

Rhode Island Saltwater Anglers Association Artificial Reefs Committee Newsletter

Spring 2006

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The Committee:

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Henry Cugno
Cugno@rissa.org

Vice Chairman:

Richard Hittinger

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Henry Cugno

Members:

Capt. Bruce Getchell
Stephen Medeiros
David Swain
Capt. Steven Trivisono
Michael Warner
Capt. Jim White
John Stanford

Introduction

The RISAA Artificial Reefs Committee was formed as a sub-committee to the RISAA Legislative Committee when the Legislative Committee saw the need to explore issues related to artificial reefs.

The mission of the committee is to assist the state in developing an artificial reef program for the State of Rhode Island that provides a recreational benefit for it's residents and visitors by:

- Gathering, organizing and distributing information which includes environmental, economical, and educational benefits to the State.
- Reaching out to other interested organizations in an effort to collaborate in achieving the common goal.
- Working with the appropriate State officials to understand financing, execution and maintenance issues in an effort to ensure the process moves forward.

At this time we are working to determine the benefits of, and steps toward implementation of an Artificial Reef Program.

This newsletter will be published four times a year and will include a Progress Report section along with Education, Government and Private Sector News sections.

We have discovered that the State has received approval for three sites to be used as artificial reefs in Rhode Island waters as the result of dealing with the demolition of the old Jamestown Bridge. We have also found that the local universities have a great interest in developing artificial reefs for research and education purposes. Please see the Progress Report and Education sections of this issue for more information.

The notion of artificial reefs is not a new one. Many States including New Jersey, Florida, and California have active artificial reef programs. They use a variety of materials to create these reefs including demolition materials from construction projects, army tanks, reef balls, and ships. In the months ahead, we will attempt to review, evaluate, and explain such

programs as our State develops it's own approach to artificial reefs.

We hope that our efforts, and this newsletter, help to inform those who are interested in the benefits derived from the development of artificial reefs in Rhode Island.

✿-Henry Cugno

Government News

For a state known as the Ocean State we have had very little development of artificial reefs. There was a research scale project involving placement of various size materials near Dutch Harbor to determine the potential benefit to lobsters by offering improved habitat for them. But the state has not had a plan for development of artificial reefs and very few attempts have been made to create improved fish and shellfish habitat through the use of artificial reefs. However, all that will soon change.



Those who fish and dive in Rhode Island waters are going to see some improvements with respect to new artificial reef sites in the coming months and years. The state, through the work of Mr. Richard Satchwill at Rhode Island Department of Environmental Management (RIDEM) Division of Fisheries Management and with the help of Mr. Michael Ludwick of National Marine Fisheries, will soon have an Artificial Reef Plan. This plan is being finalized with the cooperation of RI Department of Transportation (RIDOT) and will be reviewed by the Coastal Resource Management Council (CRMC). We expect that the Plan will provide specific guidance on how the three approved reef sites will be developed as well as more general guidance on the potential for future *(continued next page)*

permitting and development of other reef sites.

Now, more on the three (or four if you count the old bridge site) approved reef sites. Through the work of RIDOT three sites have final approval through CRMC for development as artificial reef sites. These include two off the southern end of Aquidneck Island and one deep water site to the east of Block Island (the maps at the end of this newsletter show locations of these sites). These sites are approved for placement of materials salvaged during the demolition of the old Jamestown Bridge. In addition, the base of each pier plus some materials scattered within a radius of 20 feet around each pier will be allowed to remain as a continuing and increased habitat for some of the biota that already call the bridge home. As you can see if you have taken a close look recently while driving over the new Jamestown Bridge, demolition has already begun. According to Ms. Emilie Holland of the RIDOT, based on the current schedule, the contractor will begin to place reef materials in the approved reef locations as early as this Spring and all materials originating from the bridge demolition project will be in place before the end of 2006.

Ms. Holland indicated that the bridge material will only be sufficient to develop a small portion of the three sites that have been approved; so much of these sites will remain for further artificial reef placement. She also indicated that, based on the contract signed with the bridge demolition contractor, it is possible that all of the available material from the bridge will be used at the two sites off Aquidneck Island and the deep water site will remain for future use. As many of you know, due to the price of scrap steel and some questions regarding lead paint, the majority of the materials made available for reef construction are concrete and the steel superstructure is not available for use in a reef. There is steel and some open structure associated with the piers that will be used to create aquatic habitat at the approved sites.

