Data Acquisition Standard Operating Procedures

Distribution and Condition of Intertidal Eastern Oyster (Crassostrea virginica) Reefs in Apalachicola Bay Florida Based on High-Resolution Satellite Imagery (ID# 5063)

Last Updated: 2/17/2024

Program Summary

The eastern oyster Crassostrea virginica is an important component of the ecology of Apalachicola Bay, Florida, and the economy of the region. Although oyster reefs in the Bay occur in both tidal zones, subtidal reefs have received the most attention because they support most of the oyster fishery. The present study provides new information on the distribution, condition, and ecology of the intertidal reefs, and assessed the general utility of high-resolution satellite imagery for routine monitoring of the extent and condition of intertidal oysters. Using online, freely available color imagery and manual interpretation, a total of 782 individual reefs ranging in size from ~3 m2 to 3.9 ha (¼ 9.7 acres) and covering a total of 94 ha (233 ac) of bottom area were mapped. Field inspection and sampling of 100 individual intertidal reefs on November 12–16, 2016, confirmed wide differences in the number and areal coverage of reefs in the three major geographic regions in the Bay: 433 reefs covering a total of 56 ha (139 acres) in the western area (St. Vincent Sound); 113 reefs covering 8 ha (19 acres) in the central area; and 236 reefs covering 30 ha (75 acres) in the eastern area (St. George Sound). Most reefs in the western portion of the bay consisted of recently dead (''box'') oysters in all size classes, suggesting a recent massive mortality event. Mean densities (all size classes combined) of live oysters in the central and eastern areas were 42.9/m2 (±7.39; 1 SE) and 99.3/m2 (±13.22; 1 SE), respectively, with an overall mean shell height of 23.6 mm. Size-frequency histograms indicated only two year classes of live oysters, and the largest oyster collected was 84 mm. Although detailed quantitative comparisons with subtidal reefs were not possible, data from the present study suggest that intertidal reefs cover much less bottom area of the bay, but may contain much higher live oyster densities. The present study also demonstrated the use of high-resolution satellite imagery for mapping reefs as small as a few square meters in surface area, and the potential for estimating relative reef condition measured by live oyster density.

URLs

- Program - https://doi.org/10.2983/035.037.0514
- DDI - https://data.florida-seacar.org/programs/details/5063

Contacts

Contact Name	Organization	Email	Phone
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Data Tables

- Data_5063A_Final
- Data_5063A_Load
- DATA_5063B_Final
- DATA_5063B_Load

Data Stored Procedures

- usp_Data_5063A_Load_insert
- usp_Data_5063B_Load_insert
- usp_combined_acreage_insert_5063I
- usp_combined_oyster_insert_5063A
- usp_combined_oyster_insert_5063B

Data Acquisition Standard Operating Procedures: ProgramID *5063*

Date Created: *03/26/2020*

Created By: *Mrudhula Murali*

Data File Path:

1. "\\forest.usf.edu\data\PDrive\CAS-WI\Misc Projects\ SEACAR_FDEP\Data\ID_5063"

DDI URL: http://dev.seacar.waterinstitute.usf.edu/datadiscovery/programs/details/5063

Contact Information:

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Contact Organization: Distribution and Condition of Intertidal Eastern Oyster (Crassostrea virginica) Reefs in Apalachicola Bay Florida Based on High-Resolution Satellite Imagery

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Procedure Overview:

