



FISH AND WILDLIFE CONSERVATION COMMISSION
DIVISION OF MARINE FISHERIES
ARTIFICIAL REEF PROGRAM

ARTIFICIAL REEF MATERIALS CARGO MANIFEST
(Issued pursuant to s. 370.25(6)(b) Florida Statutes)

I, _____
Printed Name and Title

representing _____
Name of U. S. Department of the Army, Corps of Engineers (ACOE) Permit Holder

whose address is _____
Street City State Zip Code

declare that I am staging and transporting the following artificial reef construction materials allowable pursuant to ACOE Permit Number _____, permitted site name _____, which was issued on _____ and has an expiration date of _____.

Describe (material type, dimensions, weight) and quantify all items to be deployed as reef material:

A copy of the above referenced permit and all associated conditions is attached to this manifest which shall be carried on board the vessel loading, storing, or transporting artificial reef material.

The location of the land based reef materials staging area is: _____

The proposed deployment location for these materials within the _____ permitted site is:
_____ North Latitude, _____ West Longitude.

Transporting Vessel Registration Number: _____

Vessel Owner: _____ Vessel Operator: _____

Signature of Permittee/Authorized Agent

Date

OR

Signature of Commission Reviewing Authority

Date

ATTACHMENT 5

RESOLUTION NUMBER R2001 - 2

A RESOLUTION OF SUPPORT FOR THE LARGE AREA ARTIFICIAL REEF PROGRAM OF THE FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION; PROVIDING TECHNICAL, PERMITTING AND MONITORING SUPPORT FOR THE IMPLEMENTATION OF THE LARGE AREA ARTIFICIAL REEF PROGRAM BY ESCAMBIA COUNTY DIVISION OF MARINE RESOURCES; PROVIDING FOR ESCAMBIA COUNTY DIVISION OF MARINE RESOURCES TO CREATE AND IMPLEMENT AN ARTIFICIAL REEF PLAN FOR ESCAMBIA COUNTY; PROVIDING FOR RENEWAL AND MAINTENANCE OF EXISTING ESCAMBIA COUNTY ARTIFICIAL REEF PERMITS AND THE ESTABLISHMENT OF NEW ESCAMBIA COUNTY ARTIFICIAL REEF PERMITS; PROVIDING FOR AN EFFECTIVE DATE

WHEREAS, marine recreational fishing and diving provide significant recreational, social, and economic benefits to the citizens of Escambia County; and

WHEREAS, marine recreational fishing and diving provide significant economic benefits to the citizens of Escambia County through tourism; and

WHEREAS, due to lack of substantial natural reefs, artificial reefs provide the majority of near-shore angling and diving opportunities; and

WHEREAS, recent hurricanes have increased the rate of decline of existing artificial reefs; and

WHEREAS, the fishing and diving charter-boat fleets of Escambia County possess the desire and ability to construct artificial reefs for the purpose of conducting their businesses; and

WHEREAS, overcrowding and the resultant user-conflicts are deleterious to the recreational, social, and economic benefits enjoyed by the citizens of Escambia County;

NOW, THEREFORE, LET IT BE RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF ESCAMBIA COUNTY, FLORIDA

Section 1. That the Board of County Commissioners supports the "Large Area" artificial reef program of the Florida Fish and Wildlife Conservation Commission. The Board of County Commissioners directs the Escambia County Division of Marine Resources to provide technical, permitting, and monitoring support for the implementation of the "Large Area" artificial reef program.

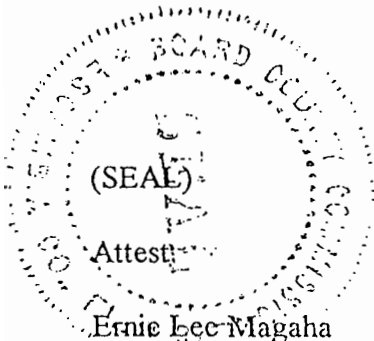
Section 2. That the Board of County Commissioners supports the Escambia County artificial reef program, and directs the Escambia County Division of Marine Resources to manage that program. The Board of County Commissioners directs the Escambia County Division of Marine Resources to create and implement an Artificial Reef Plan for Escambia County. The Board of County Commissioners further directs the Escambia County Division of Marine Resources to: 1) renew and maintain existing Escambia County artificial reef permits; and, 2) seek to establish new Escambia County artificial reef permits.

Section 3. That this resolution will take effect immediately upon its adoption by the Board of County Commissioners.

ADOPTED this 4th day of January, 2001.

BOARD OF COUNTY COMMISSIONERS OF
ESCAMBIA COUNTY, FLORIDA

By: Thomas G. Banjanin
Thomas G. Banjanin, Chairman



Ernie Lee Magaha
Clerk of the Circuit Court

By: Maureen Singrey
Deputy Clerk

Certified to be a true copy of
the original on file in this office
Witness my hand and official seal
ERNIE LEE MAGAHA
Clerk of the Circuit Court
Escambia County, Florida
By: Betty L. Kuehman D.C.
Date: January 8, 2001

ATTACHMENT 6



DEPARTMENT OF THE NAVY

COMMANDING OFFICER
NAS PENSACOLA
190 RADFORD BLVD
PENSACOLA, FLORIDA 32508-5217

IN REPLY REFER TO

11000

Ser 18412/ 0 6 5 8

JUL 20 2000

Jon Dodrill
Florida Fish and Wildlife Conservation Commission
620 South Meridian Street, Mailbox MF-MFM
Tallahassee, Florida 32399-1600

Dear Mr. Dodrill:

Writing in response to your letter of June 21, 2000, requesting the Navy's comments for reauthorization through the U.S. Army Corps of Engineers of two offshore artificial reef areas located in federal waters about 15 nautical miles southeast and southwest of Pensacola Pass, respectively. Our Air Operations, Port Operations, and Facilities Management Departments have reviewed the portion of the 1998 NOAA Nautical Chart # 11360, 38th edition showing the two areas, Escambia West and Escambia East, enclosed in your letter.

Based upon the information provided, we do not foresee any conflicts in the use of these areas from a navigational, national security, military operations or training standpoint.

Our point of contact is Mr. Charles (Chuck) Osborn at (850) 452-4515 extension 327.

Sincerely,

A. M. GAVRISHEFF
Lieutenant Commander, CEC, U.S. Navy
Facilities Management Officer
By direction of
the Commanding Officer

Cc: Clif Payne, ACOE

RECEIVED

JUL 24 2000

BUREAU OF
MARINE FISHERIES SERVICES

ATTACHMENT 7

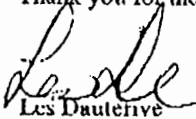
Department of the Army
Jacksonville District COE
Pensacola Regulatory Office
41 N Jefferson Street, Suite 104
Pensacola, Florida 32501-5794

Mr. Cliff Payne:

I apologize and realize that my comments concerning Permit Application No. 199402365 is far beyond the required comment date of August 17, 2000, published by your Public Notice. I don't mean to make excuses but I received the notice via your fax on November 7, and have been out of the office for the last two weeks on travel. Consequently, I offer the following belated comments for your office's consideration.

1. Modification of the permit with regard to permitted materials should be confined to reef materials that are included within the publication entitled *Guidelines for Marine Artificial Reef Materials*. This document was published by the Gulf States Marine Fisheries Commission in January 1997, and as you probably know was prepared by State Artificial Reef Coordinators and others with substantial experience and knowledge on success and failure of materials that have been used for artificial reef purposes over the years. Materials listed in the proposed permit application (e.g. chicken coops) should be subject to review and evaluation that other materials have been subjected to for inclusion in the above mentioned publication, before such material can be considered for permit as viable marine artificial reef materials. To do otherwise would not be in the best interest of the marine environment and success that artificial reef programs have experienced to date.
2. I support the Position Statement on the Use of Automobile Tires as Artificial Reef Material published by the Gulf States Marine Fisheries Commission. The use of vehicle tire in any shape or form is not in the best interest of the long-term success and viability of the artificial reef program. Furthermore, recent research done for the University of South Alabama's Artificial Reef Research Project by Andrew Stelcheck, et al, dated August 21, 2000, found that of the nine pyramid (consistent with the pyramid proposed by the subject permit application) artificial reef sites used in the study, only one was located and found following a storm that traversed the area that this material was deployed.
3. The public notice states that natural limestone, clean concrete rubble, pre-fabricated materials and reef structures, and heavy gauge steel materials including surplus military equipment were authorized by the permit issued on September 1994. However, the permit failed to state that in 1996 the permit was modified to include offshore platforms.

Thank you for the opportunity to comment on your public notice.



Les Dauterive
Minerals Management Service
Gulf of Mexico OCS Region

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL		# of pages	
To	Cliff Payne	1	
Dept / Agency	US COE	From	Les Dauterive
Fax #	504/736-8160	Phone #	504/736-2862
		Fax #	504/736-2901

NSN 7540 01-317-7300 5099-101 (FEDERAL SERVICES ADMINISTRATION)

FLORIDA FISH AND WILDLIFE CONSERVATION



COMMISSION DIVISION OF MARINE FISHERIES MEMORANDUM

RESPONSES TO REQUEST FOR ADDITIONAL INFORMATION TO ACCOMPANY THE PERMIT REAUTHORIZATION REQUEST FOR FWCC ESCAMBIA WEST AND EAST SITES.

1. Please supply latitude/longitude coordinates for the four corners of the site, in decimal minute format to at least 2 decimal places. Do not use interpolations from a nautical chart or conversions from LORAN-C coordinates.

Table 1. Corner and Center Coordinates of FWCC Escambia West and East Sites.
(unchanged from 10/12/94 original permit and as currently charted)

DESCRIPTION*	LATITUDE	LONGITUDE	DEPTH (FEET)
FWCC West Site			
CENTER	30°03.500'	87°27.500'	90
NW CORNER	30°07.000'	87°31.000'	82
NE CORNER	30°07.000'	87°24.000'	79 (73)*
SE CORNER	30°00.000'	87°24.000'	102
SW CORNER	30°00.000'	87°31.000'	105
FWCC East Site			
CENTER	30°03.500'	87°06.250'	114
NW CORNER	30°07.000'	87°12.500'	98 (87)*
NE CORNER	30°07.000'	87°00.000'	108
SE CORNER	30°00.000'	87°00.000'	236
SW CORNER	30°00.000'	87°12.500'	108

*Depths of 73 and 87 feet were recorded on the bottom by divers

2. How will the proposed reef enhance fishery resources to the maximum extent possible?

The objective of placing a network of durable and stable patch reefs in the Escambia East and West Artificial Reef areas is to provide a region of additional hard bottom habitat for the enhancement of reef fishery resources. Both sites encompass primarily areas of open sand bottom where natural hard bottom is generally absent or is sparse and of inferior quality in relation to the greater shelter opportunities provided by suitable artificial habitat. Based upon the history of artificial reef use in this area and in Alabama dating back to the early 1950's, there has been a regional increase in the availability of reef fishery resources (reef fish biomass) for

harvest by fishermen as a result of artificial habitat enhancement. Additionally there has been an increase in the diversity of fishes to include both the originally available benthic fish species associated with barren sand bottom, and those reef obligate fish and invertebrate species and transient visiting pelagic species attracted to newly available artificial reef hard bottom habitat. Fish abundance and biomass on artificial reef habitat has been shown in multiple studies both in the United States and in other countries to be greater on and immediately adjacent to the reefs themselves than in the water column a short distance away, on open sand bottom, or even on nearby natural reefs of similar area foot print (See attachment 13 for sample references).