Those of us at RISAA applaud the efforts of RIDOT and RIDEM and all who are working toward development of artificial reefs. Studies in other states have shown that these artificial structures, especially hollow structures, produce hundreds of times the biota of a flat bottom and an order of magnitude more than a natural rock outcrop. Since these artificial reefs provide shelter for juvenile fish and shellfish, they contribute to improved catches by both recreational and commercial fisherman not only on the reef, but also in more open areas near the reef. This, along with increased dive activity, will work to further stimulate an already active marine trade and tourist industry in the area. It may be a few years before the new materials become encrusted with marine life and we see results from these activities, but I look forward to catching some black sea bass, striped bass, tautog, and fluke from around these new underwater cities. ❄️-*Richard Hittinger*

Education

General Information

Reef Structures Benefit Marine Life

The ocean floor is made up of a variety of surfaces ranging from sand and mud bottoms to rock and coral reef structures. Here in Rhode Island we have sand and mud bottoms as well as rocky reefs. There is also a direct relationship between the type of bottom and the amount of sea life that it sustains.

A sand or mud bottom has a two dimensional surface area because it is flat. A reef structure has a three dimensional surface area because it extends up from the ocean floor. Because reef structures have more surface area, they in turn, have more living space for marine life. The larger and more complex the reef structure, the greater and more diverse types of marine life it can support.

Reef structures don't move like sand does. A current, change of tide or a storm can shift sand while a reef is

only minimally impacted by such events. Therefore, reef structures provide a stable environment upon which marine life will attach. This stable environment fosters a greater diversity of marine life because the food chain starts with microscopic marine organisms which attach themselves to the reef structure and in turn become food for larger organisms which in turn become food for inhabitants of the water column above the reef and so on.

The small holes and crevices inherent in such reef structures become nurseries for young sea life that seeks shelter from predation. The larger nooks and crannies provide similar shelter for juvenile and adult fish hiding from even larger fish and marine mammals. So reef structures providing refuge to so many types of marine life increase the biomass of marine life in the surrounding waters.

Reefs also break up currents in the ocean providing resting spots for marine life. The energy conserved by fish frequenting these reefs can be put towards growth instead of constantly swimming against currents.

Why Add Artificial Reefs?

There are numerous natural reef structures in Rhode Island waters so why do we need to add more?

The answer to this question starts with an analysis of the types of reef structure that naturally occurs in the state. Most of the reef structure is made up of solid rock surfaces and although these natural reefs provide benefits they only increase the surface area over a sandy bottom by a factor of five.



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Artificial reefs can consist of almost anything from construction demolition rubble to army tanks and ships. In fact, there are many shipwrecks in Rhode Island waters acting as artificial reefs today. Other states have taken the idea further by creating what is called a "Reef Ball" which simply is nothing more than a concrete structure which is hollow and full of holes which enables access to the inside of the structure.



By nature, all of these artificial reef materials are not solid and therefore have multiple surfaces in and around their make up. Such artificial reefs increase surface area over sandy bottoms by a factor of nine or more. Studies have shown that such structures become colonized by hundreds species of fish and other marine life and may have 800 to 1000 times more biomass of marine life than equal areas of sandy bottom sea floor. Here in lie the benefits of artificial reefs.



Both recreational and commercial fishermen can benefit by the potential millions of pounds of fish, lobster, crabs and mussels produced by such reefs.

Such an increase in marine life can produce millions of dollars in economic growth from recreational fishing and the support of local hotel,

restaurant, tackle & bait shops and other businesses that would benefit from such tourism.

The same is true for the SCUBA diving industry. Divers are drawn to ocean areas that support a great diversity of marine life and have interesting structure to explore.

Local colleges and universities with ocean science programs would benefit by having local ocean laboratories in which to conduct research and demonstrate to their students how the marine environment works.

Lastly, much of the marine life that typically flourishes on such reef structures including mussels, barnacles and sponges filter algae, organic matter and bacteria from the water column, therefore, improving the cleanliness and clarity of the waters surrounding them.

