

Science, Service, Stewardship

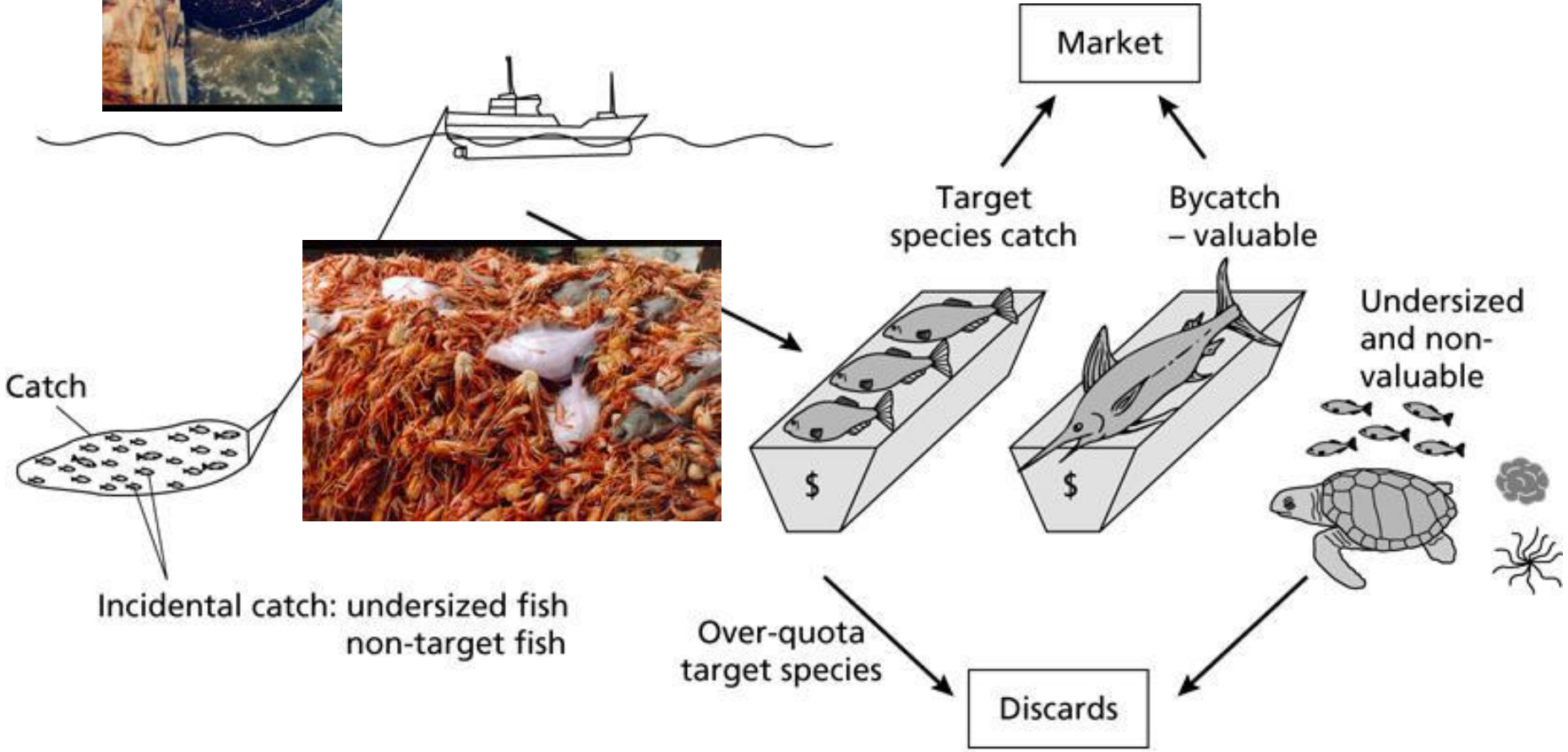


Accounting for Bycatch; a Southeast United States Perspective.

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**NOAA
FISHERIES
SERVICE**

Bycatch - Discards



Southeast U.S. Fisheries

Large Recreational Sector



Photo by Ricky Swain



Southeast U.S. Fisheries

Diverse Commercial Sector



Southeast U.S. Fisheries

Bycatch Example: Shrimp Trawl Fishery



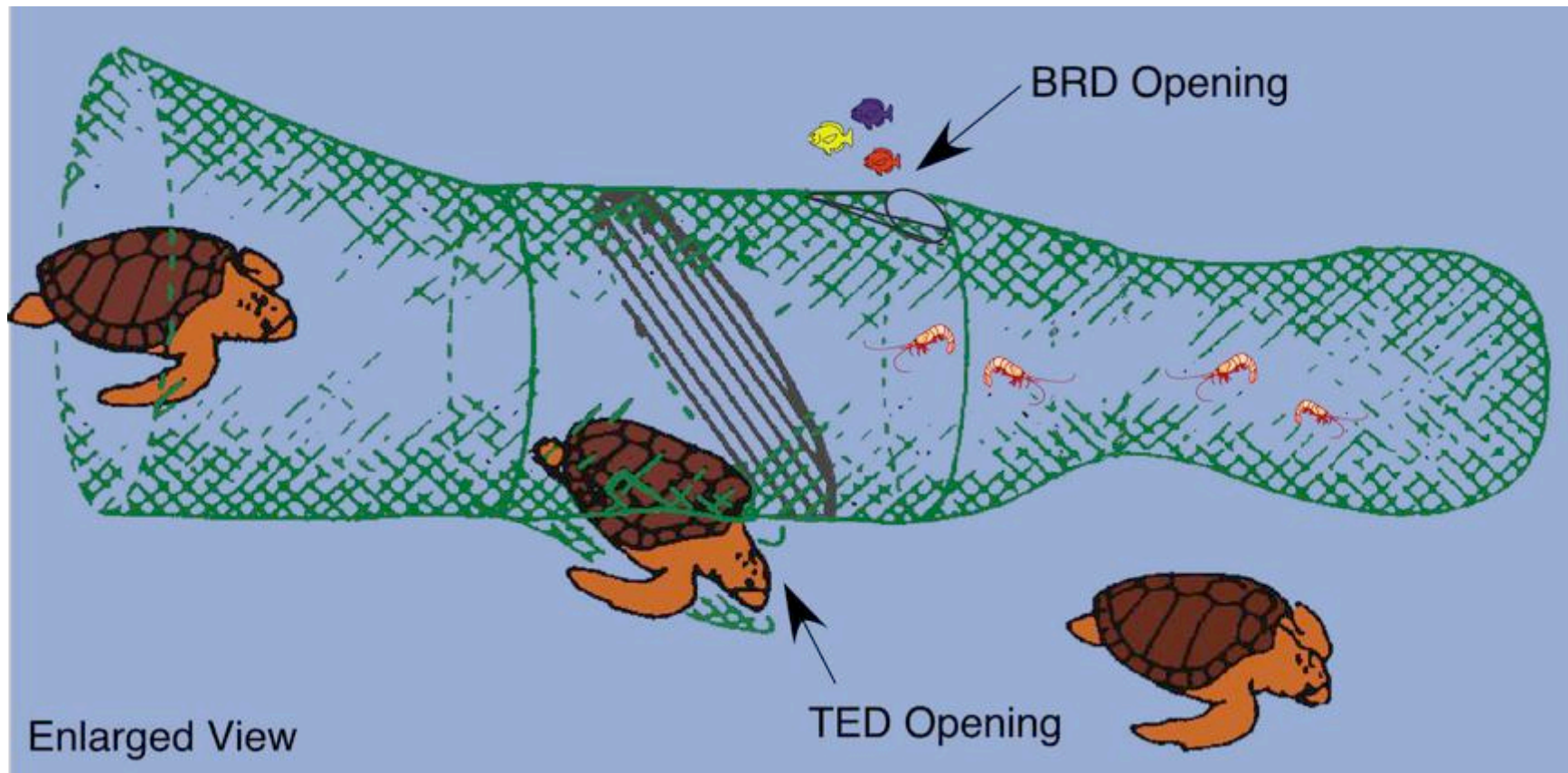
1,500 Offshore Vessels (45 – 80 Feet Length)
Several Thousand Inshore Boats (<45 Feet Length)



Bycatch Technology in Shrimp Trawls



Bycatch Technology in Shrimp Trawls



Coast Guard suspends use of turtle excluder devices

By JOHN TOTH
Houston Chronicle

PORTLAND — Shrimpers were preparing to start the Texas season without turtle excluder devices after Coast Guard officials Thursday suspended enforcement of the system's regulations.

'As long as there are no new developments, we will not enforce the regulations.'
Coast Guard Lt. Pat Phillips

Coast guard officials could not say how long the general suspension would remain in effect.

Scientists completed a study of turtle deaths in the Gulf.

The study, which was to be completed by April, hasn't even begun, said U.S. Rep. Tom DeLay, R-Sugar Land, in a letter to Mosbacher urging the suspension.

Coast Guard to enforce use of turtle excluder devices

By JOHN TOTH
Houston Chronicle

FREEPORT — The U.S. Coast Guard was ordered Thursday to begin enforcing requirements that shrimpers use turtle excluder devices, but officials said citations will not be issued for a week.

pers caught without the device through Wednesday, he said, though citations may be issued to flagrant violators who have the devices on board but refuse to use them.