There is a potential enhancement disadvantage in providing artificial hard bottom without some sort of additional active or passive protection. The disadvantage is that the potential for over fishing such reefs exists, thereby neutralizing or negating any true fishery resource enhancement. The problem is most acute in areas where these artificial reefs are large or precisely located within a small permitted footprint, few in number, highly publicized, and easily accessible to a large population of fishers. Artificial reef habitat may be superior to naturally occurring hard bottom habitat or may provide habitat enhancement in areas where that habitat is largely absent. Some desirable reef fish species are selectively attracted to what amounts to a seemingly better place to reside for a number of behavioral reasons.

The FWCC by requesting a reauthorization of the Escambia East and West permits seeks to enhance fishery resources under the existing conditions of allowing continued fishing access to these areas. This will be done in two ways. The first will be by continued support of science-based stronger fishery management initiatives for over-exploited reef fish species in the Gulf of Mexico. The Gulf of Mexico Fishery Management Council has continued to move towards reductions in bag limits of some reef fish species, increases in minimum size limits, and has instituted some closed season requirements. Offshore areas have recently been designated as no take special management zones to protect known or suspected spawning grounds. The second way the FWCC intends to enhance reef fishery resources in the Escambia East and West sites while still allowing fishing in these areas proposed for reauthorization, is to promote a system of many small patch reefs spread across the two large areas. The objective will be to passively reduce fishing pressure on any one site by distributing the pressure over a large area. Fishing pressure will be diluted across many sites instead of focusing exclusively on a few centralized public sites. In Alabama, legal size red snapper are still "fished down" by season's end on many similar small sites because the overall fishing pressure doesn't go away, it is just redistributed. However, the opportunity is there on other sites for private individuals to "husband" these sites and refrain from fishing them as excessively as they might be if they were large heavily publicized sites easily accessible to the general public. This should increase the survivorship and continued growth opportunities of many fish that otherwise would have been quickly caught upon arrival at a public artificial reef fished daily.

Reduce "Tragedy of the Commons"

Additionally, the Commission is proposing to place "sanctuary" reefs in the permitted areas. These reef coordinates would not be published and therefore no fishing activity would occur unless accidentally discovered by anglers. It has been documented (Lindberg 1998) that in the northern Gulf artificial reefs actively fished for six months, following five years of no fishing exhibited a 40% decrease in gag abundance and a 76.9% decline in gag biomass compared to similar unfished sites. Sanctuary reefs would therefore enhance fishery resources at least on a local level.

A network of sturdy scattered patch reefs can also serve as storm refuges and habitat to intercept fish like red snapper that seem to be expanding eastward into former ranges. In hurricane events of the 1990's, on several occasions, red snapper tagged in Alabama were

driven eastward from Alabama and sought shelter on artificial reef systems in the Florida panhandle.

3. How will the proposed reef facilitate or provide access and utilization by recreational and commercial fisherman while minimizing conflicts among competing uses and resources?

3a. Facilitation of access and utilization by recreational and commercial fishermen.

During the 5.5 years the two Escambia Large Area artificial reef areas have been in existence, they have been accessed by recreational fishermen operating primarily out of Pensacola. However, these sites are also utilized by charter boat and recreational fishermen from as far to the east as Destin, Florida (Okaloosa County) and as far west as Orange Beach, Alabama (Baldwin County). The existing large areas also provide reef resource access to the citizens of Santa Rosa County who have no permitted reef sites, to out of state visitors or other out of area Floridians who travel to Escambia County to utilize diving and fishing charters. The sites are close enough to be reached safely in fair weather by boats as small as 20 feet in length.

Recreational fishing access to reef fish resources will continue to be facilitated by construction of public reefs and opportunities to construct private reefs under very controlled conditions. The coordinates of existing and future public reefs will be advertised on the internet at <http://www.state.fl.us/fwc/marine>, made available by calling Escambia County Recreation and Parks at (850) 475-5220, or the Florida Fish and Wildlife Conservation Commission's Bureau of Marine Resource Management at (850) 488-6058.

Commercial hook and line grouper/snapper fishermen using hydraulic or electric reels have the same form of access to public reefs in the existing Escambia East and West areas as the general public and are currently not restricted from fishing on any reefs within the boundaries of these areas. However federal regulations restrict the use of commercial long lines and fish traps inside the 50-fathom curve in this part of the Gulf of Mexico. Such gear would not be available for use in the areas requested for reauthorization due to these depth constraints. There are currently no Special Management Zone (SMZ) gear restriction designations accorded by the Gulf of Mexico Fishery Management Council to either site at this time.

3b. Minimization of conflicts among competing users.

The major potential competing users of the large areas are: 1) Commercial and private vessel traffic; 2) commercial hook and line fishermen; 3) private and charter hook and line fishermen; 3) private and charter scuba diving operations; 4) oil and gas activities; 5) military operations.

Conflict with oil and gas activities were minimized during initial permitting in 1994 through coordination with the U.S. Department of Interior's Minerals Management Service. No active oil or gas lease sites are included within the boundaries of either of these permitted areas requested for reauthorization.

Potential conflicts with coastal commerce including vessels entering Pensacola Bay were minimized during the 1994 permitting process when the permit boundaries were modified to move away from existing shipping approach safety fairways, and minimum clearances of 50 feet were established in the permitted areas. Additionally, the areas, whose boundaries are proposed to remain unchanged, are clearly marked on the most recent NOAA navigational charts as Fish Havens/obstruction areas with a minimum clearance of 50 feet.

Alabama in the early 1990's reported private user conflicts with Florida commercial fishermen who were using up to 30 hooks per line in efforts to target vermilion snapper in their artificial reef areas. Alabama took steps to establish Special Management Zones to limit hooks to two per rig. However the presence of large areas of historically commercially fished hard bottom (Trysler Grounds) within the southern artificial reef zones resulted in the failure of this initiative. We are unaware of any persistent conflicts between private recreational fishermen and commercial fishermen on artificial reefs in the Escambia East and West sites. Most commercial grouper/snapper vessels run multi-day trips and fish areas of more extensive hard bottom located further offshore and outside these zones.

In 1994, shrimp trawl interests were consulted during the exclusionary mapping process that established the current Escambia East and West Areas. The sites were not considered shrimping grounds and had already been historically used to deploy private reef material. We have heard of no reports of lost shrimping gear in these zones or in any areas immediately adjacent to them. Offshore shrimping is insignificant in the region, based on fishery dependent reporting and consultation with fishery biologists.

Primary military interests would be Navy related. The two Escambia areas are in no missile test area, bombing range, ordinance disposal, or other known special operations or military restricted areas. There have been no problems related to national security and the military with respect to these two sites in the 5.5 years they have been in existence. The Navy has been notified of this reauthorization request.

Documented user conflict among anglers and among anglers and divers are rare. Standard boating etiquette, including staying 300 feet away from dive flags, and respecting the rights of and not crowding the person who was already fishing or diving the site are followed by most. We believe conflicts are minimal. Increasing the number of public fishing opportunities through the County and FWCC reef programs while actively promoting responsible angling and diving etiquette and ethics through FWCC and County outreach and education programs will further minimize this problem.

4. How will environmental risks and risks to personal property be minimized?

The depth and distance from shore minimize risks to personal property. A specific listing of allowed materials in conjunction with the state/county inspection process will minimize environmental risks from materials deployment. Item #2 addresses over fishing concerns.

5. Will the reef be consistent with generally accepted principles of international law?

One of the principles of law would be the freedom of public access to America's marine resources by American citizens. In the case of artificial reefs, fishing or diving activities are allowed on any public bottomlands claimed by the U.S. Government or State of Florida, unless specifically restricted by law (e.g, a Special Management Zone, National Marine Sanctuary Preservation Area). Nothing in these requested permitted reef areas would restrict access of anyone for legal fishing or diving activities. Although 'private reefs' (see Item 13 below) are allowed, this does not give the person deploying and/or paying for the reefs exclusive rights over the site or its fishing/diving opportunities.

A second law is that of freedom of navigation of the seas. No reefs are to be placed in navigational fairways and a minimum of 55 feet of vertical clearance will be maintained on all reef deployments. The artificial reef areas are clearly marked on existing NOAA nautical charts

as Fish Havens/Obstructions with an 8.25 fathom (49.5 feet) minimum clearance. No buoy marking system is required by the U.S. Coast Guard due to the length of time these areas have been charted.

6. How will the reef not create any unreasonable obstructions to navigation?

These reef borders are placed over 2 nautical miles from the marked navigational fairways to Pensacola Bay. A minimum vertical clearance of at least 55 feet shall be maintained over all of these reefs. A working clearance of 60 feet shall be enforced to allow for deployment variations and tidal changes (See item #5 and Attachments #6 & #7).

7. Describe the reef's objectives, target species and bottom characteristics.

The primary objective for these reefs is fisheries enhancement. Many fish stocks in the Gulf of Mexico have declined over the recent years. By providing new habitat that is not heavily fished, it is hoped that more fish will live to be older and larger allowing for greater spawning potential for many of these reef fish. Secondary objectives are to increase safe angling opportunities by building artificial reefs utilizing public finances such as Florida saltwater fishing license revenues and Federal Aid in Sport Fish Restoration Program funds, and the development of reef areas with public/private partnerships.

This office has performed 10 artificial reef assessments off Escambia County and has identified 42 species of fish on these artificial reefs. The list of species observed is included as **Attachment 1**. Species of recreational or commercial importance, also known as 'target species' are: gag (*Mycteroperca microlepis*), red snapper (*Lutjanus campechanus*), banks seabass (*Centropristis ocyurus*), great barracuda (*Sphyræna barracuda*), gulf flounder (*Paralichthys albigutta*), lane snapper (*Lutjanus synagris*), gray snapper (*Lutjanus griseus*), sheepshead (*Archosargus probatocephalus*), red grouper (*Epinephelus morio*), gray triggerfish (*Balistes capriscus*) greater amberjack (*Seriola dumerili*), scamp (*Mycteroperca phenax*) and red porgy (*Pagrus pagrus*). Bottom characteristics in these two areas range from very fine silty, soft bottom in the Escambia West site to hard bottom ledges in the Escambia east site (southeast corner). **Attachment 2** lists the sources of information reviewed to determine the amount, if any, of hard bottom in these two large areas.

8. Describe the proposed relief, configuration, profile, footprint and orientation of the reef.

Each patch reef deployed in these large areas will have different values for these parameters depending on the materials type, deployment methods, conditions during deployments, and in the case of publicly funded reefs, the amount of money allocated to the project. This information will be available after each deployment for review and documentation by County and provided to the FWCC.

9. Describe the proposed monitoring plan to ensure compliance with Section 203 of the National Fishing Enhancement Act.

The Commission will monitor reef material deployments in these large areas by requiring that persons requesting the use of the permitted areas fill out an 'APPLICATION FOR ARTIFICIAL REEF CONSTRUCTION IN THE FLOIRDA FISH AND WILDLIFE COMMISSION'S LARGE AREA SITE OFF ESCAMBIA COUNTY'. A copy of this form is attached to this application (see **Attachment #4**). This form requires that the 'deployer' provide information to the Commission

and the county on where, when, what type of materials and the vessel used to deploy the materials for the reef construction. This format also provides the Commission or County inspector information about where to inspect the material prior to the deployments. Failure of a private reef builder to supply the required information will end any further participation by that individual in the FWCC large area artificial reef building program.