Although our state has a number of natural and artificial reefs already in place, the benefits from more reef structures are clear. Rhode Island has much to gain by the promotion of an artificial reef program both environmentally and economically.

✿ -Henry Cugno

From the University of Rhode Island

Habitat for Lobster

An Artificial Reef Program for Rhode Island

In 1997, as part of the M/V World Prodigy oil spill restoration mitigation, 6 artificial reefs were placed in Dutch Harbor, West Passage in Narragansett Bay. The reefs were placed in 15 ft of water along the shore of Jamestown.

These reefs were not ordinary reefs but were designed to attract juvenile, adolescent and adult lobsters. Each 30 by 60 ft reef consisted of one side of boulders for the adults and the other side of cobble for the young of the year. The stones were obtained from a local quarry.

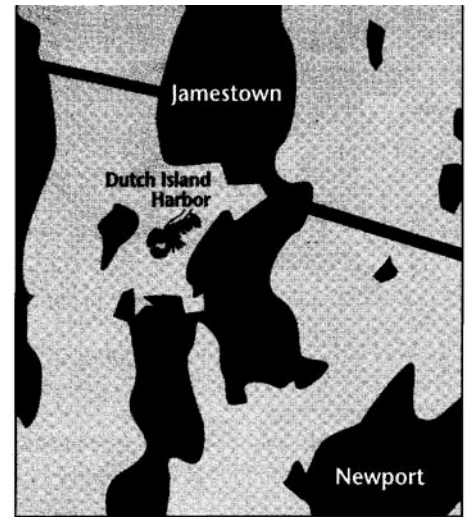


Figure 1. Location of 6 artificial reefs.

Permits to site the reefs were obtained from the Coastal Resources Management Council after careful consideration of reef placement. Important points for reef placement included bottom type, vessel traffic, use by recreational and commercial anglers, distance from shore, availability of lobster larvae, low resident lobster population and safety of diving operations.

The reefs were actively monitored for lobster population for 5 years using SCUBA surveys, tag and recapture studies and suction sampling. In addition, three of the reefs were seeded for 3 years with tagged hatchery-reared young of the year lobsters to study the effects of stock enhancement.

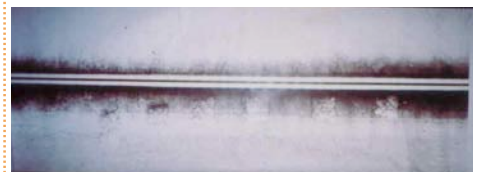


Figure 2. Side scan sonar images of the six reefs.

Migrating lobsters were clearly attracted to the new habitat, as well as new young of the year lobsters. Recaptures of tagged lobster indicated that many of the lobsters stayed in the area for several years. Fish were also attracted to the area and young of the year have been found for several species (black sea bass and tautog).
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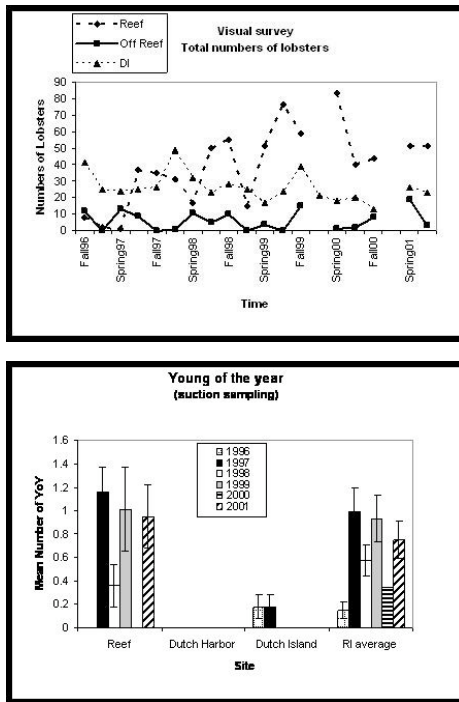


Figure 3. (a). Numbers of lobsters found on reef, off-reef (control 1) and a comparable bottom type (control 2). (b). Average number of young of the year found in the three sites compared to a RI average.