The devices are woven into lawlis and are designed to trap shrimp while allowing larger objects, such as sea turtles, to escape through a trap door. Shrimpers claim the device also lets shrimp escape.

The Coast Guard suspended enforcement of the regulations last week on the request of a group of congressmen from Gulf Coast states

Mosbacher orders shrimpers to use controversial device to protect turtles

By KEN LANTIERMAN
OF THE HOUSTON POST STAFF

GALVESTON — Commerce Secretary Robert Mosbacher ordered the U.S. Coast Guard to immediately begin enforcing the controversial turtle excluder device rule for offshore shrimpers Thursday, sparking cries of joy from conservationists and wails of woe from shrimpers.

"That man's rule, he's absolutely nuts," said Pat Henry, owner of Soliver Fisheries and operator of three offshore shrimping vessels. "He must think we carry these things around in our... pockets."

shrimp season began and many shrimpers left port without their TEDs.

Compounding the problem, Henry said, is that many offshore shrimpers stay out up to a month and come in only when absolutely necessary — especially now at the beginning of the season when the best shrimp are plentiful.

"The last thing we need

Friday Morning, July 14, 1989 GALVESTON - SPREAD ALL GALVESTON COUNTY WEAVER PALM (July 14, 1989)

The Galveston Daily News

Shrimpers block channels

Boats disrupt gulf traffic, ferry service



A ferry is stopped through a channel blocked by a line of shrimp boats before South Bayou in Galveston.

Group sues to require TED use

Conservationists question U.S. turtle death figures

ASSOCIATED PRESS

WASHINGTON — The National Wildlife Federation filed suit Tuesday seeking to force the Commerce Department to require shrimpers equip their nets with turtle excluder devices, saying new rules for restricted trawls jeopardize endangered sea turtles.

The federation said it has learned that Commerce Secretary Robert Mosbacher has data from National Marine Fisheries Service scientists that demonstrates the mortality rate from a 105-minute tow time is more than four times greater than what the secretary has admitted.

Commerce 'squashes' advice from biologists

By BILL DAWSON
Houston Chronicle

The Commerce Department has "squashed" biologists' advice on whether shrimp-net devices or restricted tow times will protect sea turtles better, an environmental group charged Thursday.

could be freed from shrimp nets.

In the July 27 memo released Thursday by the pro-TED Center for Marine Conservation Thursday, Commerce official James W. Brennan said the leaking of the recommendation that TEDs should be mandated "has been an embarrassment to the secretary and me."

Administration officials don't expect Bush to reverse federal TED decision

By JUDY WESSLER
and CRAIG HINES
Houston Chronicle-Washington Bureau

WASHINGTON — Administration officials said Monday they do not expect President Bush to reverse Commerce Secretary Robert Mosbacher's decision to require turtle-protection gear on shrimp boats.

"I would not expect the president to reverse the secretary," Commerce spokesman Reed Bealight said Monday.

"I would guess he's right," a White House official said.

At issue is Mosbacher's decision to require shrimpers to use turtle excluder devices, called TEDs.

The trapdoor-like mechanisms al-

low to study the issue. "I think they beat on him... and he said, 'Sure, I will.' I look into it."

The House members who spoke with Bush during his trip to New Orleans were Reps. W.J. "Billy" Tauzin, a Democrat whose district includes the eastern two-thirds of the shrimp-rich Louisiana coast, Lindy Boggs, D-La., and Bob Livingston, R-

The Houston Post/Wednesday, August 2, 1989, A-13

SATURDAY MORNING, SEPTEMBER 1, 1990 THE GALVESTON DAILY NEWS 9-B

GALLEY CAFE

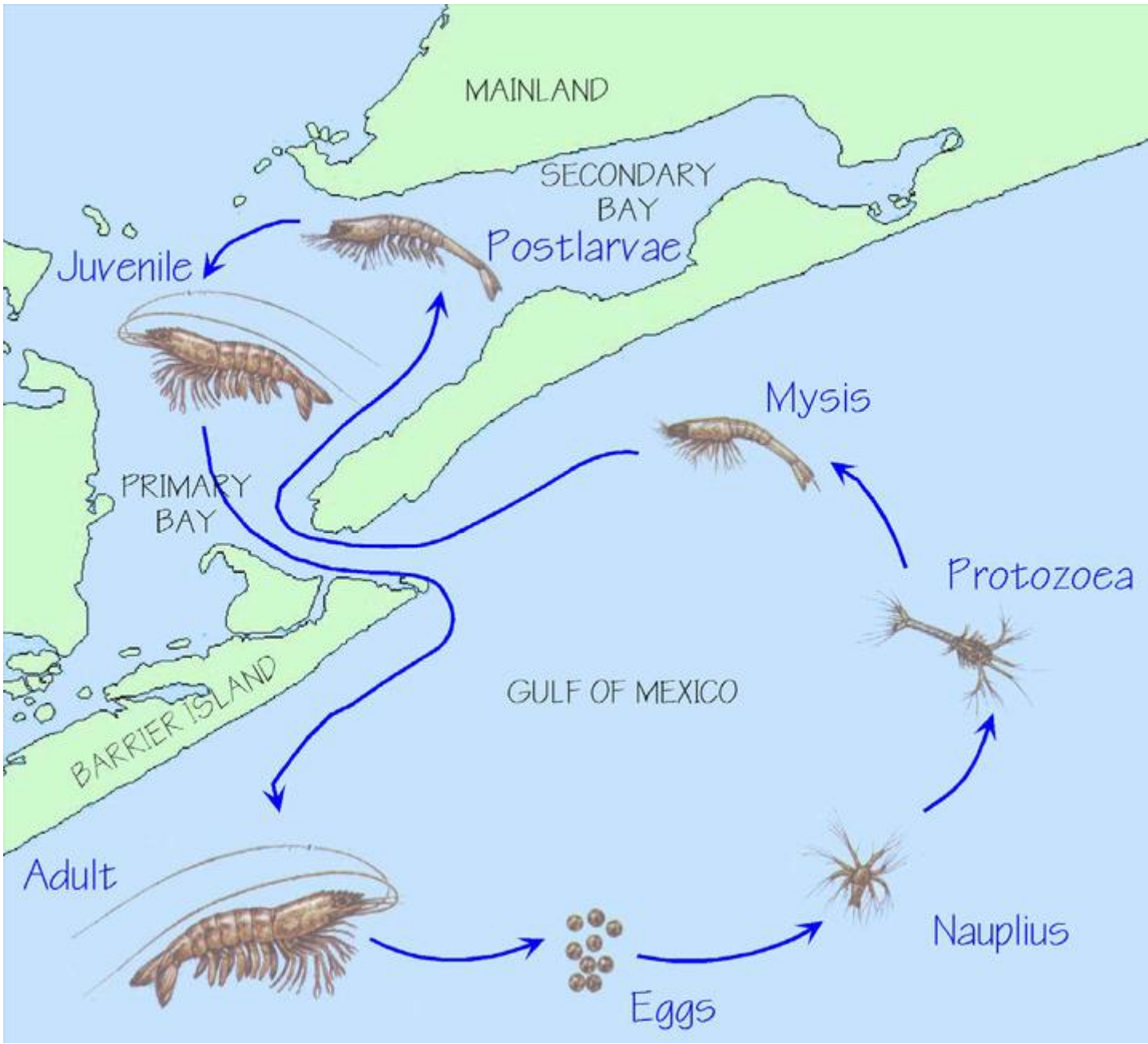
PORT BOLIVAR

(After ferry - turn left at first stoplight, then approximately 1/2 mile on right.)