Direct, in the field monitoring by the Commission will be done at least twice annually on representative artificial reefs throughout the two large reef areas. In depths of 110 feet or less, a team of Commission divers will monitor reefs. Four types of data will be collected on each reef, (1) water data, (2) reef data (3) dive data and (4) biological data. Data will be collected on the Commission Dive Data Sheets. For depths greater than 110 feet, the reefs will be monitored using bottom sonar units and Differential GPS (DGPS) receivers to estimate profile, footprint and locations of the reefs. Remote camera may also be used.

10. Describe how and what type of pre-and post deployment notifications will be completed.

The reef deployment process and notification requirements are described in the document to the 'deployer' provided (see **Attachment 3**) with the application (see **Attachment 4**) mentioned in item 9 above. This information sheet is called; *'PROCEDURES FOR ARTIFICIAL REEF CONSTRUCTION APPLICATIONS WITHIN THE LARGE AREAS HELD BY THE FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION'*. A water-resistant permit placard will be issued for each deployment application approved and is required to be aboard the deployment vessel during construction operations (see **attachment 5**).

11. Describe the type and frequency of monitoring that would occur in order to satisfy the requirements of the National Artificial Reef Plan.

See Item 9 above.

12. Provide a management plan for the reef(s) for the 10-year duration of the permit. The plan should address any proposed special management zones, gear restrictions or harvest limits. The plan should also address how the permittee intends to coordinate with the appropriate Fishery Management Council to ensure that the project is consistent with existing and future fishery management plans.

Plan objectives should be:

- (1) Provide for the needs of all user groups in the area. This can be accomplished by allowing smaller 'private' reef projects by individuals as well as public reefs.
- (2) Increase reef fisheries enhancement through increased hard bottom habitat and passive protection. Some reefs will be built that will not be advertised to the public, through public funding of 'sanctuary reefs'. These reefs will be deployed by the FWCC contracting directly with marine contractors for the purchase and deployment of the reefs.
- (3) Secondary objectives will be to increase safe angling opportunities by building artificial reefs utilizing public finances such as Florida saltwater fishing license Revenues and Federal Aid in Sport Fish Restoration Program funds.

Although it is possible that the FWCC could propose a special management zone for a portion of these reef areas to allow for a no-take area that would function as a marine reserve, there has been no policy decision made in this regard. Gear restrictions or harvest limits will probably

continue to mirror the general federal fisheries regulations in the surrounding area for the near future.

Consideration will be given to the development of a gridded planning system which along with the use of ARCVIEW will facilitate the long range planning of the FWCC/County reef system so that potential conflicts between public and private reef development activities can be minimized.

The FWCC is the state's representative on the Gulf of Mexico Marine Fishery Management Council and will be closely involved with any future fishery management plans.

13. Define the difference between public and private artificial reefs.

(A) Public reefs are those reefs whose coordinates are advertised and made public for the angling and diving community. These reefs would be FWCC grant funded or funded from some other public source.

(B) Private reefs are those reefs whose coordinates are not made available to the general public. There are two type of these reefs, (1) *Sanctuary Reefs*, where only the Commission and COE has knowledge of the coordinates and (2) *Private Reefs*, funded by the individual and whose exact coordinates are known only to the individuals who deployed them. Due to manpower limitations at the County level, there are no plans to regularly put an observer on board private vessels deploying reef material. The County will focus on educating, at the time of inspection, the private reef builder of the importance of placing permitted materials within the permitted areas and the potential for permit revocation and loss of the program if protocol is not followed.

14. Provide the depth of water at the shallowest and deepest points of the site at Mean Lower Low Water. Provide information on the type of equipment utilized to determine the water depths, the degree of error of the equipment, and the date and time of the readings.

Water depths were taken off the NOAA nautical chart #11360, 38th edition dated January 31, 1998. Dives conducted on 8/26/99 showed 73 feet deep about 1 nautical mile south of the northern border of Escambia West and 87 feet deep about 1 nautical mile south of the northern border of Escambia East. These depths were shallower than depths of the corners of the permitted sites (see Table 1 above). A copy of this field report is enclosed as **Attachment 6**. The error of a diver's digital depth is approximately +/- 1 foot seawater.

Maximum depths (see Table 1) were taken from the NOAA nautical chart and were 105 feet in the SW Corner of Escambia West and 238 feet in the SE corner of Escambia East. We have not verified maximum depths in either site beyond what NOAA reported.

15. What is the minimum proposed water clearance above the reef material at the time of Mean Lower Low Water and the proposed maximum relief associated with each proposed deployment.

Proposed minimum water clearance above the reef materials at the time of Mean Lower Low Water will be 50 feet. The maximum relief associated with each deployment will vary by the type of materials. However, the relief will be no more than 20 feet at the shallowest portion of Escambia West (73 feet) and 35 feet at the shallowest portion of Escambia East (87 feet), based on depths recorded by Commission divers on 8/26/99. **Attachment 7** lists these

proposed maximum profile heights for Escambia West site and Attachment 8 lists this information for the Escambia East site.

16. Identify the total number of proposed deployments by year, including the type and quantity of materials scheduled by year.

Table 2 below lists the historical usage of the each of the two large areas listed by both application and deployments. Table 3 lists the historical usage of the two large areas combined by both application and deployments. It is impossible to determine the exact number or nature of reefs to be deployed per year since all deployments are planned and carried out either by private reef builders or by county governments (either Escambia or Santa Rosa counties). Based on an extrapolation from the past usage of these two permitted sites it is anticipated that about 30 deployments will be in Escambia East Site and 20 reefs will be deployed in Escambia West site per year. It is estimated that approximately 250 reefs will be built over the next five years of the permit.

Table 2 - History of each large area usage

ESCAMBIA EAST LAP SITE	Late 1994	1995	1996	1997	1998	Early 1999	TOTALS
PUBLIC APPLICATIONS	1	1	2	1	0	1	6
PRIVATE APPLICATIONS	0	0	8	3	2	1	14
TOTAL APPLICATIONS	1	1	10	4	2	2	20
PUBLIC DEPLOYMENTS	5	1	6	1	0	1	14
PRIVATE DEPLOYMENTS	0	0	88	22	11	1	122
TOTAL DEPLOYMENTS	5	1	94	23	11	2	136
ESCAMBIA WEST LAP SITE	Late 1994	1995	1996	1997	1998	Early 1999	TOTALS
PUBLIC APPLICATIONS	0	0	0	0	0	0	0
PRIVATE APPLICATIONS	0	0	7	2	2	5	16
TOTAL APPLICATIONS	0	0	7	2	2	5	16
PUBLIC DEPLOYMENTS	0	0	0	0	0	0	0
PRIVATE DEPLOYMENTS	0	0	67	10	8	19	104
TOTAL DEPLOYMENTS	0	0	67	10	8	19	104

Table 3 - History of the total large area usage

BOTH ESCAMBIA LAP SITES	Late 1994	1995	1996	1997	1998	Early 1999	TOTALS
PUBLIC APPLICATIONS	1	1	2	1	0	1	6
PRIVATE APPLICATIONS	0	0	15	5	4	6	30
TOTAL APPLICATIONS	1	1	17	6	4	7	36
					AVERAGE PER YEAR		7.2
PUBLIC DEPLOYMENTS	5	1	6	1	0	1	14
PRIVATE DEPLOYMENTS	0	0	155	32	19	20	226
TOTAL DEPLOYMENTS	5	1	161	33	19	21	240
					AVERAGE PER YEAR		48.0

Again, based on the past usage from Table 4 below it is anticipated that the materials used will be:

Table 4 - Materials types historically in the large areas.

<i>Material Types</i>	<i>Number of Deployments</i>	<i>Percent of Deployments</i>
Prefabricated concrete structures	205	85.5%
Steel vessels	5	2%
Scrap concrete	6	2.5%
Scrap metal /miscellaneous	24	10%

A Workshop was held in Pensacola by the FWCC and Escambia County (June 13, 2000) as part of the reauthorization process. Public concern related to permitting was based on two issues: 1) the deployment review process and 2) ambiguity about materials. Therefore we would like to clarify and specify the allowed materials in this section. Allowed material includes limestone; clean concrete material or rubble; steel hulled vessels conforming to United States Coast Guard (USCG) and Environmental Protection Agency (EPA) specifications; metal of 1/8 inch or greater thickness welded or securely fastened together with a weight of at least 150 pounds; surplus military equipment prepared in accordance with EPA and USCG specifications; and, prefabricated reef structures comprised of the preceding materials.

17. Describe how you will provide evidence of clear and unambiguous title to all of the proposed reef materials.

Three types of materials are proposed for use in the sites:

- (1) Materials of opportunity: By signing the Inspection Form, the individual requesting to deploy reef material in the Escambia East or West Sites acknowledges that the material obtained has been secured legally and that he has clear ownership of this material.
- (2) Ships or large vessel: A letter of title transfer from the owner to the state of Florida is required.
- (3) Pre-fabricated purchased structures: An invoice or bill of sale from the manufacturers of these materials identifying the structure type and amount of materials used for the project.

18. Describe the type of substrate present on the proposed site and the method in which this information was obtained.

This office conducted an extensive literature search and a report generated on October 27, 1993. This was submitted with the original application and is included as **Attachment 2**. The area of these sites was subsequently modified based on public input and other agency comments during the application process. Recent artificial reef assessments (Horn 1999) were performed in both areas and are included as **Attachment 6**. The divers described the bottom sediments in both areas as light brown, sandy sediments with no hard/live bottom observed. Additionally, little to no settlement of the reef modules was noted. The bottom in both areas observed by Commission divers appeared to be good substrate for reef materials.

19. Describe the proximity of the site to any submerged grasses, coral or hard bottom formations, commercial fishing/trawling grounds, military restricted/testing areas, marine parks, marine reserves, aquatic preserves, marine sanctuaries, commercial anchorages or fairways, and transmission crossings. These items must be identified on your drawings.

The only submerged grasses in this part of the Gulf of Mexico are found within Escambia Bay, which is over 9 Nautical Miles from the sites. No commercial fishing/trawling grounds, military restricted/testing areas, marine parks, marine reserves, aquatic preserves, and marine sanctuaries, and are present within 10 nautical miles of the border of either sites. No known oil or gas submerged transmission crossings exist in these sites according to U.S. Department of Interior's Minerals Management Service. These sites were initially permitted to be over 2 nautical miles from the charted commercial fairways into Pensacola Bay. This office has no direct evidence that hard bottom exists within these permitted sites. Based on the literature searches it is possible that low relief, ephemeral hard bottom areas may exist within these large areas, however this type of bottom is subject to burial and re-emergence as part of natural storm driven cycles.

20. Illustrate the proposed location of the site on an 8.5 by 11 inch portion of a current nautical chart, showing the center and corner coordinates in latitude and longitude. Also provide the distance and bearing from a minimum of three landmark locations to the center of the site.