The reefs continue to be used for lobster and fish observations and studies by University of Rhode Island students and staff. And yes, the reefs are still there! ❄️ -*Kathleen Castro, PHD*

Progress Report

About a year ago the Environmental Protection Committee saw the need to seek out potential artificial reef possibilities. Unanimously voted upon that night, the RISAA Artificial Reef Committee was started. On June 22, 2005, meeting one was held. All the volunteers who eagerly signed on took on various tasks to investigate the possibility of artificial reefs in Rhode Island.

Of immediate concern was what, if anything, the state and any nearby states were doing regarding artificial reefs. Meetings were quickly arranged with Rhode Island Department of Environmental Management, Fish and

Wildlife, Rhode Island Department of Transportation, RI State Water Quality, and the New Jersey Fish and Wildlife agencies. Individually, and sometimes in groups RISAA members met, asked questions, tracked down documentation, followed up and reported findings back to the Environmental Protection Committee.

The biggest piece of news gleaned from this exercise was the existence of an artificial reef plan in RI waters. The best use of the demolished structure of the old Jamestown bridge is an artificial reef. Three sites have been approved for the bridge materials. Only 25% of each site is expected to be utilized leaving about 75% for future use of more artificial reef possibilities. Please see the Map of Approved Artificial Reef Sites at the end of this newsletter.

From New Jersey we collected data and history that will be invaluable for future reefing in Rhode Island Waters. Since 1983, New Jersey has been leading the way in a reef program demonstrating that the needs of all, fisherman –commercial and recreational, local and state economies, and most importantly the environment, all can be balanced to create the win/win scenario we all want.

Going forward, the state has an Artificial Reef Monitoring Plan draft in the works. Another meeting or two and some funding is needed to implement this plan. It's crucial to keep this going forward to coincide with the progress being made on the bridge demolition. It was noted in a January RIDEM dispatch to RISAA that completion of this plan is not needed to consider other artificial reef ideas to utilize the remaining 75% of the existing permitted locations.

The future is quite promising. Existing work will no doubt be positively impacted by the Economic Impact Study of R.I. Sport fishing. This study, primarily financed by RISAA, will help identify the economic input of existing planned and potential future artificial reefs from recreational anglers. This study also needs to be recognized by the law makers of our state. Please speak to your local and state level politicians. Let them know

how you feel about improved opportunities for all to enjoy the fish from the Ocean State!

❄️ -*David Swain*

Private Sector News

The RISAA Artificial Reefs Committee will be contacting other organizations in the private sector which have a stake in the development of artificial reefs in Rhode Island.

If you or your organization have an interest in artificial reefs, please feel free to contact us. We look forward to including information from the private sector in this section of the newsletter in the future.

Contact Us

You can contact us by mail at:

R.I.S.A.A.

6 Arnold Road

Coventry, RI 02816

Attn: Artificial Reefs Committee

By Phone/Fax:

401-826-2121

401-826-3546 fax

By Email:

