Scallop Monitoring Program
Reporting and Assessment of Monitoring Results

Since 2008, Sarasota County has been monitoring the scallop populations of our bays. The Scallop Program is part of a monitoring plan to help measure the effectiveness of the County's Stormwater Management Plan on our watersheds. The bay scallop (*Argopecten irradians)* is an indicator species that is particularly sensitive to freshwater influences and poor water quality. The county scallop monitoring program includes spat collection, adult surveys and survival rates of caged adults. These efforts are in partnership with the Florida Fish and Wildlife Research Institute (FWRI), Mote Marine Laboratory, and Sarasota Bay Watch.

Summary of Monitoring Data from 2016 Reporting Year

A. SPAT MONITORING

Figure 1: Monthly Scallop Spat Landings

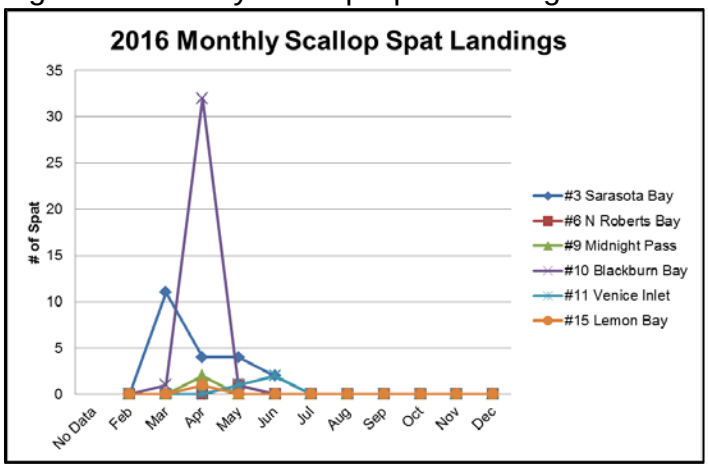
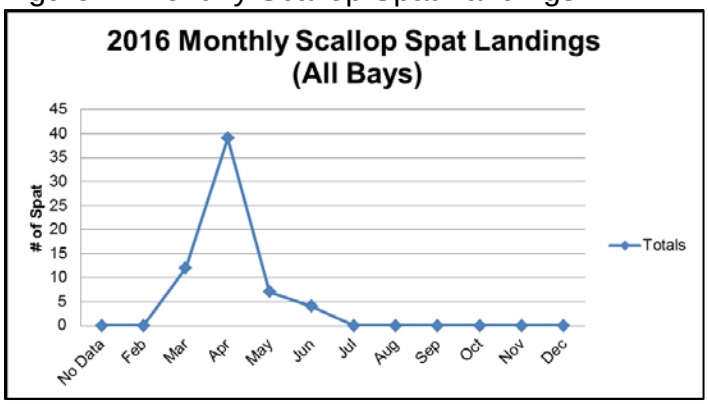
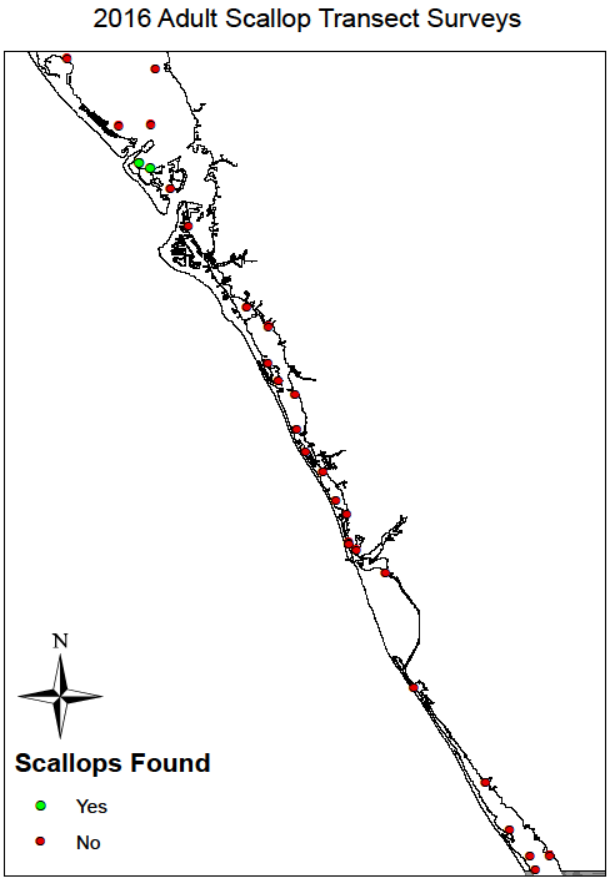


Figure 2: Monthly Scallop Spat Landings



Historical patterns in our spat monitoring program have consistently shown elevated landings from March through May with a peak occurring in April. The 2016 data shows a similar pattern (see figures 1 & 2). Significant countywide rainfall typically starts in June and remains persistent through September. The drop in spat landings follows the increasing rainfall patterns. This increase in fresh water causes decreases in salinity, which can have a negative effect on scallop populations.