Attachment 9 is a copy of the portion of Nautical Chart # 11360, 38th edition, dated January 31, 1998. These two large areas are shown on this chart as 'blued out sites'. **Attachment 10** contains a map of the general area with the approximate ranges and bearings to the three major ports from the centers of the two sites.

21. Provide a plan view and cross-sectional drawings for proposed reef deployments. The plan view(s) should also reference the distance of separation between all planned deployments. Cross sections should illustrate the depth to bottom and the depth above the reef material at Mean Lower Low Water.

Attachment 7 lists the cross-sectional view of the Escambia West site with possible maximum profiles allowing for 55 feet of clearance at Mean Lower Low Water for the corners of the site. **Attachment 8** lists this information for the Escambia East site. **Attachment 11** is a plan drawing chart showing all deployments within the Escambia West site. **Attachment 12** shows the plan drawing deployments for Escambia East site.

Several of these deployments appear to be outside the borders of the site as drawn. However, these deployments have not been verified and confirmed in the field as outside the permitted area. These coordinates were provided to FWCC as Loran-C coordinates and converted by computer program to get the latitude and longitude necessary to plot on this map in ArcView™ software. This conversion process can have errors in real position up to 2,000 feet. **Attachment 12** shows the plan drawing deployments for Escambia East site. Future public deployments will be directed to areas that currently do not have reef materials and all trips will be supervised by either Escambia County or FWCC staff to insure placement of materials within the permitted sites.

22. Describe the type of deployment setbacks to be utilized to ensure that materials are not placed beyond the limits of the designated area.


No material shall be permitted to be deployed within 0.25 nautical miles of the border of the sites. This distance should preclude any materials deployed outside the site as a result of errors or variance in navigational systems. All public deployments are to have a differential global positioning system receiver on site.

23. Describe the criteria, which were utilized to select the proposed site.

The October 27, 1993 selection criteria listed in **Attachment 2** still apply to these sites. Please note, however, that the graphic depictions of the Escambia Sites in this Attachment 2 memo were subsequently changed to their current configuration due to input from other agencies. Additionally the Okaloosa site was transferred to Okaloosa County.

Florida Department of
Environmental Protection

Memorandum

TO: Jon Dodrill, Administrator 

FROM: Bill Horn, Environmental Specialist III

DATE: October 27, 1993

SUBJECT: Artificial Reef Site Selections for Escambia & Okaloosa Counties

ESCAMBIA COUNTY

Two areas are proposed for the large state held permits in waters off of Escambia County. These two areas, both in federal waters, have areas of 166.7(east site) and 69.3(west site) for a total of 236 square miles (nautical). Attachments #1 & #2 are copies of the nautical charts of the Gulf with the proposed reef area drawn in. Many available resources were consulted to determine the proposed locations for these reefs and the references are listed in Table 4. Several environmental /physical factors were used to evaluate the potential reef sites. The areas evaluated were:

1. Close proximity to the Pensacola Bay pass for ease of access for the marine user groups.
2. Away from any navigational, marine spoil or dumping areas and existing artificial reefs.
3. Away from any existing live or hard bottom habitats that are known at the time of this draft report.
4. Deep enough for materials stability which precluded areas inside of State waters.
5. Known to be not utilized for commercial trawling activities.

Table 1 gives the approximate dimensions, water depths and distances from the Pensacola Bay entrance buoy PP. All distances are in nautical miles and the * sign means compass degrees. Depths are approximates taken from the NOAA nautical Chart # 11360. Distances, bearings and the lengths of the sides of the sites were taken from a computer program that also converts the Latitude/Longitude coordinates to Loran TD's.

TABLE 1-EAST SITE

CORNER	LENGTH TO NEXT (CORNER)	DEPTH	RANGE@BEARING (FROM PP BUOY)
NE	5.06 @ 180* (SE)	77 ft.	18.3 @ 111*
SE	18.02 @ 236 (SW)	90 ft.	20.7 @ 124*
SW	15.2 @ 0* (NW)	84 ft.	21.9 @ 174*
NW	14.9 @ 90* (NE)	80 ft.	6.9 @ 162*

TABLE 2 - WEST SITE

CORNER	LENGTH TO NEXT (CORNER)	DEPTH	RANGE@BEARING (FROM PP BUOY)
NE	6.1 @ 180° (SE)	90 ft.	9.6 @ 183°
SE	11.4 @ 270° (SW)	360 ft.	15.7 @ 182°
SW	6.1 @ 0° (NW)	150 ft.	19.7 @ 217°
NW	11.4 @ 90° (NE)	84 ft.	15.3 @ 231°

OKALOOSA COUNTY

A single large site was proposed off the Destin East Pass in Okaloosa since they did not have the problem Pensacola had with the north-south navigational channel. The only navigation fairway in this area runs east-west about 10 N. miles offshore. The proposed reef site was selected to go outside of this area and is a rectangle of 163.4 square miles (nautical). This area was chosen based on the same set of parameters mentioned above for Pensacola. The size of this area was dictated by the proximity of live bottom area on all sides of the site. Table 3 below shows the corners, dimensions, approximate depths and distances to the Destin-East Pass c/b buoy. Depths are approximates taken from the NOAA nautical Chart # 11388. Distances, bearings and the lengths of the sides of the sites were taken from a computer program that also converts the Latitude/Longitude coordinates to Loran TD's.

TABLE 3

CORNER	LENGTH TO NEXT (CORNER)	DEPTH	RANGE@ BEARING (FROM c/b BUOY)
NE	20.17 @ 180° (SE)	98 ft.	17.6 @ 140
SE	8.10 @ 270° (SW)	150 ft.	24.4 @ 153°
SW	20.17 @ 0° (NW)	250 ft.	23.5 @ 202°
NW	8.10 @ 90° (NE)	100 ft.	16.3 @ 213°

TABLE 4

These areas were chosen from input and data collected from the following sources;

1. Public workshops in Pensacola, Shalimar, and Panama City on September 21,22 and 23,1993 respectively and subsequent written comments from the participants.
2. An exclusionary map for the northern Gulf of Mexico developed for the US Navy by Continental Shelf Associates inc., (1993).
3. "A Plan for siting artificial reefs in the Northern Gulf of Mexico",prepared by the Mississippi-Alabama Sea Grant Consortium and Continental Shelf Associates, Inc., for the U.S. Department of Commerce National Oceanic and Atmospheric Administration, National Marine Fisheries Service.(1866, Doc # MASGP-86-021).

4. U.S. Department of the Interior, Minerals management Service Visuals #3, #2, #10 and #6 (1982) which are a series of maps produced by MMS for the purposes of disseminating information on oil and gas lease areas in the Northern Gulf of Mexico.
5. " Outer Continental Shelf Resources Management Map", of the Destin Dome area, #NOS NH 16-8 (OCS). This is a detailed Bathymetric Map of the Gulf Bottom south of Escambia County.
6. U.S. Department of Commerce, National Oceanic and Atmospheric Administration 1991, Nautical Charts #1192, 11388, 11360. Washington D.C.
7. Environmental Report, Exploratory Drilling, Gulf of Mexico: Offshore Florida Pensacola Area, 1989, by Continental Shelf Associates, Inc.
8. Photo-documentation Survey of Pensacola Area Blocks 845, 846, 889, 890, 933 and 934, September 1989, by Continental Shelf Associates, Inc.
9. Environmental Report (Plan of Exploration), Gulf of Mexico: Offshore Florida Pensacola Area, 1984, by Continental Shelf Associates, Inc.
10. Live-bottom Survey of a Drill site Location in Pensacola area Block 948 off the Northwest coast of Florida, 984, by Continental Shelf Associates, Inc.
11. "Hot Numbers", Destin , Florida, Mem Tierce (Copyright 1991), Computer Disc and Book
12. "Hot Numbers", Gulf Shores to Pensacola, Mem Tierce (Copyright 1990), Computer Disc
13. Coastal Loran Coordinates, Volume 1 Texas to Maine, Captain Rob and Susie Stebbins, (Copyright 1990)
14. Florida Artificial Reef Development Plan, Florida Department of Environmental Protection, (1992 Draft)
15. Florida Artificial Reef Monitoring Plan, Florida Department of Environmental Protection (1992 Draft)
- 16 Eastern Gulf Shelf Bio-Atlas, Figure 5, Page 28," Distribution of significant Topographic and biological features" , U.S. Department of the Interior/Minerals Management Service (1987)
17. Artificial Reef Evaluation Services: Hard-Bottom Habitat Near Suwannee Regional Reefs, William J. Lindberg (November 23, 1993), unpublished

LORAN-C GENERAL EXPLANATION

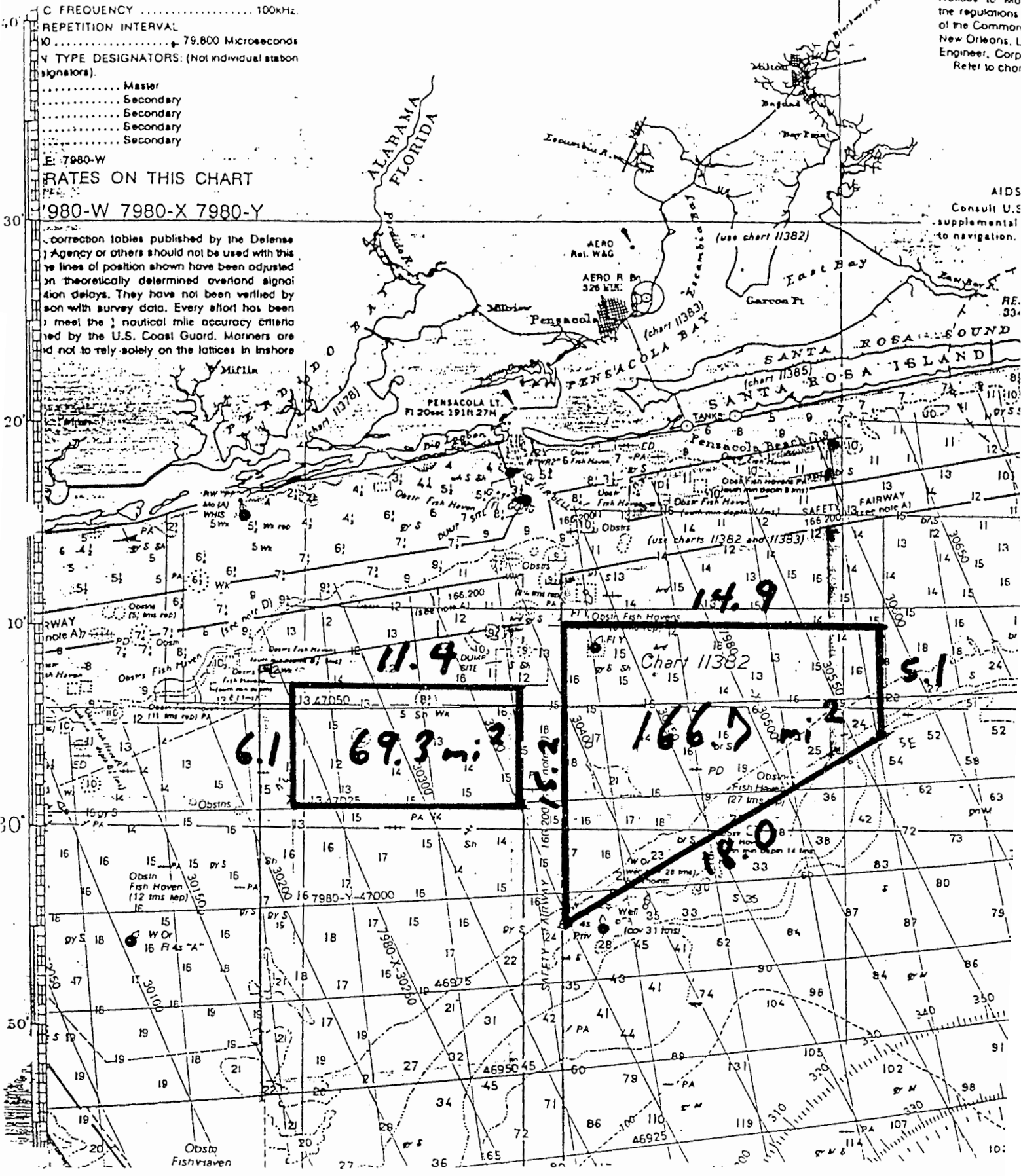
C FREQUENCY 100kHz.
 REPETITION INTERVAL
 M 79.800 Microseconds
 N TYPE DESIGNATORS: (Not individual station
 signators).
 Master
 Secondary
 Secondary
 Secondary
 Secondary