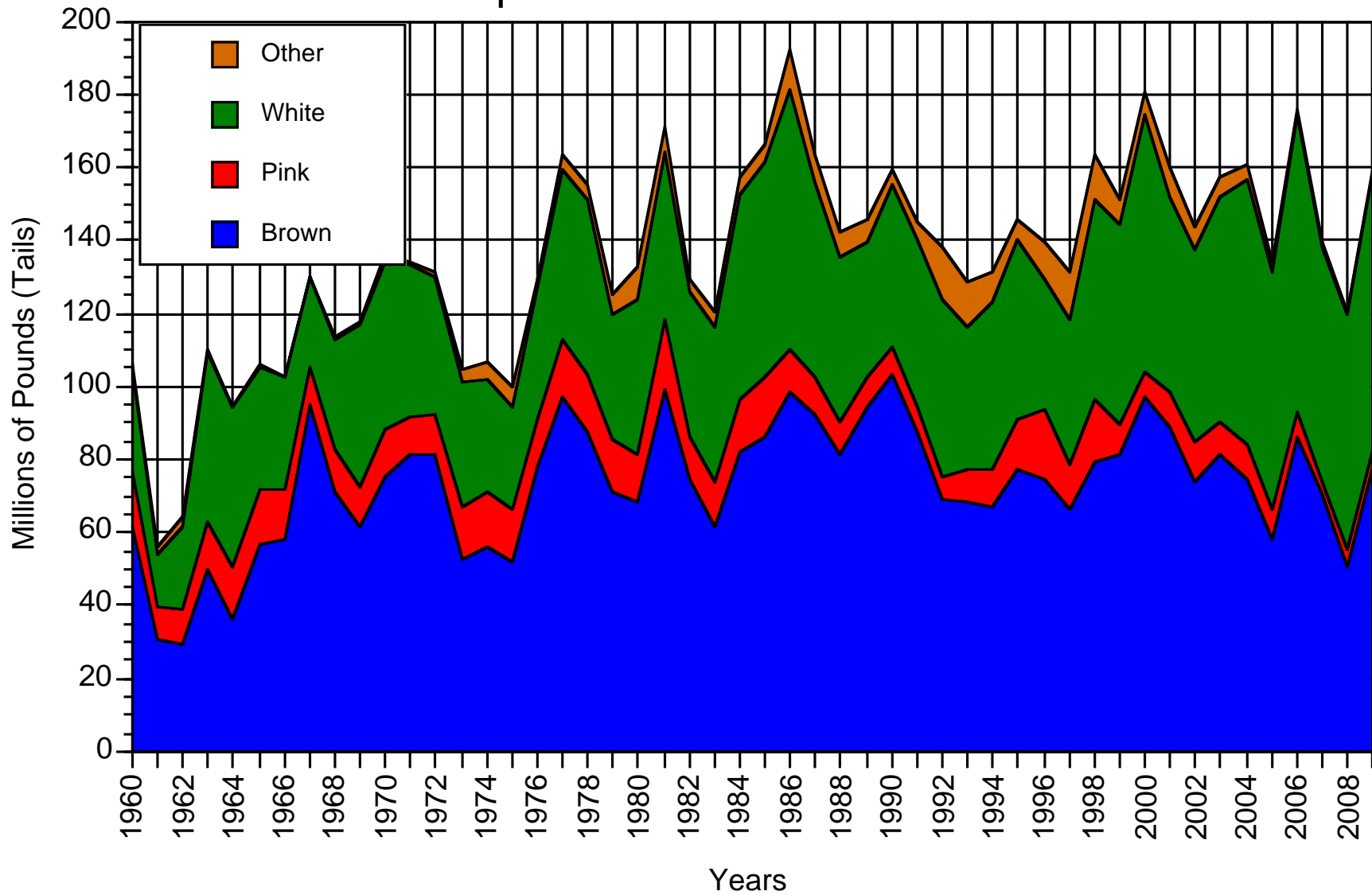
OUR SPECIALTY! (Shrimper's Revenge)

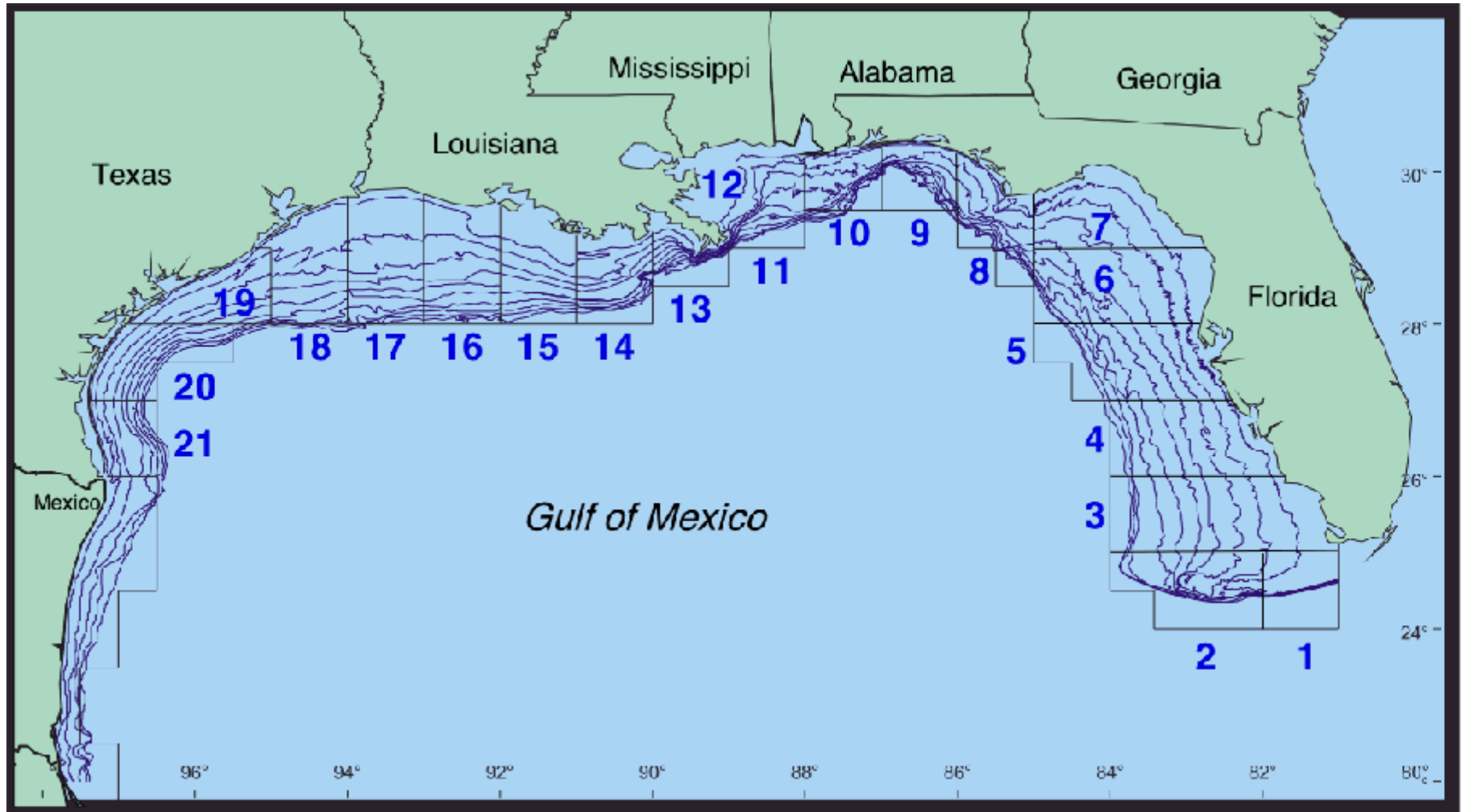
TURTLE SOUP - FRIDAYS & SATURDAYS

8:AM - 8:PM 684-9215



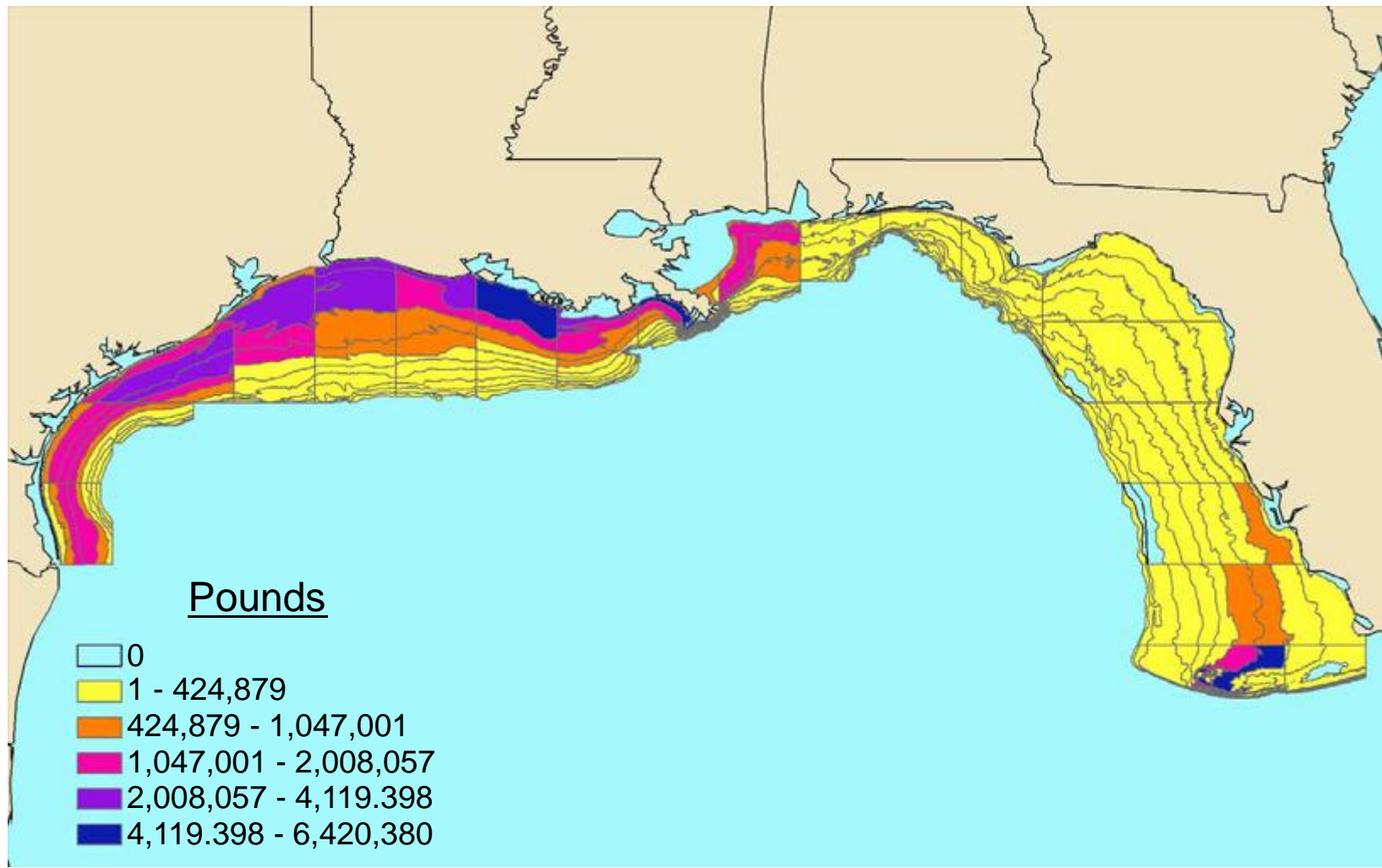
Shrimp Catch - Gulf of Mexico





Gulf of Mexico Statistical / Depth Areas

Average Catch Gulf of Mexico Shrimp Fishery by Statistical Subareas (1960 - 2001)