B. ADULT SCALLOP TRANSECT SURVEY SITES



During the month of August staff, conducted 26 transect surveys throughout the county's bays searching for scallops. These surveys resulted in four live and eight recently dead scallops. No adult scallops were found during the 2015 survey.

C. CAGE PROGRAM

Figure 3: Caged Scallops Growth Rates

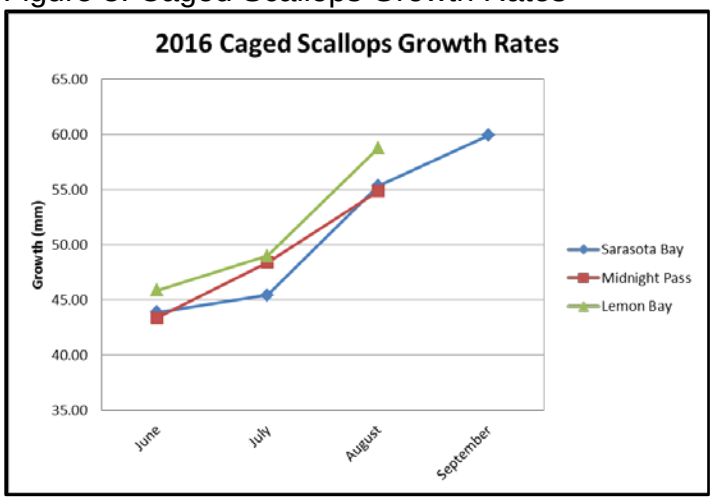
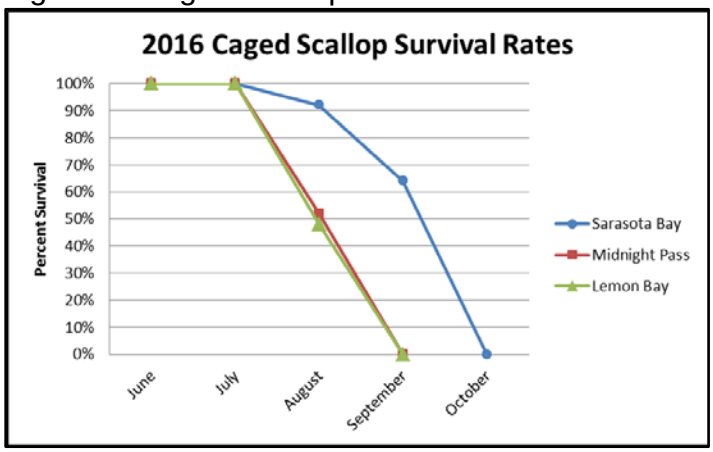


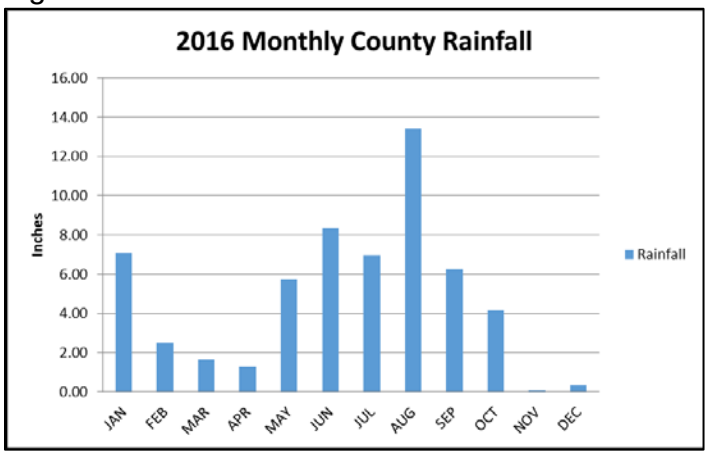
Figure 4: Caged Scallops Survival Rates



The county cage program relies on adult hatchery scallops provided by our partner organizations Mote Marine Laboratory & Sarasota Bay Watch. Scallops provided by our partners were placed at in cages three sites in county bays. The caged scallops experienced a normal growth rates June through August (See figure 3). A spike in redtide blooms during August resulted in significant mortality throughout the three cages (See figure 6). The bulk of the caged scallops did not survive through September.