E 7980-W
RATES ON THIS CHART
 7980-W 7980-X 7980-Y

Correction tables published by the Defense Agency or others should not be used with these lines of position shown have been adjusted on theoretically determined overlaid signal delay. They have not been verified by work with survey data. Every effort has been made to meet the nautical mile accuracy criteria required by the U.S. Coast Guard. Mariners are advised not to rely solely on the lattices inshore

Navigation
 Chapter 2, U.S.
 Revisions to C
 Notices to Ma
 the regulations
 of the Comm
 New Orleans, L
 Engineer, Corp
 Refer to chart

AIDS
 Consult U.S.
 supplemental
 to navigation.



NOTE A

Navigation regulations are published in Chapter 2, U.S. Coast Pilot 5. Additions or revisions to Chapter 2 are published in the Notices to Mariners. Information concerning the regulations may be obtained at the Office of the Commander, 8th Coast Guard District in New Orleans, La., or at the Office of the District Engineer, Corps of Engineers in Mobile, Ala. Refer to charted regulation section numbers.

NOTE C

Port St. Joe is in the Eastern Standard Time Zone

WARNING

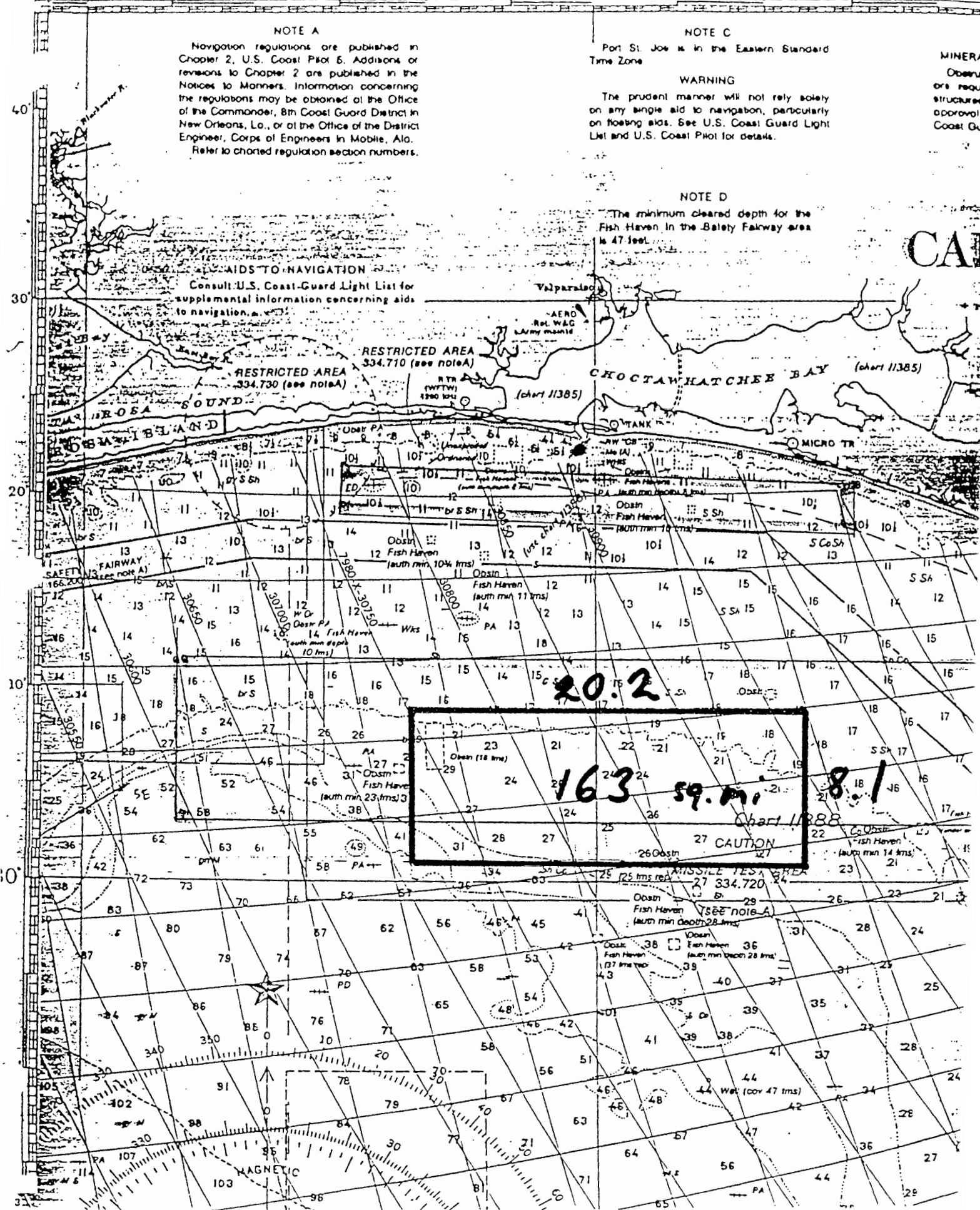
The prudent mariner will not rely solely on any single aid to navigation, particularly on floating aids. See U.S. Coast Guard Light List and U.S. Coast Pilot for details.

MINERAL Obstructions are required structures approval Coast Guard

NOTE D

The minimum cleared depth for the Fish Haven in the Bailey Fairway area is 47 feet.

CAI



20.2
163 sq. mi.
8.1
Chart 11388
CAUTION

BMFM ARTIFICIAL REEF ASSESSMENT DIVE TEAM REEF EVALUATION DIVES

ESCAMBIA COUNTY DEP Escambia West & East -Fish Haven™ sites August 26, 1999

PURPOSE

The intent of the dives was to collect biological and physical information on artificial reef sites off Escambia County. The goals of the project were to perform fish census and confirm location of materials previously placed on site. The Bureau of Marine Fisheries Management (BMFM) Assessment Dive Team (ADT), within the Florida Fish and Wildlife Conservation Commission, performed a set of three assessment dives.

METHODOLOGY

The dive team launched from the Shoreline Park boat ramp in Gulf Breeze around 8 am aboard the BMFM vessel "*Fish Haven*". This project was conducted in conjunction with personnel with Artificial Reefs Incorporated (ARI); the company that produces the Fish Haven™ modules that were being assessed.

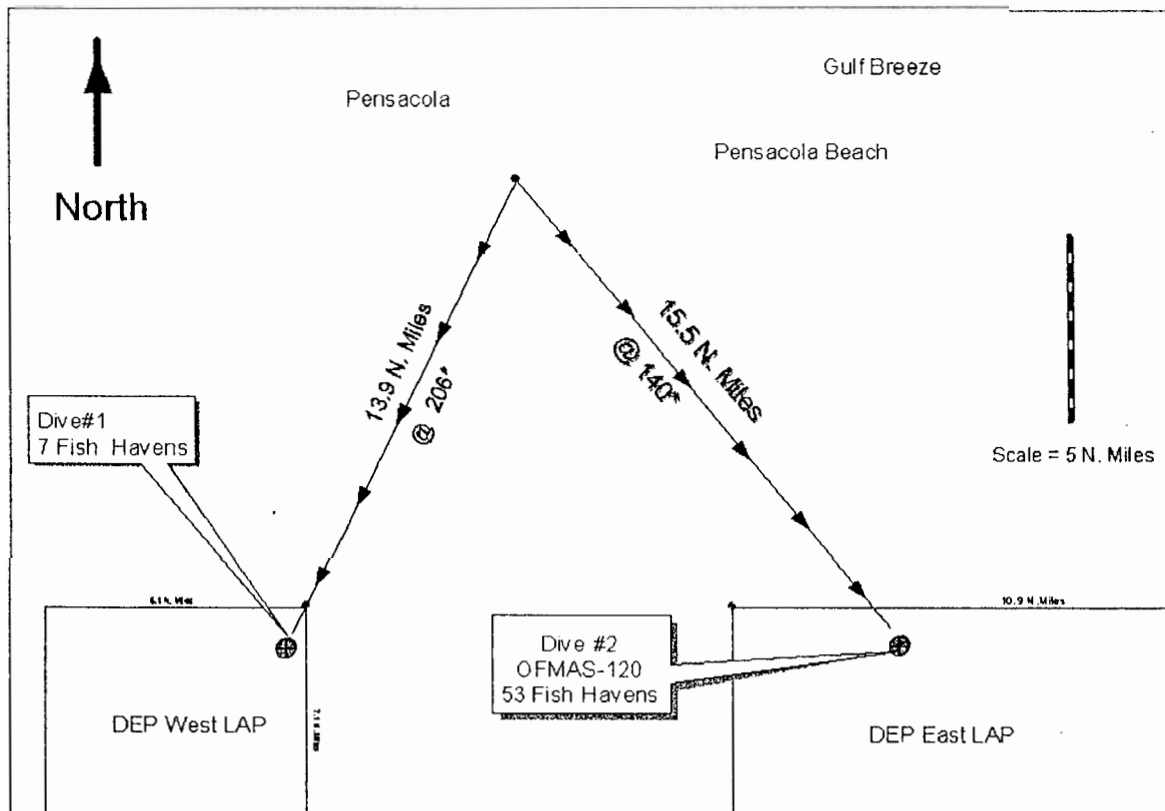


Figure 1 - Approximate locations of Escambia assessment dives

RESULTS

Dive No. 1 - Escambia County
73 feet for 24 minutes
Entered the water at 9:26 AM

GRANT #: n/a
 FUNDING: n/a
 DIVE DATE: August 26, 1999
 DEPLOYMENT DATE: April 24, 1998
 REEF: Set of 7 Fish Haven™ Modules
 REEF LOCATION: On File
 DISTANCE: 13.9 NM @ 206° from Pensacola Pass Bell Buoy #8,
 DEPTH: 73 feet
 DIVE LOCATION: All Modules
 PROFILE: 6 feet
 STABILITY: 4 (from 1 to 5 scale)
 COMPLEXITY: 3 (from 1 to 5 scale)
 VISIBILITY: 20 feet estimated
 WATER TEMPERATURE: Surface 85° F, Bottom 78° F
 DIVERS: Bill Horn and Jon Dodrill (BMFM)

The conditions on the site were moderate with 2 to 3 foot seas and clear skies. The air temperature was in the high 80s with the water temperature at 78°F on the bottom with a distinct thermocline at 45 of water. The visibility was estimated at 40 feet at the top but only 20 feet below the thermocline near the bottom. There was very little current. The modules were all in one general area, about 50 feet across, with 4 modules almost touching and another group of three together about 30 feet to the east. All were intact and upright on the bottom, with little settlement into the sand. Two of the modules were missing one side panel, however these modules were apparently placed on the bottom this way intentionally.