Shrimp Fishery Bycatch Estimation

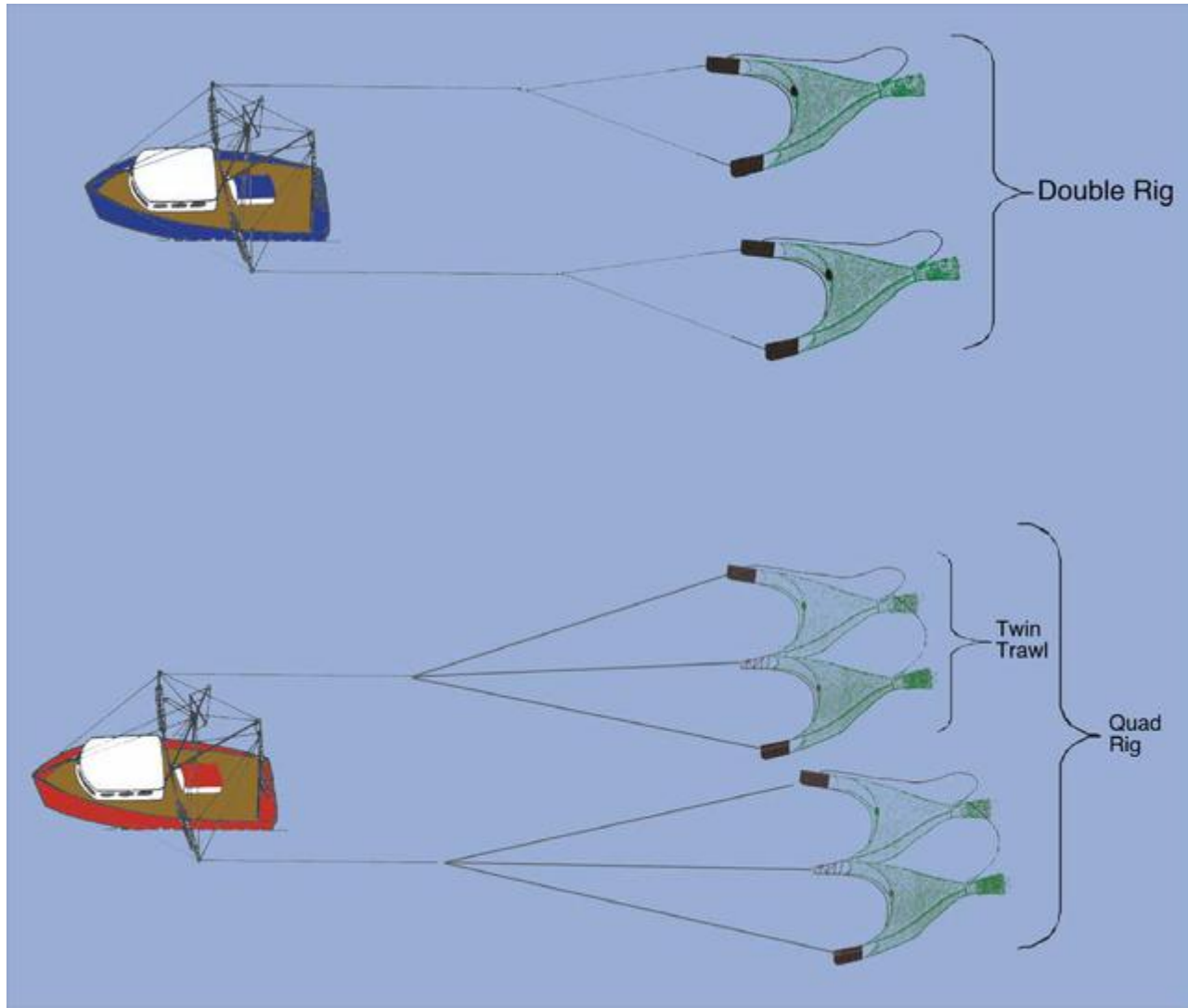


- Ability to estimate catch rate of bycatch
 - Offshore observer program
- Ability to estimate total effort
 - Port agent interviews / electronic logbook

Shrimp Trawl Bycatch Observer Program



Otter Trawl Configurations











Fishery observer sorting catch by species



Observer Program gives us estimate of CPUE for bycatch species



Monthly Zone Effort Calculations

$$\frac{\text{Zone Landings}}{\text{Zone Catch Rate}} = \text{Zone Effort}$$

Landings Value is the month's total pounds of shrimp reported by dealers to NMFS, allocated to the biological zone in question

Zone catch rate is calculated from trip interview data (Port Agents)

Port Agent Interviews

An aerial photograph of a coastline with a boat leaving a wake. The water is a deep green, and the land is a lighter green. The boat is a small white speck in the upper right, leaving a long, curved wake that stretches across the water.

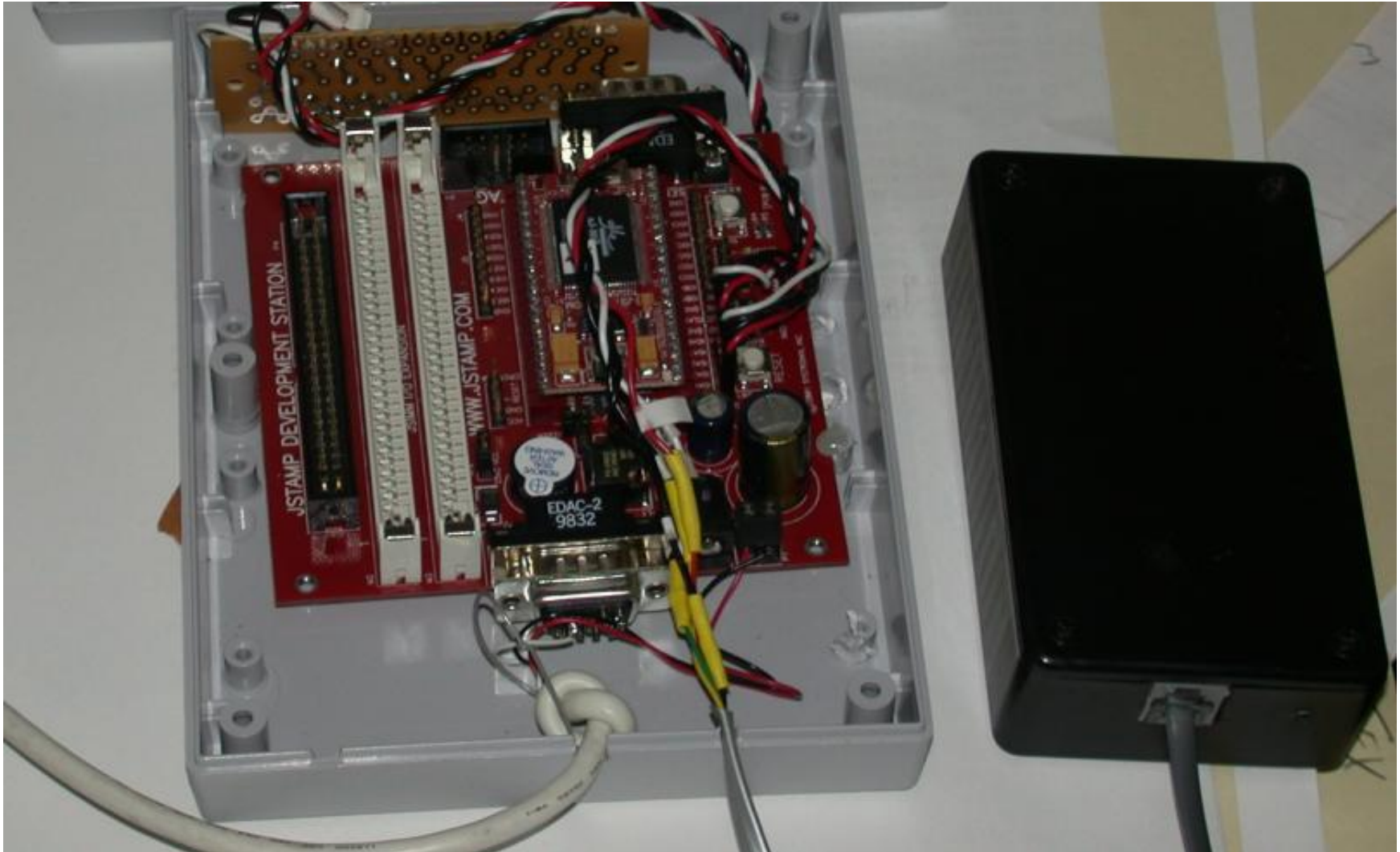
At the end of a fishing trip NMFS port agents would interview the captain regarding the location(s) and the amount of the effort expended. Thus, a CPUE could be estimated for the trip for a particular location.

