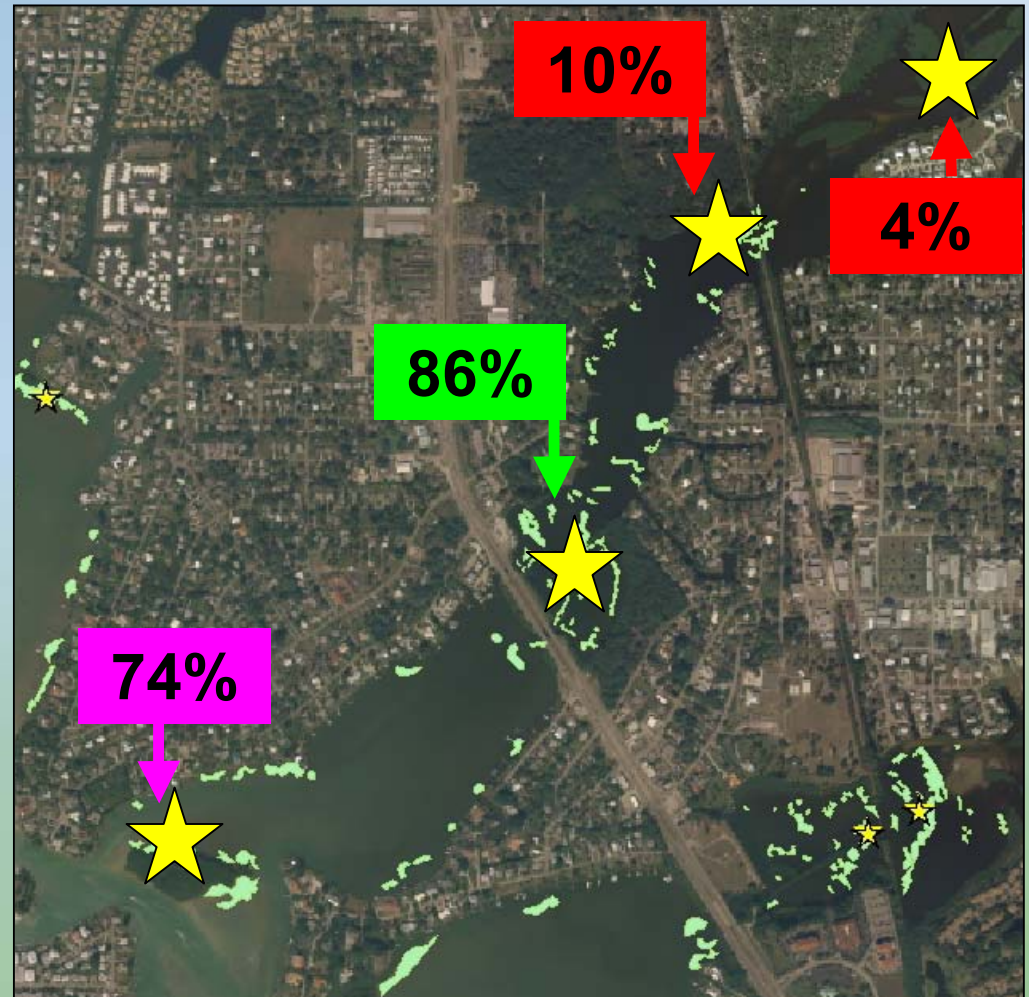
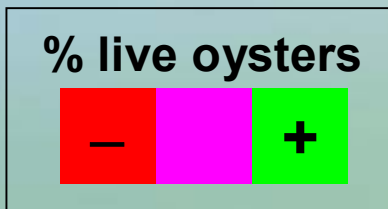
How rainfall and runoff affect oyster habitat

Wet Season 2005 Salinity at Shakett Creek & Dona Bay Compared to Rainfall In the Dona and Roberts Bay Watershed



How rainfall and runoff affect oyster habitat

- Summer 2005 – A fairly typical wet season except for major early-season rainstorm
- Oyster die-off upstream reflected freshwater shock



What oysters can tell us



What we observed

- Wet summer 2003: oyster die-off widespread
- Fairly dry, typical year 2004 through winter 2005: oyster growth
- Major rainstorm June 2005: oyster die-off upstream

What we learned

- Oyster survival is affected by freshwater discharge during periods of high rainfall
- Balancing wet-season freshwater discharge to the estuary may increase overall oyster health and productivity.