There were 14 species of fish noted on this dive, however none were considered abundant, (defined as more than 100 individuals seen). The most dominant species was a large school of greater amberjack (*Seriola dumerili*) that were both on the reef and up in the water column. Many of these fish were legal size. There were also many red snapper (*Lutjanus campechanus*) present on the modules; several of these were legal size.

Table 1. Relative Fish Abundance on the set of 7 "Fish Havens™"

ABUNDANCE	COMMON NAME	SCIENTIFIC NAME	COMMENTS
Abundant > 100	none		
Common (11-100)	greater amberjack	<i>Seriola dumerili</i>	24"-36"
	red snapper	<i>Lutjanus campechanus</i>	10"-16"
	spade fish	<i>Chaetodipterus faber</i>	upper water column
Occasional (2-10)	whitespotted soapfish	<i>Rypticus maculatus</i>	in modules
	blue angelfish	<i>Holocanthus bermudensis</i>	
	gray snapper	<i>Lutjanus griseus</i>	12"
	gray triggerfish	<i>Balistes capriscus</i>	
	orange filefish	<i>Aluterus schoepfi</i>	
	sheepshead	<i>Archosargus probatocephalus</i>	14"-16"
	slippery dick wrasse	<i>Halichoeres bivittatus</i>	
single	cocoa damselfish	<i>Pomacentrus variabilis</i>	juvenile
	gag	<i>Mycteroperca microlepis</i>	20"
	gulf flounder	<i>Paralichthys albigutta</i>	14"
	oyster toadfish	<i>Opsanus tau</i>	in module corner

Dive No. 2 - Escambia County
87 feet for 33 minutes
Entered the water at 11:46 AM

GRANT #:	OFMAS-120
FUNDING:	\$25,000
DIVE DATE:	August 26, 1999
DEPLOYMENT DATE:	June 26, 1999
REEF:	53 Fish Haven™ Modules
REEF LOCATION:	30° 05.983' N/ 87° 07.960' W (BMFM- Northstar DGPS)
DISTANCE:	15.5 NM @ 140° from Pensacola Pass Bell Buoy #8
DEPTH:	90 feet to the bottom, dive was 87 feet
DIVE LOCATION	First 35 modules
PROFILE:	6 feet
STABILITY	4 (from 1 to 5 scale)
COMPLEXITY	3 (from 1 to 5 scale)
VISIBILITY:	60 feet estimated
WATER TEMPERATURE:	80° F. on surface, 78° F on bottom.
DIVERS:	Bill Horn and Tom Maher

The conditions were much better for this dive, the seas had calmed down considerably and the visibility had improved greatly. This location was about 15 nautical miles east of the previous dives. The visibility was actually worse on the surface here than on the bottom. The thermocline here was at about 65 feet.

This reef consisted of 53 Fish Haven™ Modules. Thirty-five of these were the larger size (6-ft. tall, 10-ft. base) and 18 were the smaller size (4.5-ft. tall and 8-ft. base). About 35 were mapped on this dive with the farthest away being about 68 feet (21 meters) from the benchmark. All modules were upright and none were broken. The modules were arranged in groups of about 4 to 6 and in turn the groups were separated by about 30 feet (98 feet).

No formal fish count was conducted here, as the mapping of the site was the primary objective. However, the fish population noted was very impressive, given the age (two months) of the reef. Many amberjack and red snapper were noted. Many tomtate grunts and banks seabass were also seen on this reef which is significant because these species were not seen on the much older Fish Havens™ observed on the previous dive.

Dive No. 3 - Escambia County -
90 feet for 34 minutes
Entered the water at about 3:00 PM

GRANT #:	OFMAS-120
FUNDING:	\$25,000
DIVE DATE:	August 26, 1999
DEPLOYMENT DATE:	June 26, 1999
REEF:	53 Fish Haven™ Modules
REEF LOCATION:	30° 05.983' N/ 87° 07.960' W (BMFM- Northstar DGPS)
DISTANCE:	15.5 NM @ 140° from Pensacola Pass Bell Buoy #8
DEPTH:	90 feet to the bottom, dive was 87 feet
DIVE LOCATION	About 15 Modules
PROFILE:	6 feet
STABILITY	4 (from 1 to 5 scale)

COMPLEXITY	3 (from 1 to 5 scale)
VISIBILITY:	60 feet estimated
WATER TEMPERATURE:	80° F. on surface, 78° F on bottom.
DIVERS:	Tom Maher , Jon Dodrill (FWCC)

This dive was continuation of the mapping project begun on the previous dive. Dive #3 for the day. These divers mapped about 25 additional modules

CONCLUSION

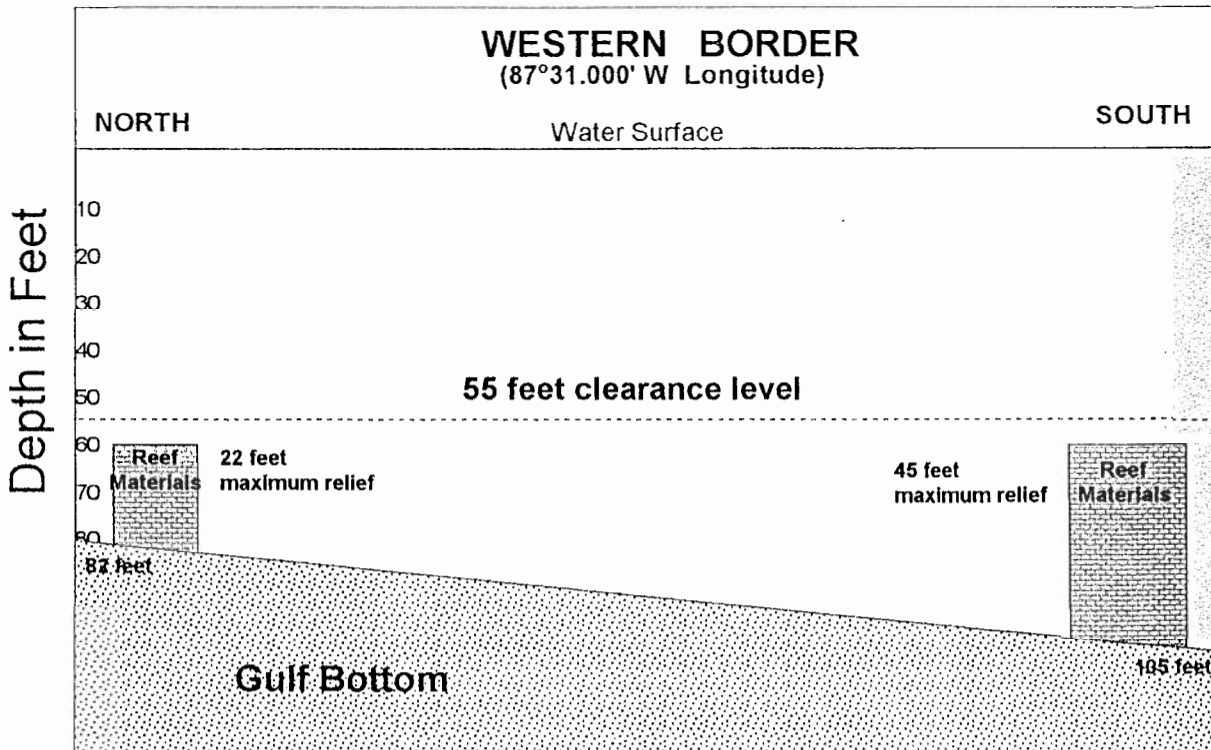
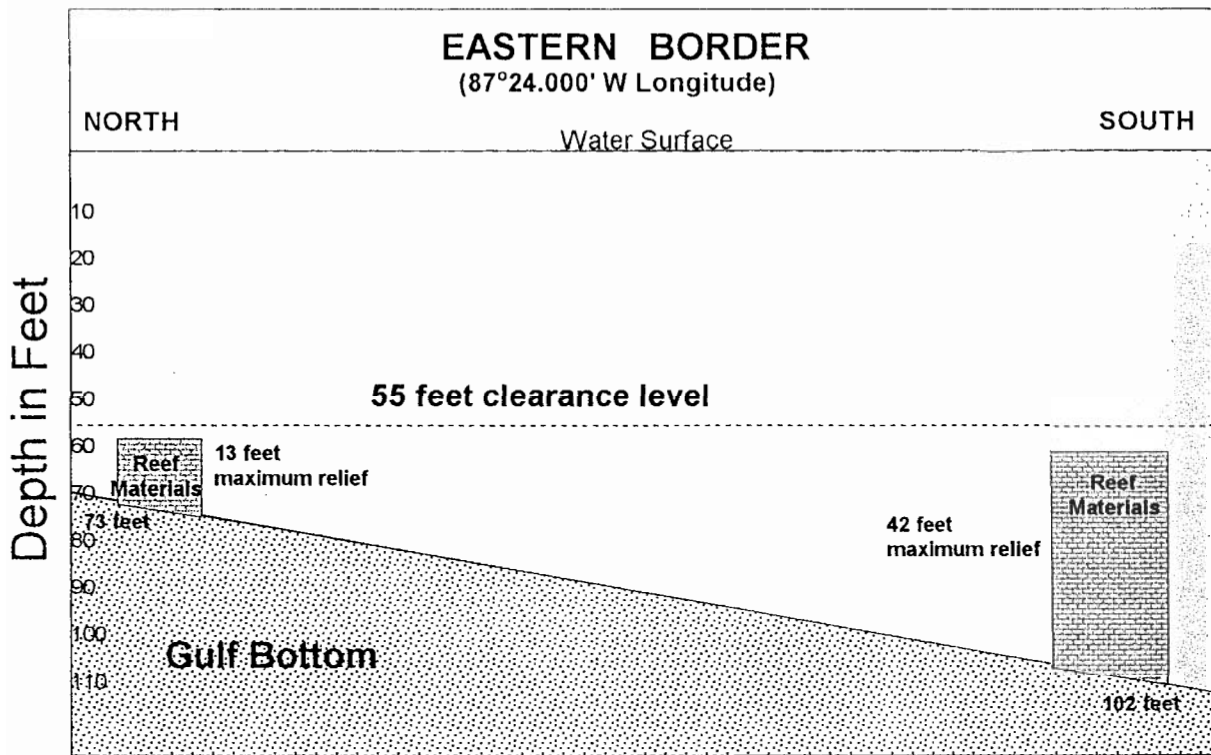
The Fish Haven™ modules observed were all intact and upright. This was a concern to the ADT since previous assessments on similar structures (Grouper Ghettos™) by a different manufacturer seemed to have structural problems when not deployed upright (**Horn 1993,1994, 1995**) It is important to note that these structures are shaped like tetrahedrons, with a triangular base. These modules are not pyramids, like the Grouper Ghettos™, that have a square base. The fish population was impressive for the size of the reefs (dive #1) and the age of the reefs (dives #2 & 3). The center of the mapping project benchmark grant was located about 170 feet south of the coordinates reported on the materials placement report forms. This reef was laid out very closely to the proposed layout plan as submitted by ARI, Inc. This reef appeared to be a very good habitat and no initial problems were observed with these types of module. This was the first assessment by the ADT of this module type. Future assessment projects will be scheduled to gather additional information about these modules.