1. Use SQL Server Import Export Wizard to load the file "Copy of Copy of ID_5063_REG rev_srd_REG_final.xlsx" sheet "shell heights "into table **Data_5063A_Load.**
2. Use SQL Server Import Export Wizard to load the file "ID_5063_REG rev_srd_REG_final_sumonly_20200909.csv" into table **Data_5063B_Load.**
3. Execute procedure usp_Data_5963*_Load_insert to load the data into table **Data_5063*_Final.**
4. Add the Monitoring Locations from tables **Data_5063A_Final** AND **Data_5063B_Final** to the **SampleLocation_Point** table.
5. Add new Monitoring Locations into the **SampleLocation** table. This will generate a LocationID for each Monitoring Location.
6. Update the **SampleLocation_Point** and **SampleLocation_Line** table with the LocationID generated in the **SampleLocation** table. Run procedure usp_SampleLocation_Point_update to do this.
7. Update the LocationID column in table **Data_5063A_Final** and **Data_5063B_Final** with the LocationID in the **SampleLocation** table. Join on the [WP] column in **Data_5063A_Final and Data_5063B_Final** and the ProgramLocationID column in **SampleLocation.**

Data Tables

1. Data_5063*_Load
2. Data_5063*_Final

Data Stored Procedures

1. usp_Data_5063*_Load_insert
2. usp_SampleLocation_Point_update

GIS Procedures

```
SET ANSI_NULLS ON
SET QUOTED_IDENTIFIER ON
CREATE PROC [dbo].[usp_combined_acreage_insert_5063I]
AS
BEGIN
SET NOCOUNT ON;
SET XACT_ABORT ON;

-- Constants - PLEASE SET NOW!!
DECLARE @dataLoadCode varchar(10) = '5063I';
DECLARE @combinedTable varchar(50) = 'Combined_Acreage'
DECLARE @parameterID int

-- Setup data load
DECLARE @runBy varchar(50) = SYSTEM_USER;
DECLARE @programID int, @dataStreamID int;

SELECT@dataStreamID = DataStreamID,
@programID = ProgramID
FROMDataStreamProcedure
WHEREDataLoadCode = @dataLoadCode;
ÿ
-- Delete Existing Data
exec usp_delete_combined @dataStreamID, @combinedTable
ÿ
-- Insert oyster data
SET @parameterID = 37 --Hectares

-- Insert data
INSERT INTO Combined_Acreage (ProgramID, DataStreamID, ParameterID, LandCoverID, AreaID, GISSource
SampleDate, [Year], SourceDate, ResultValue, MADup)
SELECT@programID, @dataStreamID, @parameterID, a.LandCoverID, a.MA_AreaID, a.SourceID,
a.SampleDate, YEAR(a.SampleDate), NULL, a.Hectares, NULL
FROMGIS_5063_OY_INTERSECTa
WHEREa.MA_AreaID <> 9999
ANDa.MA_AreaID <> 0
ÿ
exec usp_combined_data_tracking_insert @parameterID = @parameterID, @ProgramID = @programID,
@dataStreamID = @dataStreamID, @CombinedTableName = @combinedTable, @NumRowsFinal = @@ROWCOUNT,
@LastUpdateBy = @runBy
ÿ

/*
SELECT *
FROM Combined_OYSTER
WHERE ProgramID = 5063

SELECT Distinct ProgramID, b.IndicatorName, c.ParameterName, a.NumRowsCombined
FROM Combined_Data_Tracking a
INNER JOIN Indicator b on a.IndicatorID = b.IndicatorID
INNER JOIN Combined_Parameters c on a.ParameterID = c.ParameterID
WHERE b.Habitat = 'Oyster/Oyster Reef'