Calculation of Effort

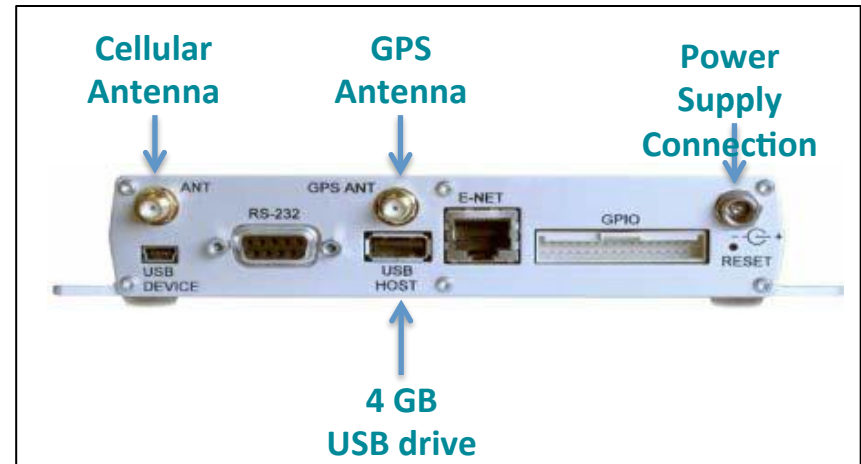
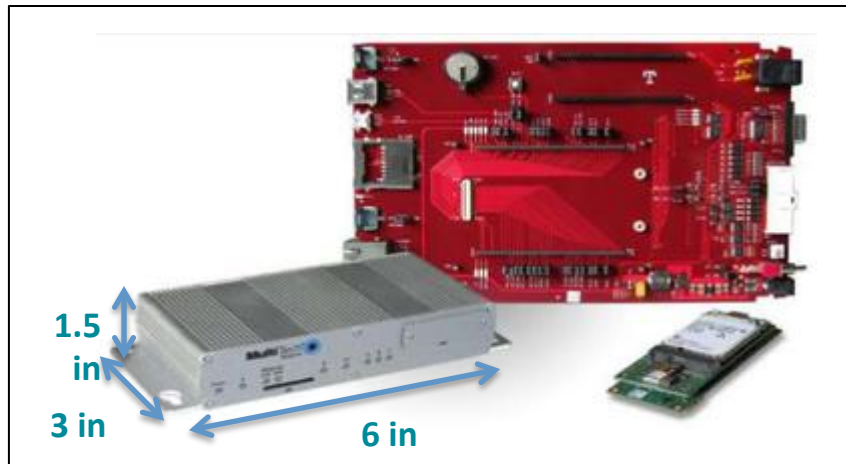
Why is calculating effort so difficult?

- Fleet is large and widely scattered
- Trips are often long (up to 60 days)
- Species of interest are not uniformly distributed
- Effort must be calculated for each month
- Effort must be calculated for small areas

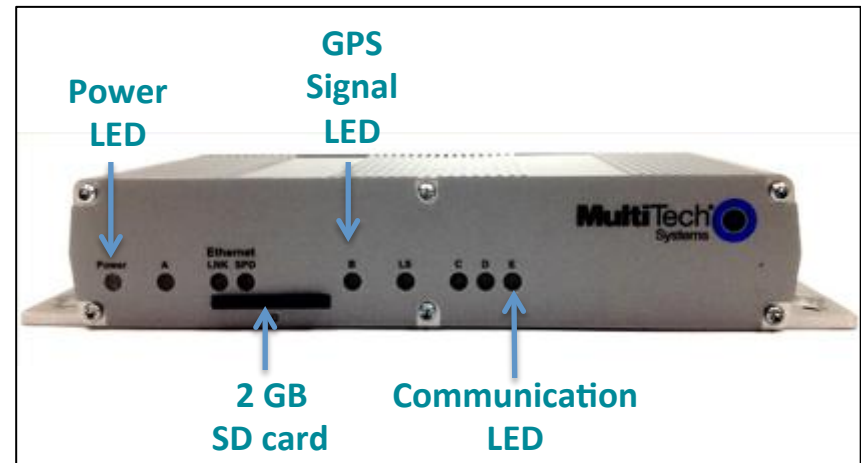
Electronic Logbook



MultiConnect™ OCG-D Features

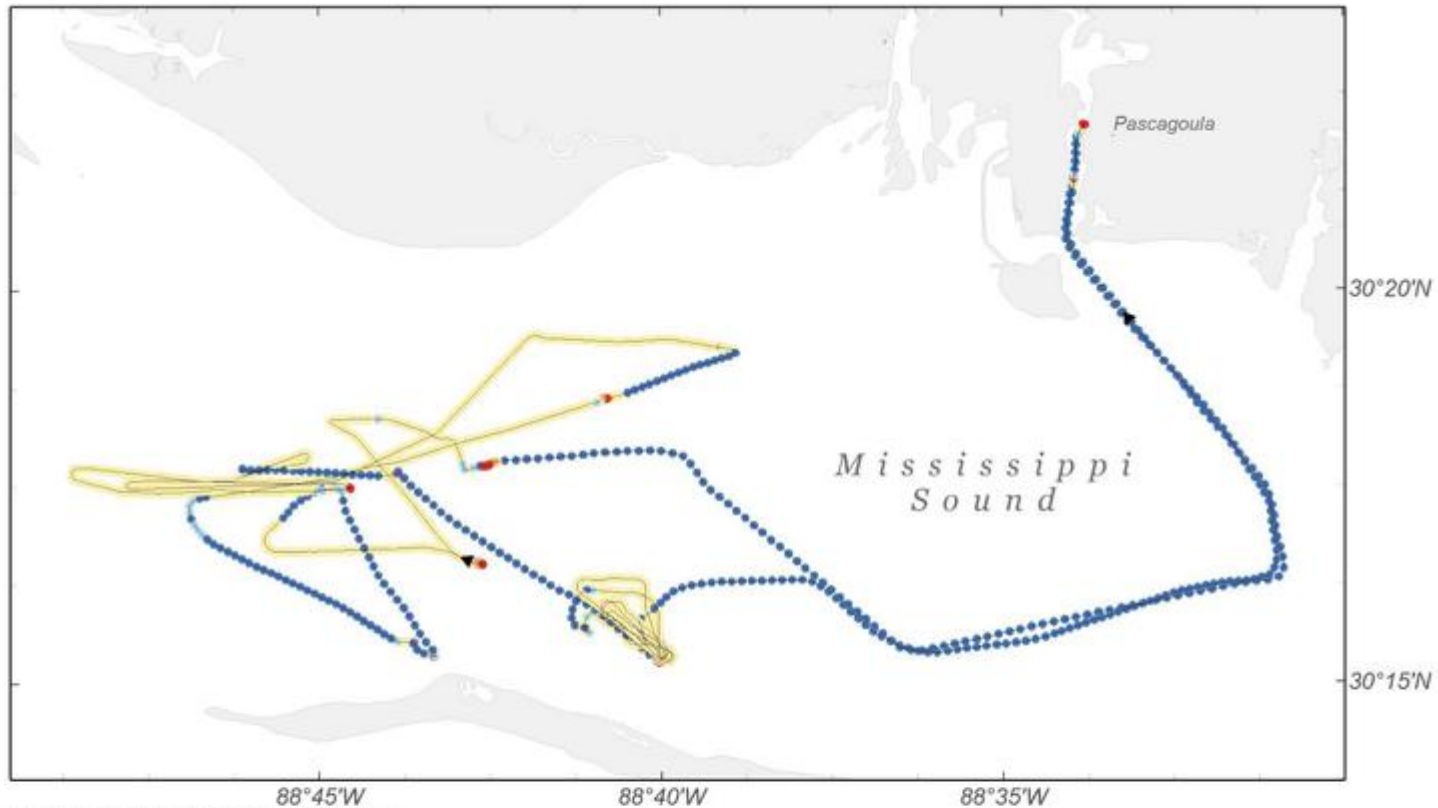


- External antenna for cellular communication and GPS reception
- LEDs to indicate device is communicating and GPS is valid
- Internal peripherals: GPS and cellular modem
- External interfaces: serial, USB, ethernet, and SD card memory slot
- Five year warranty from the manufacturer
- Device runs on 9V DC or 120V AC