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- Horn, W. M., FDEP Artificial Reef Assessment Dive Team, Project report for Okaloosa County Area, April 20, 1994, Unpublished report, 5 pages.
- Horn, W. M., FDEP Artificial Reef Assessment Dive Team, Project report for Okaloosa County Area, November 9, 1995, Unpublished report, 4 pages.

FWCC Escambia West Large Area Permit

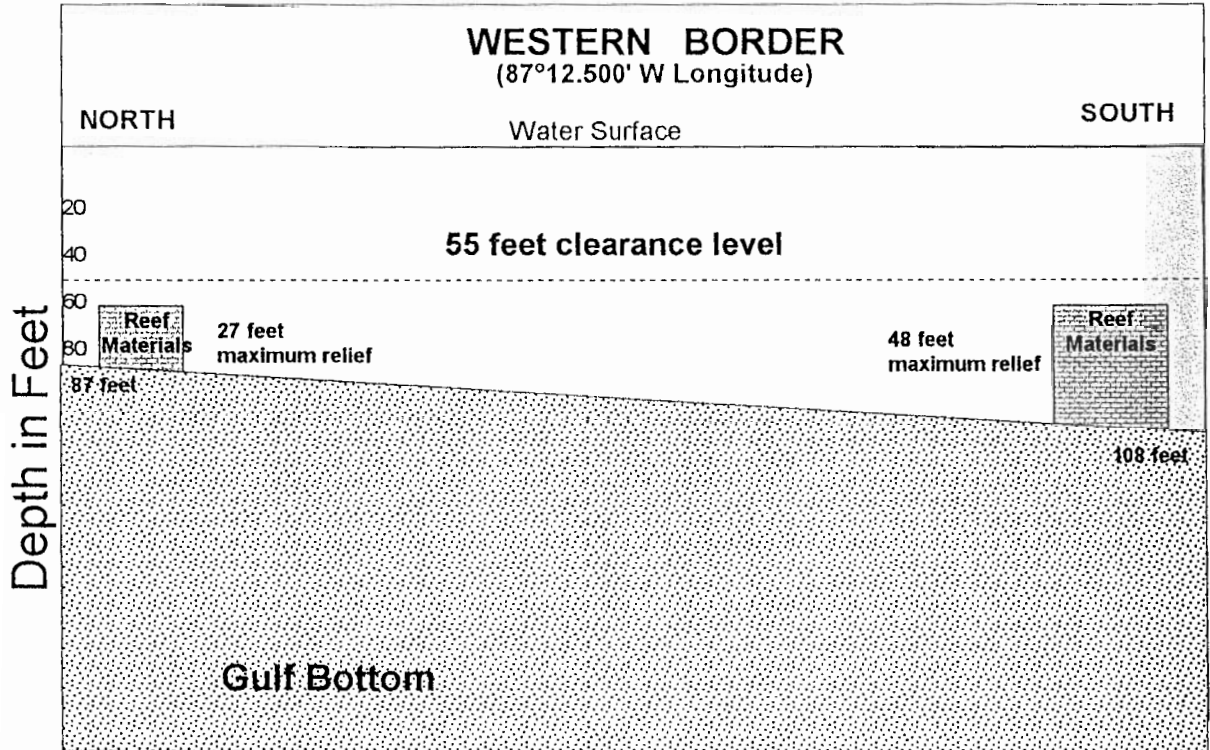
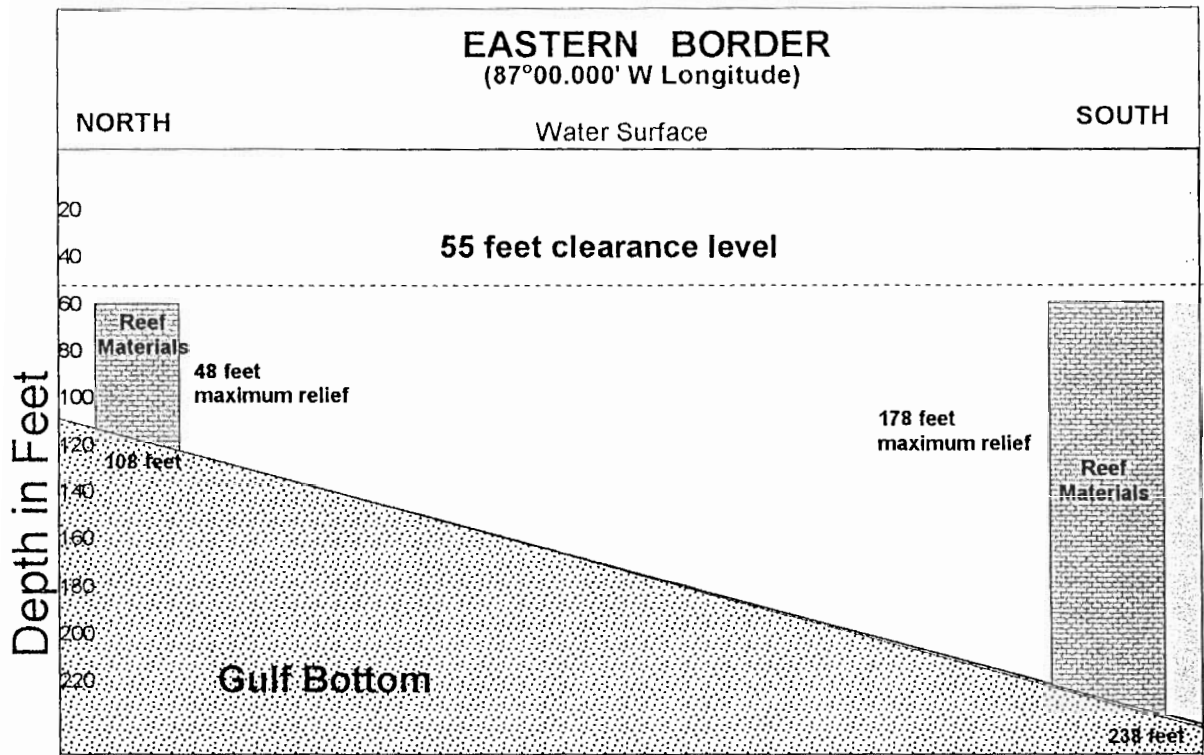
Cross Sectional view of possible proposed deployments



Graphic representation only, Drawings not to scale.

FWCC Escambia East Large Area Permit

Cross Sectional view of proposed deployments



Graphic representation only, Drawings not to scale.

- Master
- Secondary
- Secondary
- Secondary
- Secondary

Attachment #9 - FWCC Reef Permit

ON THIS CHART

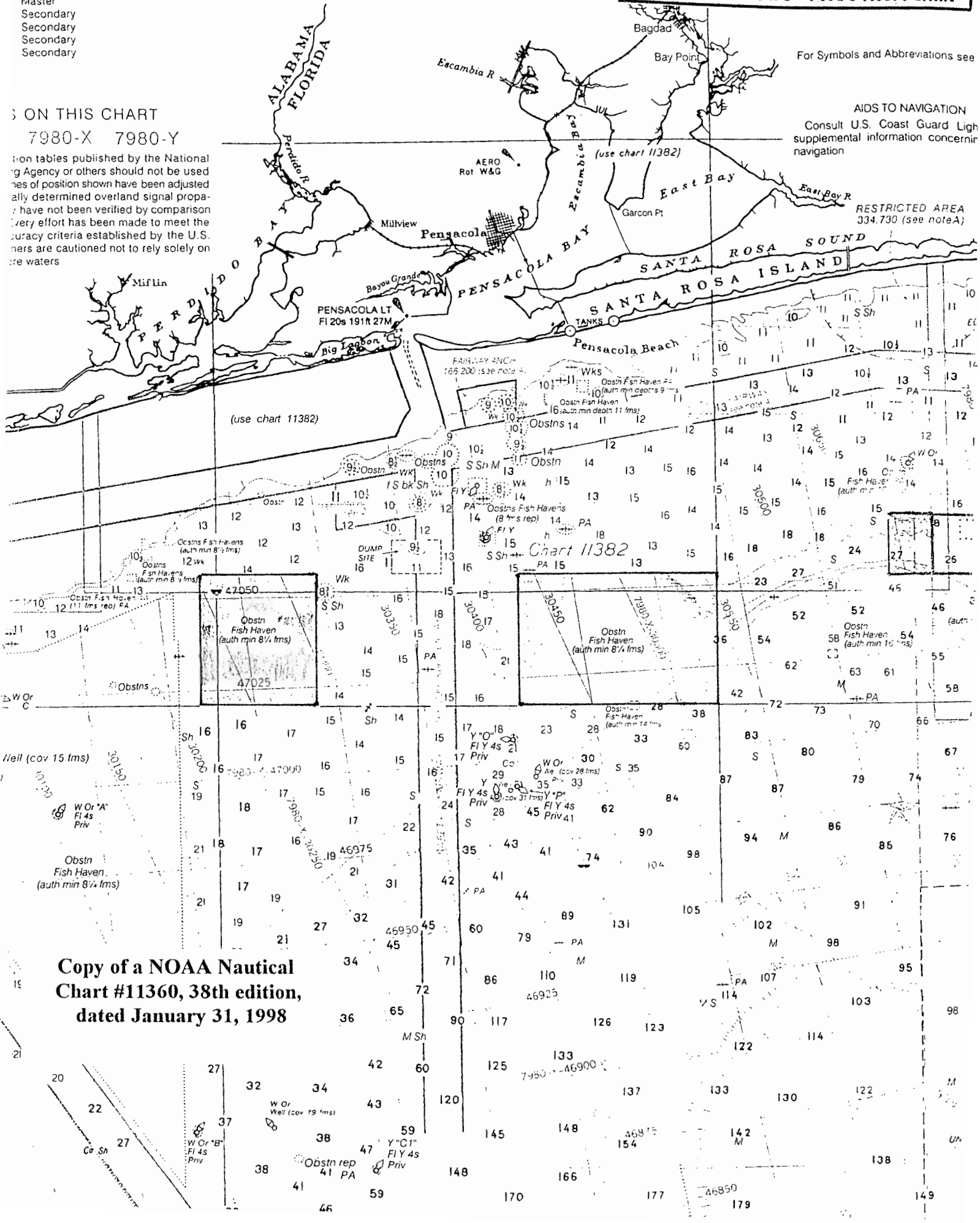
7980-X 7980-Y

Information tables published by the National Oceanic and Atmospheric Administration or others should not be used unless the accuracy of position shown have been adjusted and determined overland signal propagation have not been verified by comparison. Every effort has been made to meet the accuracy criteria established by the U.S. Coast Guard. Mariners are cautioned not to rely solely on information from this chart.