SELECT *
FROM GIS_5063_OY_INTERSECT

SELECT *
FROM Combined_Parameters a
INNER JOIN Indicator b on a.IndicatorID = b.IndicatorID
where b.Habitat = 'oyster/oyster reef'

SELECT *
FROM DataStreamProcedure
WHERE ProgramID = 5063
```

```
exec usp_delete_combined 1359, 'Combined_OYSTER'

exec usp_DataStreamProcedure_insert @name = 'Oyster/Oyster Reef', @contactID = NULL, @programID =
@indicatorID = 14, @suffix = 'I', @GIS = 1, @Exported = 0
*/

END









GO
```

```
SET ANSI_NULLS ON
SET QUOTED_IDENTIFIER ON
CREATE PROC [dbo].[usp_combined_oyster_insert_5063A]
AS
BEGIN
SET NOCOUNT ON;
SET XACT_ABORT ON;

-- Constants - PLEASE SET NOW!!
DECLARE @dataLoadCode varchar(10) = '5063A';
DECLARE @combinedTable varchar(50) = 'Combined_OYSTER'

DECLARE @parameterID int = 28

-- Setup data load
DECLARE @runBy varchar(50) = SYSTEM_USER;
DECLARE @programID int, @dataStreamID int;

SELECT@dataStreamID = DataStreamID,
@programID = ProgramID
FROMDataStreamProcedure
WHEREDataLoadCode = @dataLoadCode;
ÿ
-- Insert data
INSERT INTO Combined_OYSTER (ProgramID, DataStreamID, ParameterID, LocationID, SampleDate,
SurveyMethod, PercentLiveMethod, HabitatClassification, MinimumSizeMeasured_mm, NumberMeasured_n,
QuadSize_m2, ResultValue, DateAdded, QAQCFlag, QuadIdentifier,ReefIdentifier, LiveDate,
LiveDate_Qualifier, LiveDate_MinEstDate, LiveDate_MaxEstDate)
SELECT@programID, @dataStreamID, @parameterID, a.LocationID, a.Date, 'Random Quadrat', NULL,
'Natural', NULL, 30, 0.1, a.[Shell height (mm)], GETDATE(), NULL,
a.WP,b.ReefID,a.Date,'Exact','NA','NA'
FROM Data_5063A_Final a
INNER JOIN (SELECT DISTINCT ReefID, WP FROM DATA_5063B_Final) b on cast(a.WP as nvarchar)= b.WP
WHEREa.[Shell height (mm)] IS NOT NULL
ANDa.LocationID IS NOT NULL
ANDa.Date IS NOT NULL
ÿ
exec usp_combined_data_tracking_insert @parameterID = @parameterID, @ProgramID = @programID,
@dataStreamID = @dataStreamID, @CombinedTableName = @combinedTable, @NumRowsFinal = @@ROWCOUNT,
@LastUpdateBy = @runBy
ÿ
/*
SELECT *
FROM Combined_OYSTER

SELECT Distinct ProgramID, b.IndicatorName, c.ParameterName, a.NumRowsCombined
FROM Combined_Data_Tracking a
INNER JOIN Indicator b on a.IndicatorID = b.IndicatorID
INNER JOIN Combined_Parameters c on a.ParameterID = c.ParameterID
WHERE b.Habitat = 'Oyster/Oyster Reef'

SELECT *
FROM Data_5063A_Final

SELECT *
FROM Combined_Parameters a
INNER JOIN Indicator b on a.IndicatorID = b.IndicatorID
where b.Habitat = 'oyster/oyster reef'

SELECT *
FROM DataStreamProcedure
WHERE ProgramID = 5063

exec usp_delete_combined 1275, 'Combined_OYSTER'
*/
```

```
END



GO
```

```
SET ANSI_NULLS ON
SET QUOTED_IDENTIFIER ON
CREATE PROC [dbo].[usp_combined_oyster_insert_5063B]
AS
BEGIN
SET NOCOUNT ON;
SET XACT_ABORT ON;

-- Constants - PLEASE SET NOW!!
DECLARE @dataLoadCode varchar(10) = '5063B';
DECLARE @combinedTable varchar(50) = 'Combined_OYSTER'

DECLARE @parameterID int