Field Test 3:

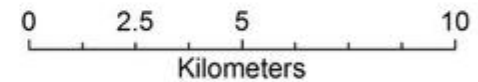
NOAA research vessel *Caretta* October 2013 cruise



RV Caretta October Cruise

Vessel Speed (knots)

- < 1
- 1.0 - 2.0
- 2.0 - 3.8 (fishing)
- 3.8 - 5.0
- >5.0



Projection: Albers Equal Area Conic
Data: NOAA Fisheries Service
Map Created by Jo Williams

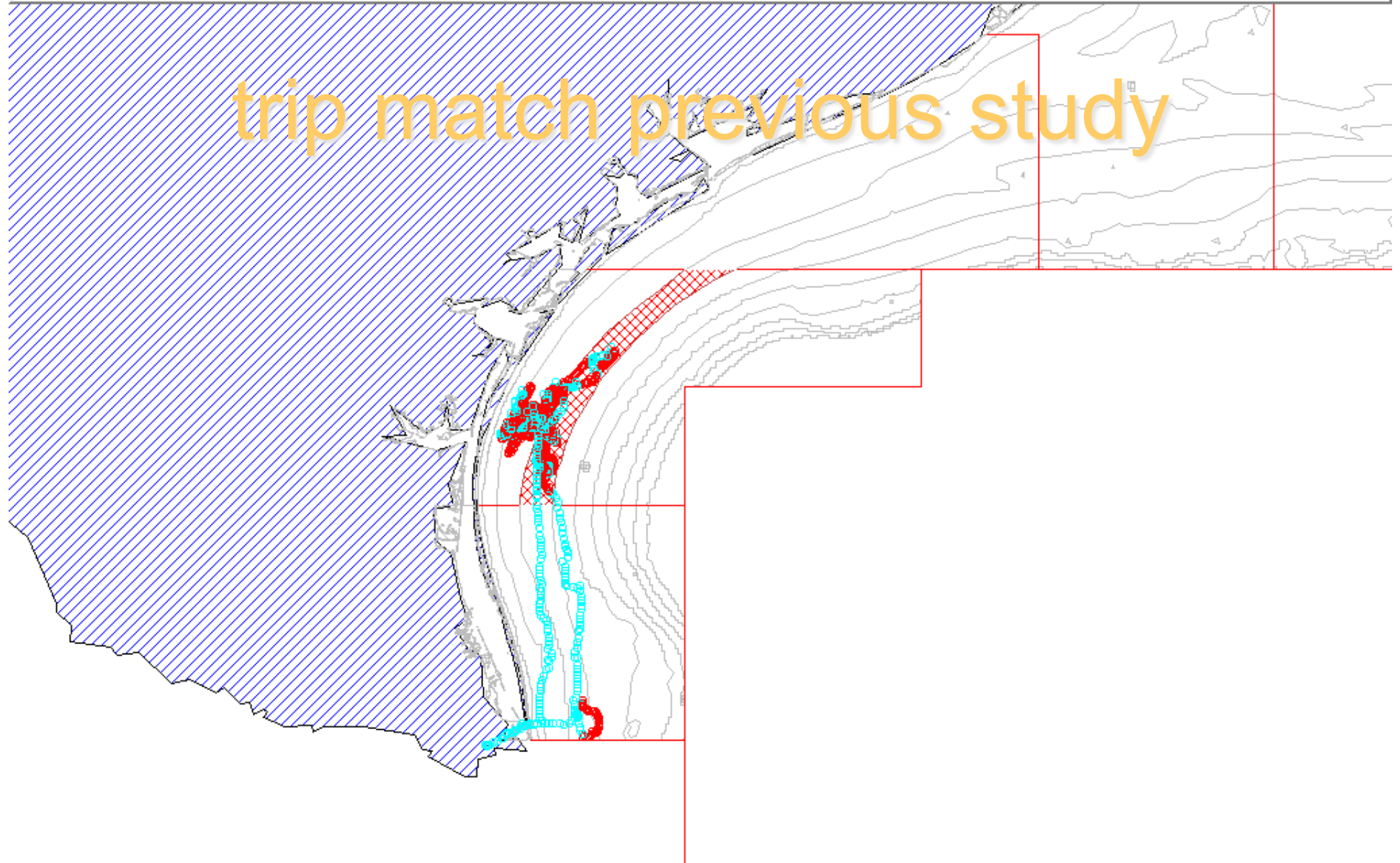
ID Statzones Month
43 -- 19-21 -- 7

Start Date
6/21/00

Tow Date
7/28/00

AM

trip match previous study



ID Statzones Month

48 -- 18-20 -- 4

Start Date

4/11/00