Cugno@rissa.org

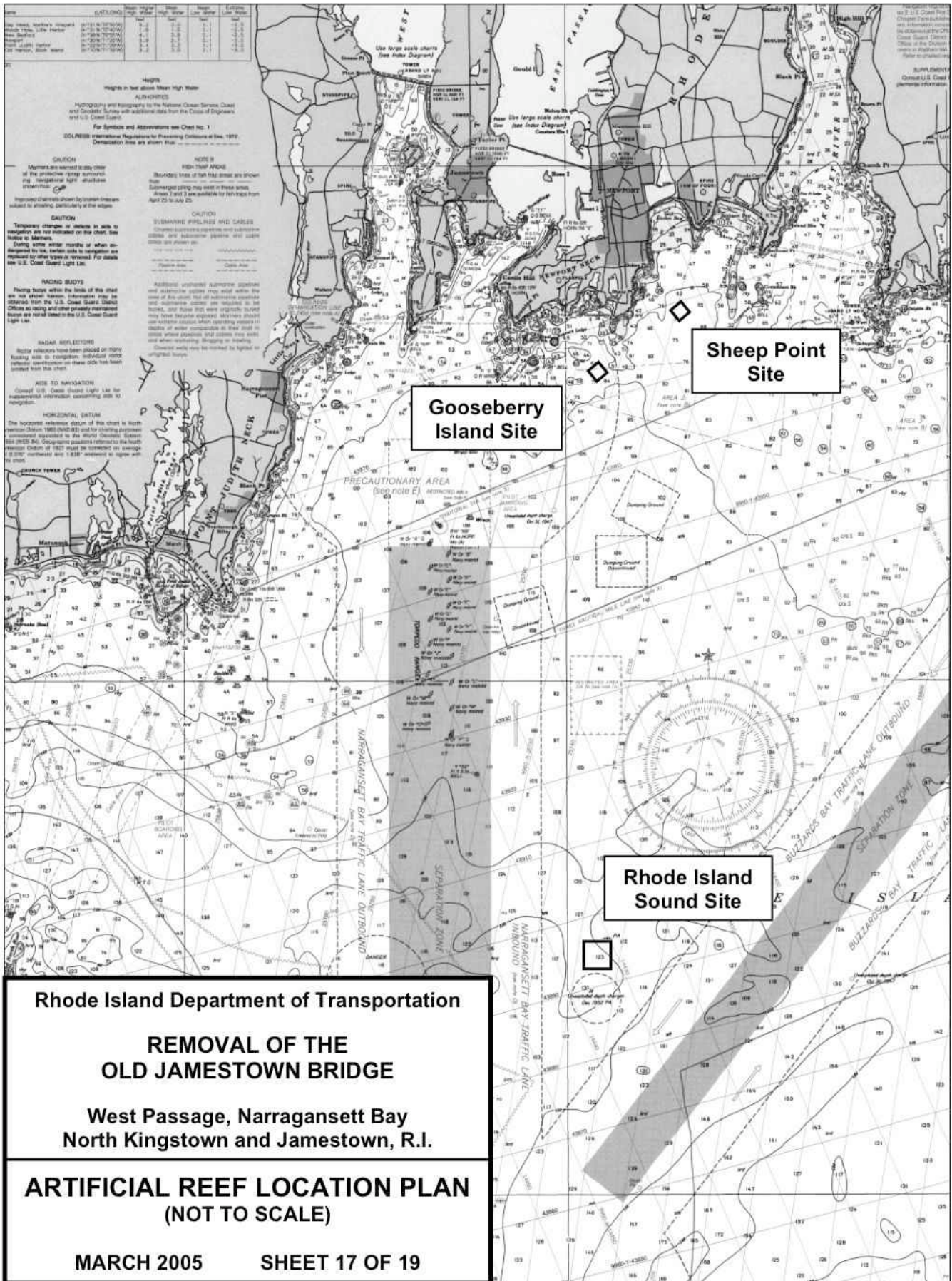
Please visit the RISAA web site for all RISAA news and scheduled events at:

www.RISAA.org

Approved Sites

Map of Approved Artificial Reef Sites and Drawings of Site Layout

The following pages show the locations and layouts of the approved artificial reef sites in Rhode Island. Deposits of reef material from the demolition of the Jamestown Bridge will be made as early as June of this year.