-- Setup data load
DECLARE @runBy varchar(50) = SYSTEM_USER;
DECLARE @programID int, @dataStreamID int;

SELECT@dataStreamID = DataStreamID,
@programID = ProgramID
FROMDataStreamProcedure
WHEREDataLoadCode = @dataLoadCode;
ÿ
-- Insert data
SET @parameterID = 38 -- Total number oysters

INSERT INTO Combined_OYSTER (ProgramID, DataStreamID, ParameterID, LocationID, SampleDate,
SurveyMethod, PercentLiveMethod, HabitatClassification, MinimumSizeMeasured_mm, NumberMeasured_n,
QuadSize_m2, ResultValue, DateAdded, QAQCFlag, QuadIdentifier,ReefIdentifier, LiveDate,
LiveDate_Qualifier, LiveDate_MinEstDate, LiveDate_MaxEstDate)
SELECT@programID, @dataStreamID, @parameterID, a.LocationID, a.Date, 'Random Quadrat', NULL,
'Natural', NULL, 30, 0.1, a.[Total # of live oysters]+ISNULL([Total # of dead oysters],0), GETDATE
NULL, WP,a.ReefID,a.Date,'Exact (for live specimens only)','NA','NA'
FROMData_5063B_Finala
WHEREa.[Total # of live oysters] IS NOT NULL
ANDa.Date IS NOT NULL
ÿ
exec usp_combined_data_tracking_insert @parameterID = @parameterID, @ProgramID = @programID,
@dataStreamID = @dataStreamID, @CombinedTableName = @combinedTable, @NumRowsFinal = @@ROWCOUNT,
@LastUpdateBy = @runBy
ÿ
-- Insert data
SET @parameterID = 39 -- Total number live oysters

INSERT INTO Combined_OYSTER (ProgramID, DataStreamID, ParameterID, LocationID, SampleDate,
SurveyMethod, PercentLiveMethod, HabitatClassification, MinimumSizeMeasured_mm, NumberMeasured_n,
QuadSize_m2, ResultValue, DateAdded, QAQCFlag, QuadIdentifier,ReefIdentifier, LiveDate,
LiveDate_Qualifier, LiveDate_MinEstDate, LiveDate_MaxEstDate)
SELECT@programID, @dataStreamID, @parameterID, a.LocationID, a.Date, 'Random Quadrat', NULL,
'Natural', NULL, 30, 0.1, a.[Total # of live oysters], GETDATE(), NULL, WP,a.ReefID,a.Date,'Exact
(for live specimens only)','NA','NA'
FROMData_5063B_Finala
WHEREa.[Total # of live oysters] IS NOT NULL
ANDa.Date IS NOT NULL
ÿ
exec usp_combined_data_tracking_insert @parameterID = @parameterID, @ProgramID = @programID,
@dataStreamID = @dataStreamID, @CombinedTableName = @combinedTable, @NumRowsFinal = @@ROWCOUNT,
@LastUpdateBy = @runBy
ÿ
-- Insert data
SET @parameterID = 40 -- Total number live oysters

INSERT INTO Combined_OYSTER (ProgramID, DataStreamID, ParameterID, LocationID, SampleDate,
SurveyMethod, PercentLiveMethod, HabitatClassification, MinimumSizeMeasured_mm, NumberMeasured_n,
QuadSize_m2, ResultValue, DateAdded, QAQCFlag, QuadIdentifier,ReefIdentifier, LiveDate,
```

```
LiveDate_Qualifier, LiveDate_MinEstDate, LiveDate_MaxEstDate)
SELECT@programID, @dataStreamID, @parameterID, a.LocationID, a.Date, 'Random Quadrat', NULL,
'Natural', NULL, 30, 0.1, a.[Total # of dead oysters], GETDATE(), NULL, WP,a.ReefID,a.Date,'Exact
(for live specimens only)','NA','NA'
FROMData_5063B_Finala
WHEREa.[Total # of dead oysters] IS NOT NULL
ANDa.Date IS NOT NULL
ÿ