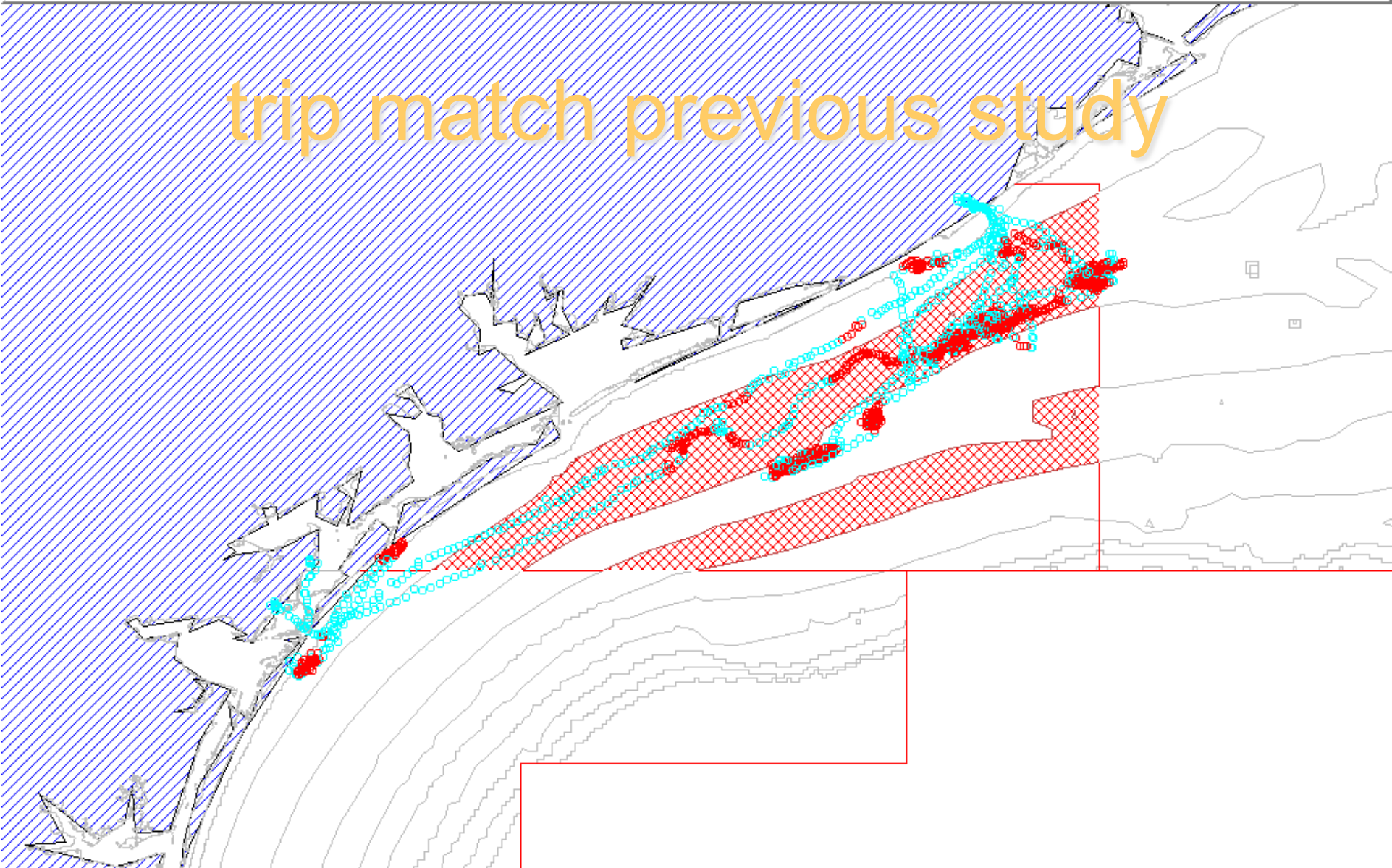
Tow Date

5/12/00



AM

trip match previous study



ID Statzones Month

70 -- 19-19 -- 7

Start Date

6/27/00

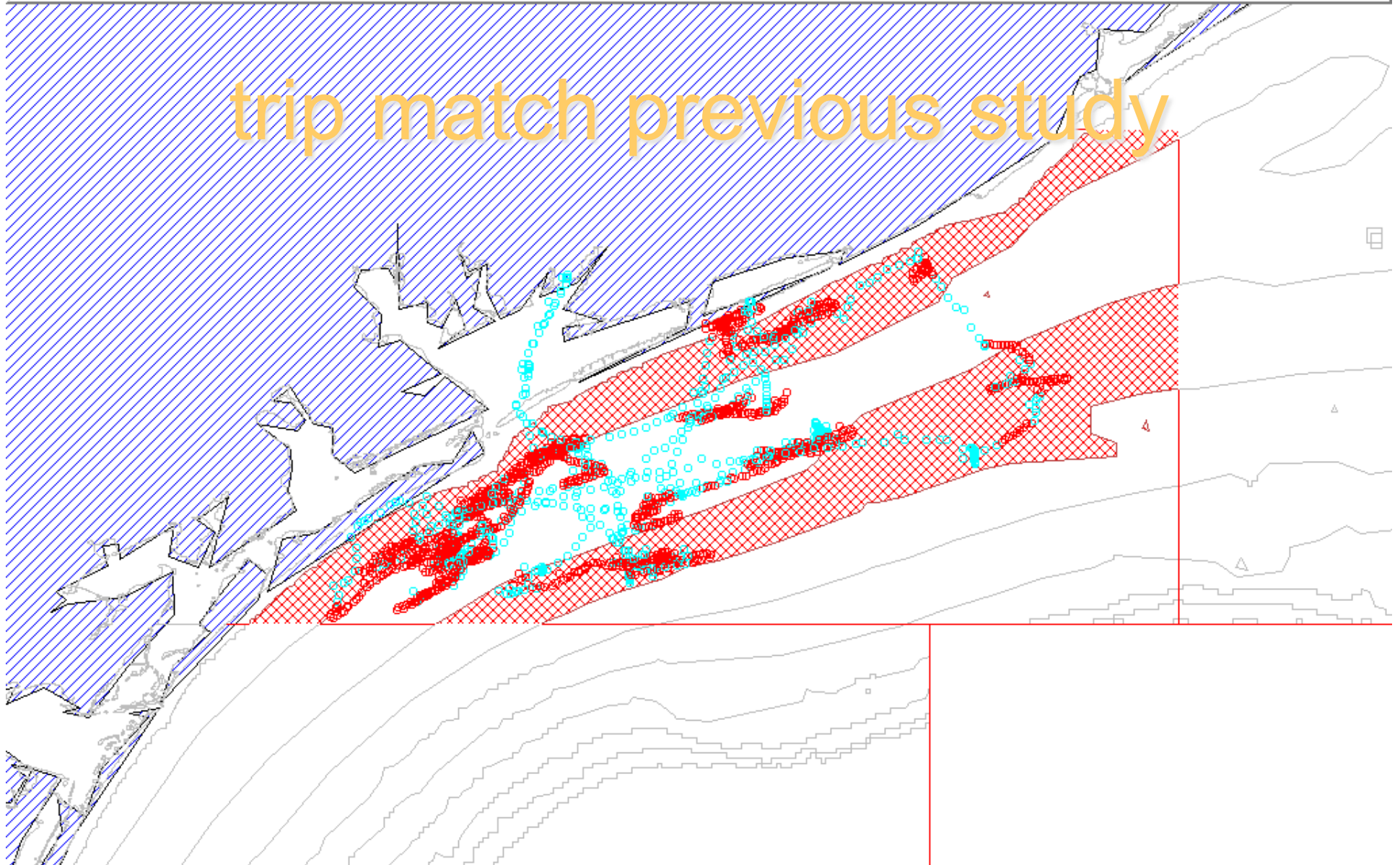
Tow Date

7/19/00



AM

trip match previous study



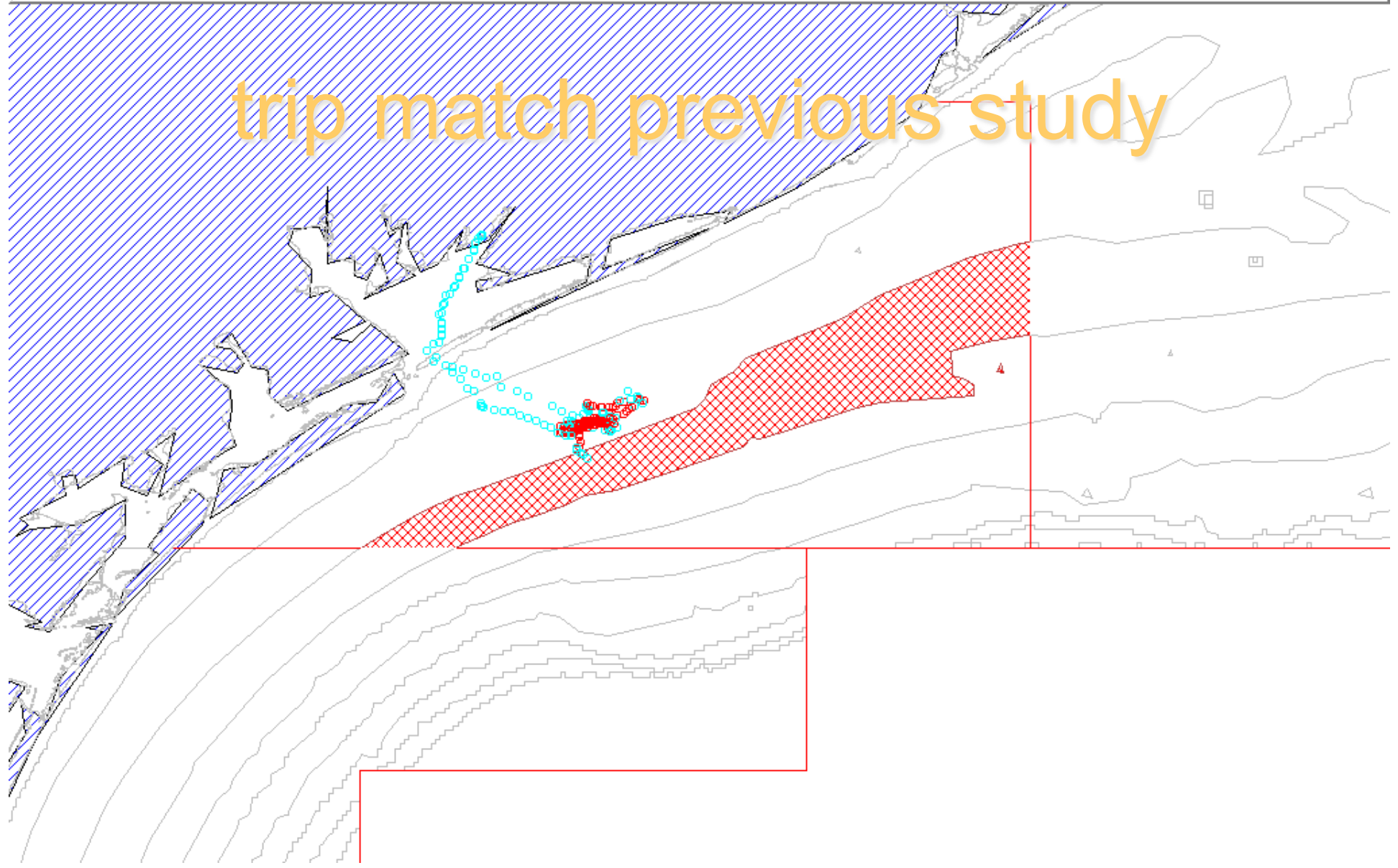
ID Statzones Month
113 -- 18-20 -- 7

Start Date
7/3/00

Tow Date
7/29/00

AM

trip match previous study

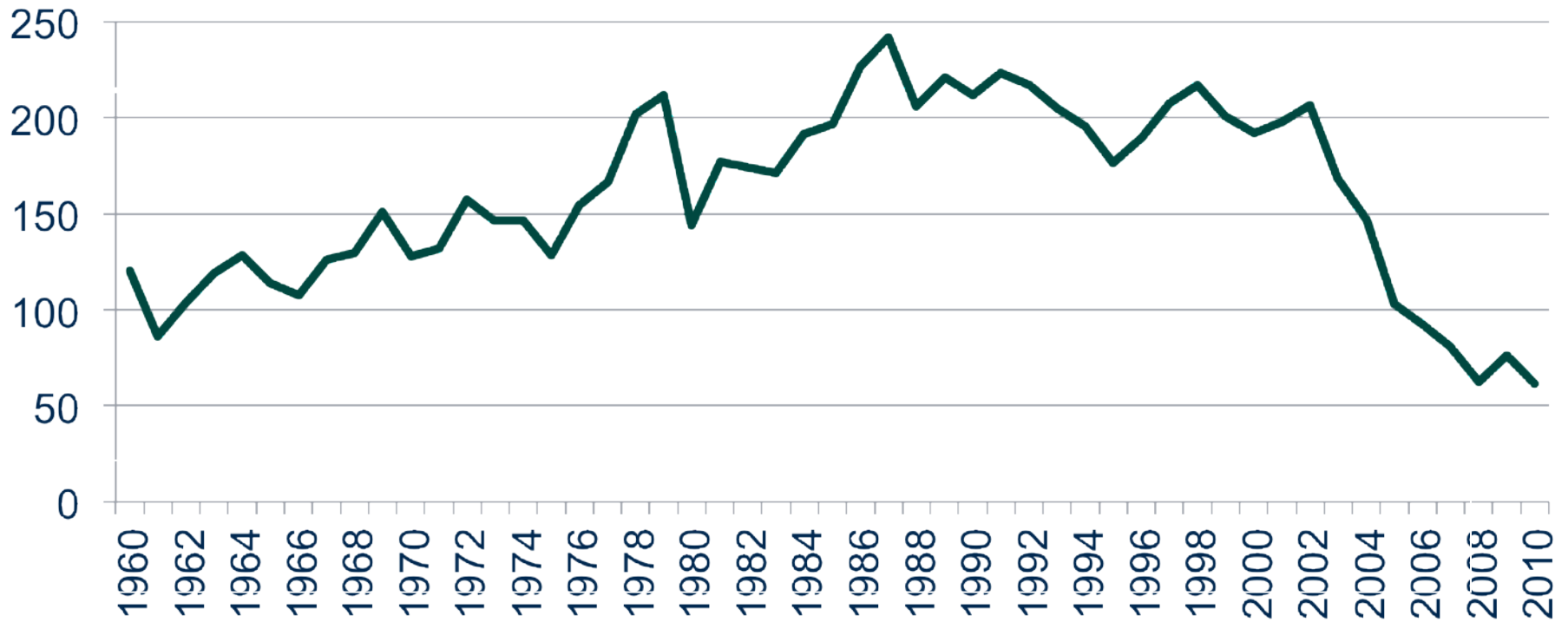


Interviews and ELBs gives us estimates for shrimp CPUE



$$\frac{\text{Zone Landings}}{\text{Zone Catch Rate}} = \text{Zone Effort}$$