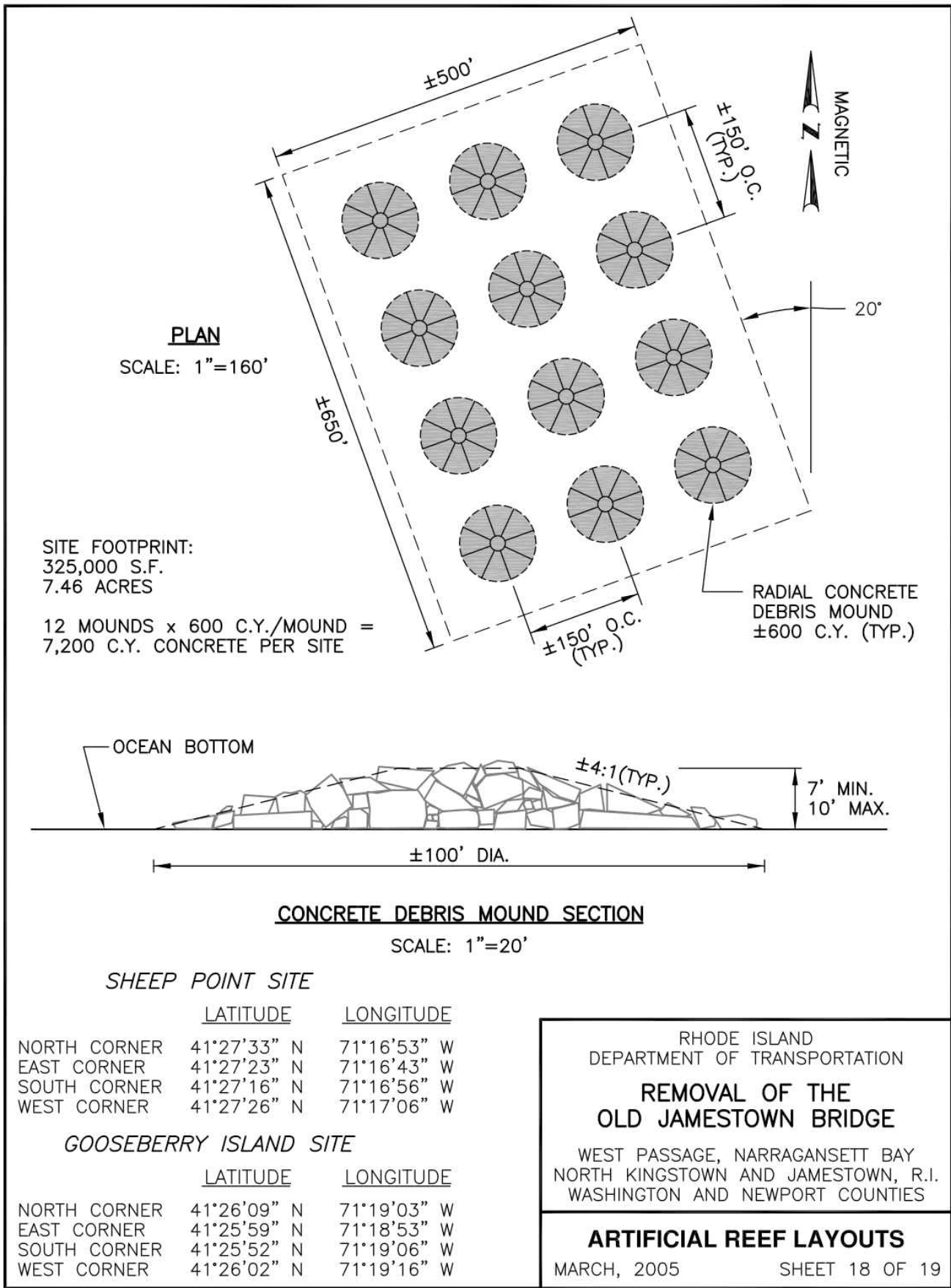
Rhode Island Department of Transportation