D. RAINFALL

Figure 5: Rainfall Data

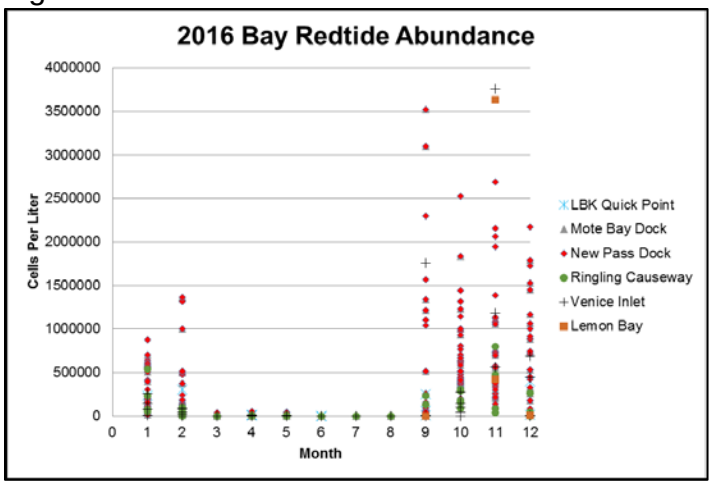


Data provided by the Southwest Florida Water Management District

The graph shows correlation between the typical peak of spat landings (see figure 2) and the decrease of rainfall leading into April (see figure 5). A similar correlation appears between the lack of adult scallops found during transect surveys and an increase in rainfall leading into a significant spike during the month of August.

E. REDTIDE

Figure 6: Redtide Abundance

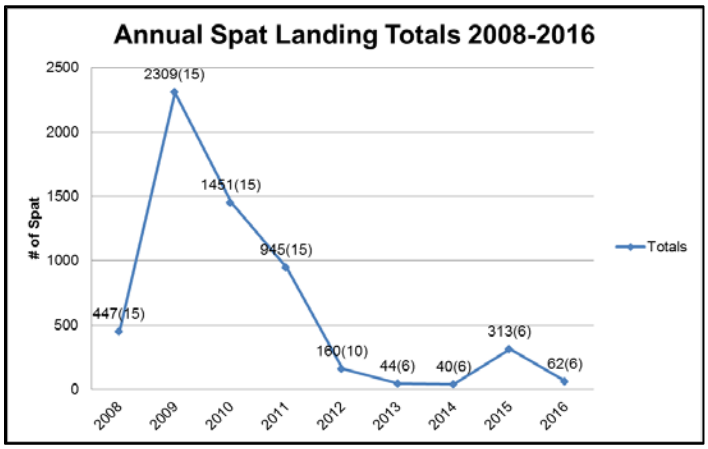


Data provided by FWRI

Redtide was present throughout most of the county's bays during nine months of the year. Red tide cell counts in excess of 1 million cells per liter are in the high range according the FWRI concentration scale. Samples showed medium to high cell counts in six of the nine months in which redtide blooms were present (See figure 6).

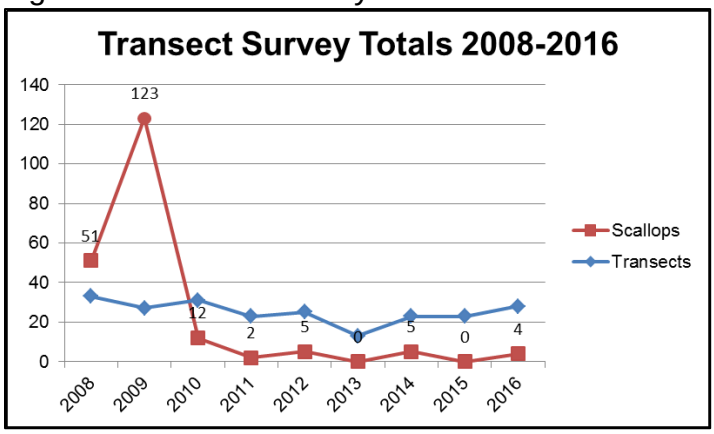
Long Term Assessment

Figure 7: Annual Scallop Spat Landings



The spat monitoring program started with (15) monitoring sites throughout the county bays. In 2012, Mote Marine Laboratory collaborated with county and the monitoring sites were reduced to (10) then further reduced to (6) in 2013. Figure 7 shows a decrease in 2016 spat landings of 19.8% from the 2015 data. However, this is roughly 30% above spat landing totals in 2013 and 2014.

Figure 8: Transect Survey Totals



After 2009, few adult scallops were found during the annual transect surveys. This trend in number of scallops found has continued from 2010 through 2016. This may indicate that a limited number of scallops remain in our natural background populations (see figure 8). Support for this conclusion is show by relatively low spat landings on our collectors during the same years (see figure 7). It is important to note that environmental factors such as visibility, number of locations surveyed and diver experience can have a significant influence the survey results.

Relationship of Data to Stormwater Management Plan (SWMP)

Sarasota County continues to support watershed management projects that have a positive impact on the conditions of our bays. These structural controls remove pollutants before they reach the bay thereby protecting water quality. County bays continue to experience increasing seagrass acreage throughout our bays. Increased habitat for scallops is one part of complex environmental factors needed to support sustainable scallop populations. The county experienced concentrated rainfall events and persistent redtide blooms, each have shown to have a negative affect scallop populations. The data suggests that these factors may be the reason scallop monitoring sites throughout the county experienced 19.8% less spat landings than in 2015.