For Symbols and Abbreviations see

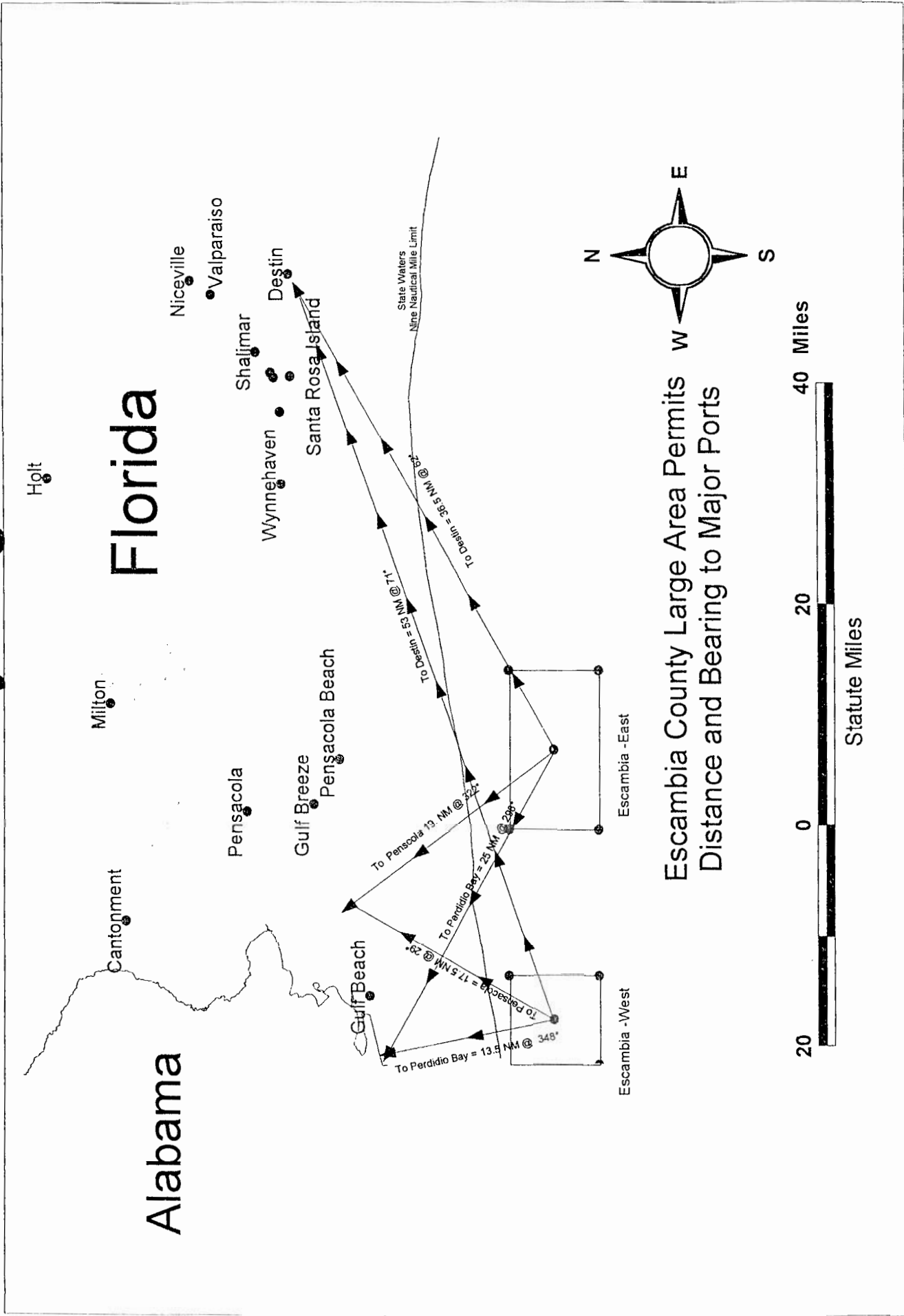
AIDS TO NAVIGATION
Consult U.S. Coast Guard Light List for supplemental information concerning navigation

RESTRICTED AREA 334.730 (see note A)



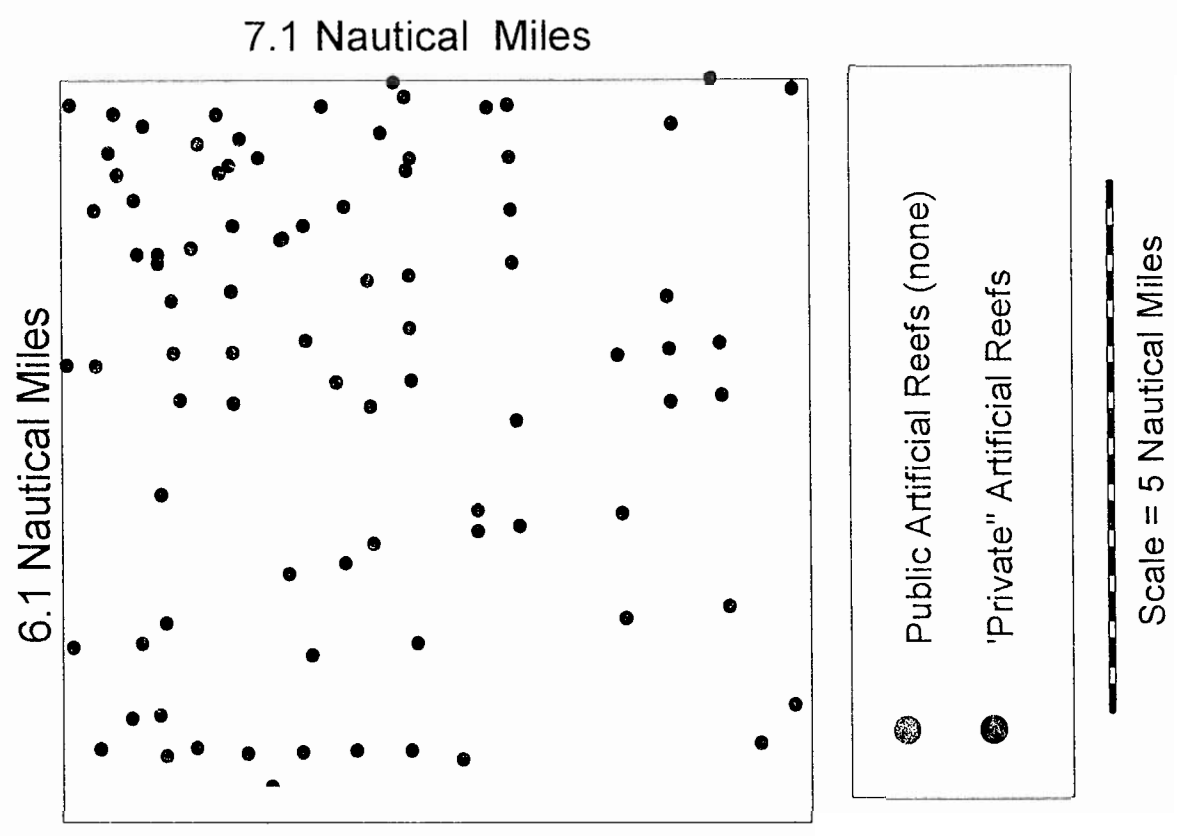
Copy of a NOAA Nautical Chart #11360, 38th edition, dated January 31, 1998

Escambia County Large Area Permits

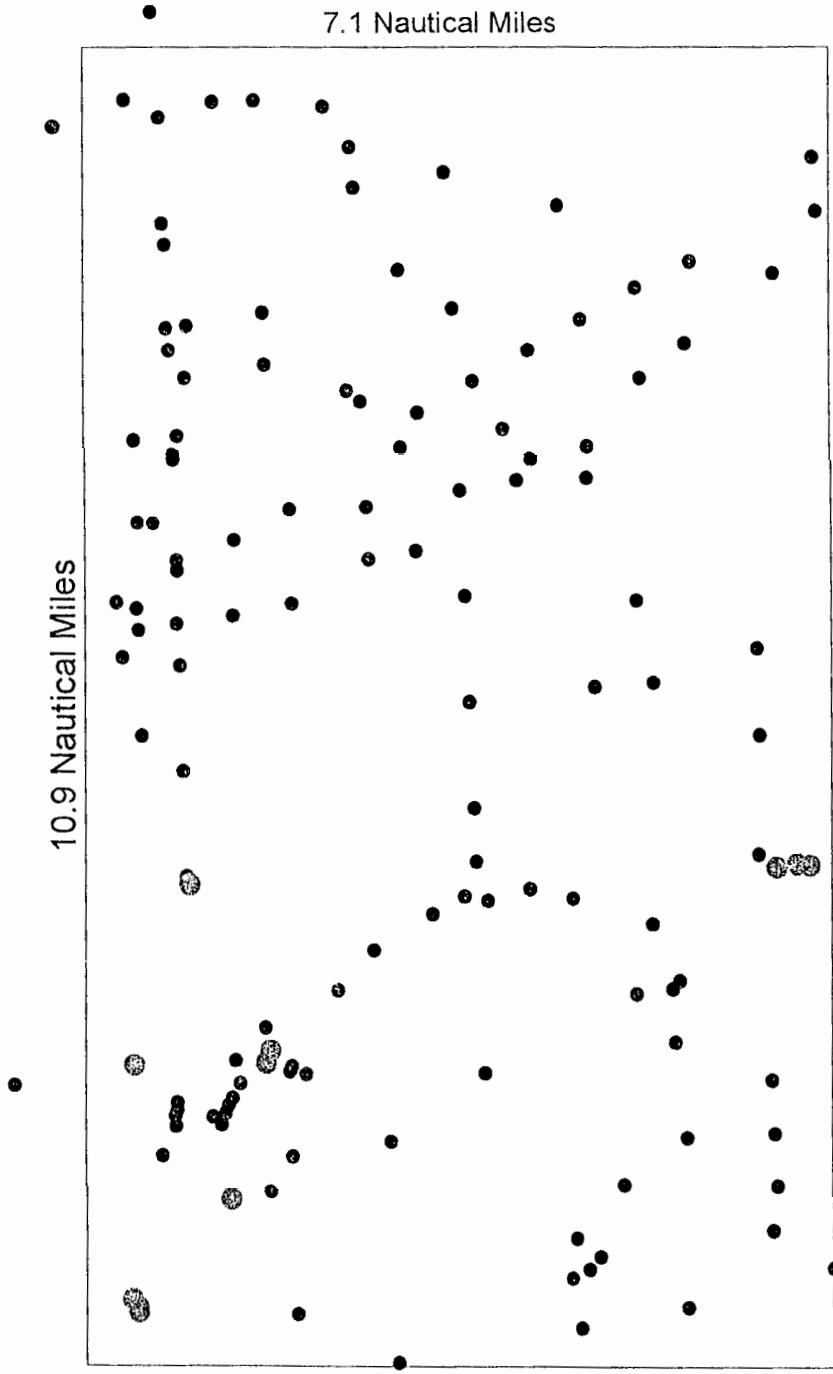


Escambia County Large Area Permits
Distance and Bearing to Major Ports

Artificial reef deployments in
FWCC Escambia West Large Area Permit



All reef deployments in FWCC Ecambia East Large Area Permit



- Public Artificial Reefs
- "'Private' Artificial Reefs

Scale = 5 Nautical Miles

REFERENCES

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