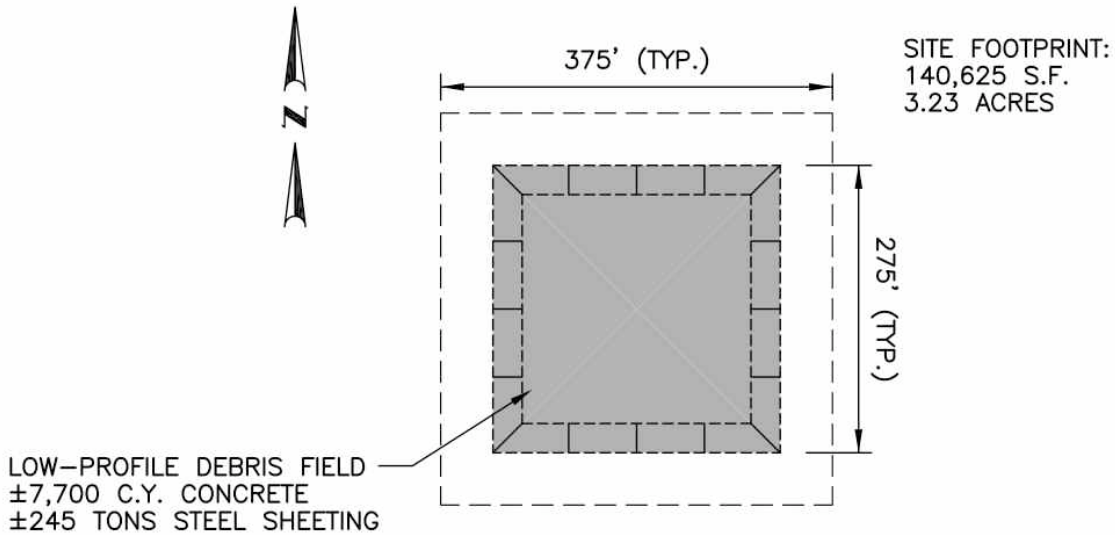
**REMOVAL OF THE
OLD JAMESTOWN BRIDGE**

**West Passage, Narragansett Bay
North Kingstown and Jamestown, R.I.**

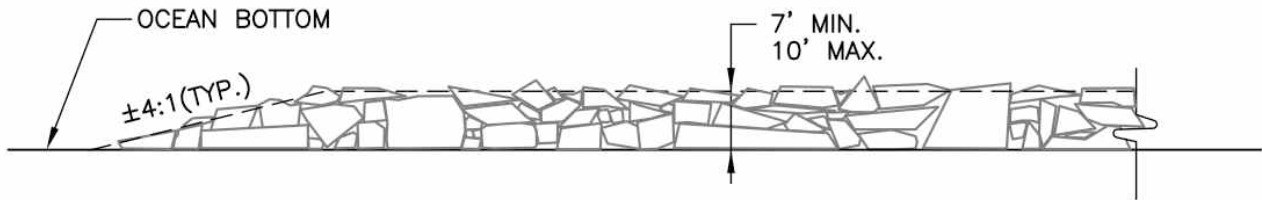
**ARTIFICIAL REEF LOCATION PLAN
(NOT TO SCALE)**

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PLAN
SCALE: 1"=160'



DEBRIS FIELD HALF-SECTION
SCALE: 1"=20'

RHODE ISLAND SOUND SITE

	<u>LATITUDE</u>	<u>LONGITUDE</u>
NORTHEAST CORNER	41°14'57.87" N	71°18'50.25" W
SOUTHEAST CORNER	41°14'06.48" N	71°18'45.87" W
SOUTHWEST CORNER	41°14'12.24" N	71°19'47.85" W
NORTHWEST CORNER	41°14'55.33" N	71°19'47.51" W

RHODE ISLAND
DEPARTMENT OF TRANSPORTATION

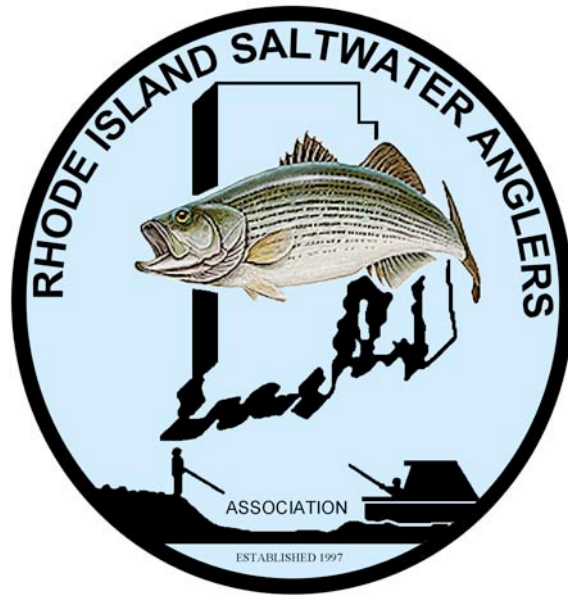
**REMOVAL OF THE
OLD JAMESTOWN BRIDGE**

WEST PASSAGE, NARRAGANSETT BAY
NORTH KINGSTOWN AND JAMESTOWN, R.I.
WASHINGTON AND NEWPORT COUNTIES

ARTIFICIAL REEF LAYOUT

MARCH, 2005

SHEET 19 OF 19



RISSA Artificial Reefs Committee

Rhode Island Saltwater Anglers Association
6 Arnold Road
Coventry, RI 02816