exec usp_combined_data_tracking_insert @parameterID = @parameterID, @ProgramID = @programID,
@dataStreamID = @dataStreamID, @CombinedTableName = @combinedTable, @NumRowsFinal = @@ROWCOUNT,
@LastUpdateBy = @runBy
ÿ
-- Insert data
SET @parameterID = 26 -- density

INSERT INTO Combined_OYSTER (ProgramID, DataStreamID, ParameterID, LocationID, SampleDate,
SurveyMethod, PercentLiveMethod, HabitatClassification, MinimumSizeMeasured_mm, NumberMeasured_n,
QuadSize_m2, ResultValue, DateAdded, QAQCFlag, QuadIdentifier,ReefIdentifier, LiveDate,
LiveDate_Qualifier, LiveDate_MinEstDate, LiveDate_MaxEstDate)
SELECT@programID, @dataStreamID, @parameterID, a.LocationID, a.Date, 'Random Quadrat', NULL,
'Natural', NULL, 30, 0.1, (a.[Total # of live oysters])*10, GETDATE(), NULL,
WP,a.ReefID,a.Date,'Exact (for live specimens only)','NA','NA'
FROMData_5063B_Finala
WHEREa.[Total # of live oysters] IS NOT NULL
ANDa.Date IS NOT NULL
ÿ
exec usp_combined_data_tracking_insert @parameterID = @parameterID, @ProgramID = @programID,
@dataStreamID = @dataStreamID, @CombinedTableName = @combinedTable, @NumRowsFinal = @@ROWCOUNT,
@LastUpdateBy = @runBy
ÿ
/*
SELECT *
FROM Combined_OYSTER

SELECT Distinct ProgramID, b.IndicatorName, c.ParameterName, a.NumRowsCombined
FROM Combined_Data_Tracking a
INNER JOIN Indicator b on a.IndicatorID = b.IndicatorID
INNER JOIN Combined_Parameters c on a.ParameterID = c.ParameterID
WHERE b.Habitat = 'Oyster/Oyster Reef'

SELECT *
FROM Data_5063B_Final

SELECT *
FROM Combined_Parameters a
INNER JOIN Indicator b on a.IndicatorID = b.IndicatorID
where b.Habitat = 'oyster/oyster reef'

SELECT *
FROM DataStreamProcedure
WHERE ProgramID = 5063

exec usp_delete_combined 1361, 'Combined_OYSTER'
*/

END




GO
```

```
SET ANSI_NULLS ON
SET QUOTED_IDENTIFIER ON
CREATE PROC usp_Data_5063A_Load_insert
AS
BEGIN
SET NOCOUNT ON
SET XACT_ABORT ON

INSERT INTO DATA_5063A_Final (Date,WP,[Geographic area (1 - 4)],Lat_DD,Long_DD,[Photo Site (S) or
Quadrat (Q)],[Shell height (mm)])
selectDate,WP,[Geographic area (1 - 4)],[Lat_DD],[Long_DD],[Photo Site (S) or Quadrat (Q)],[Shell
height (mm)]
from DATA_5063A_Load
END
GO
```

```
SET ANSI_NULLS ON
SET QUOTED_IDENTIFIER ON
CREATE PROC usp_Data_5063B_Load_insert
AS
BEGIN
SET NOCOUNT ON
SET XACT_ABORT ON

INSERT INTO [dbo].[DATA_5063B_Final]
   ([Date],[WP],[Geographic area (1 - 4)],[Lat_DD],[Long_DD],[Photo Site (S) or Quadrat (Q)]
   ,[Field Density Est# (Low, Med or High)],[Total # of live oysters],[Total # of dead oysters]
   ,[Bucket weight (kg)],[Mean height (mm)],[Comments],LocationID,[ReefID])
   SELECT [Date],[WP],[Geographic area (1 - 4)],[Lat_DD],[Long_DD],[Photo Site (S) or Quadrat (Q)]
 ,[Field Density Est# (Low, Med or High)],[Total # of live oysters],[Total # of dead oysters]
 ,[Bucket weight (kg)],[Mean height (mm)],[Comments],null,[ReefID]
  FROM [dbo].[DATA_5063B_Load]
END
GO
```