Total Offshore Effort – Gulf of Mexico

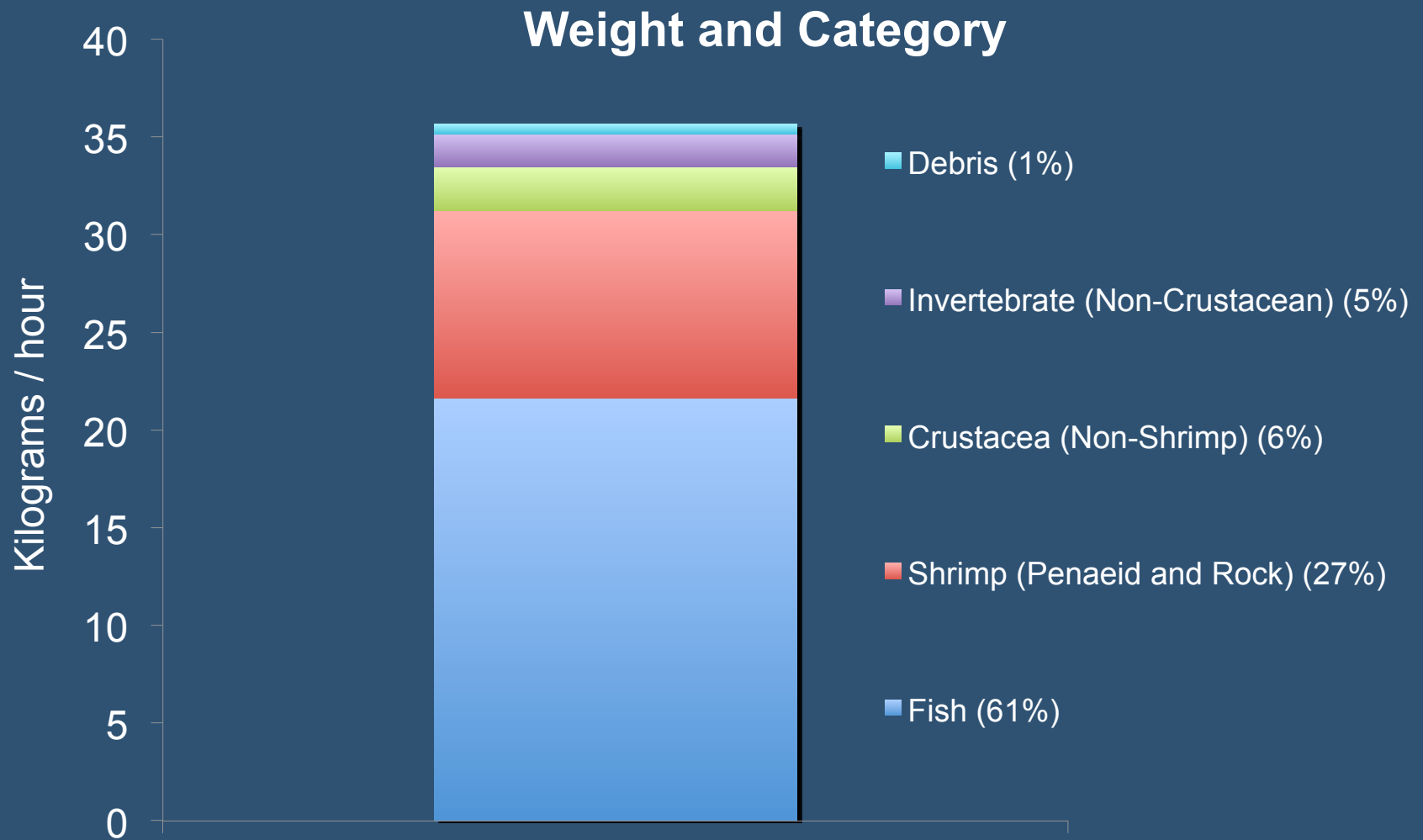


Zone Bycatch Calculations

Zone Bycatch CPUE X Zone Effort
= Zone Bycatch Estimate

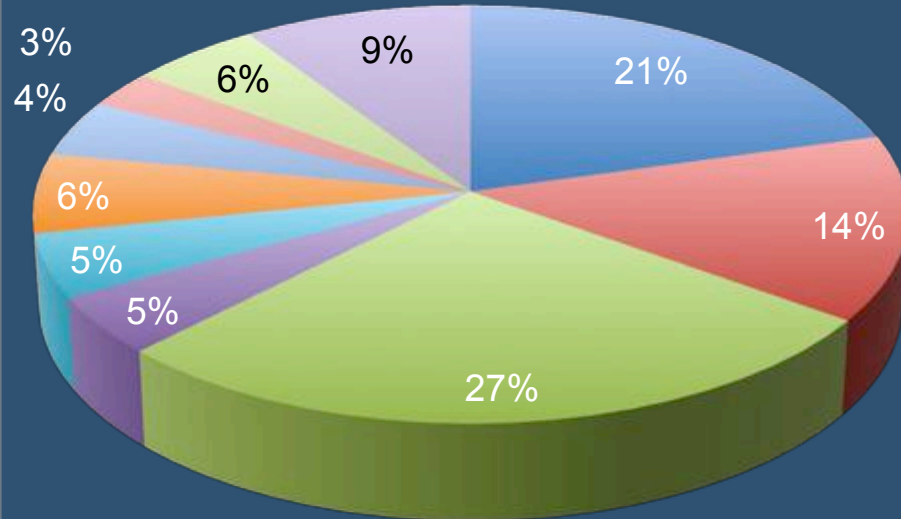
$$\ln(\text{CPUE})_{ijklm} = \text{year}_i + \text{season}_j + \text{area}_k + \text{depth}_l + \text{dataset}_m + \text{local}_{ijklm}$$

Shrimp Trawl Species Composition



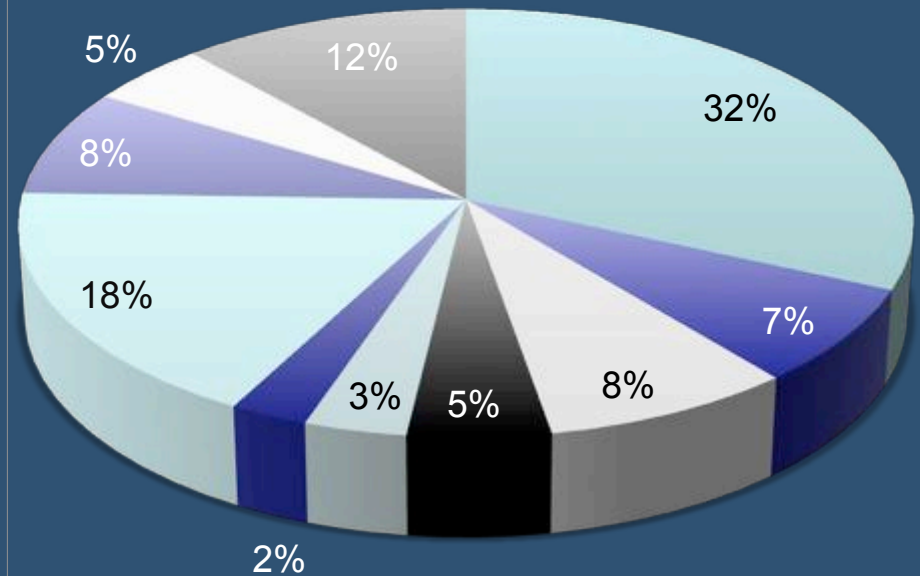
Penaeid Shrimp Trawl Species Composition by Weight

Gulf of Mexico



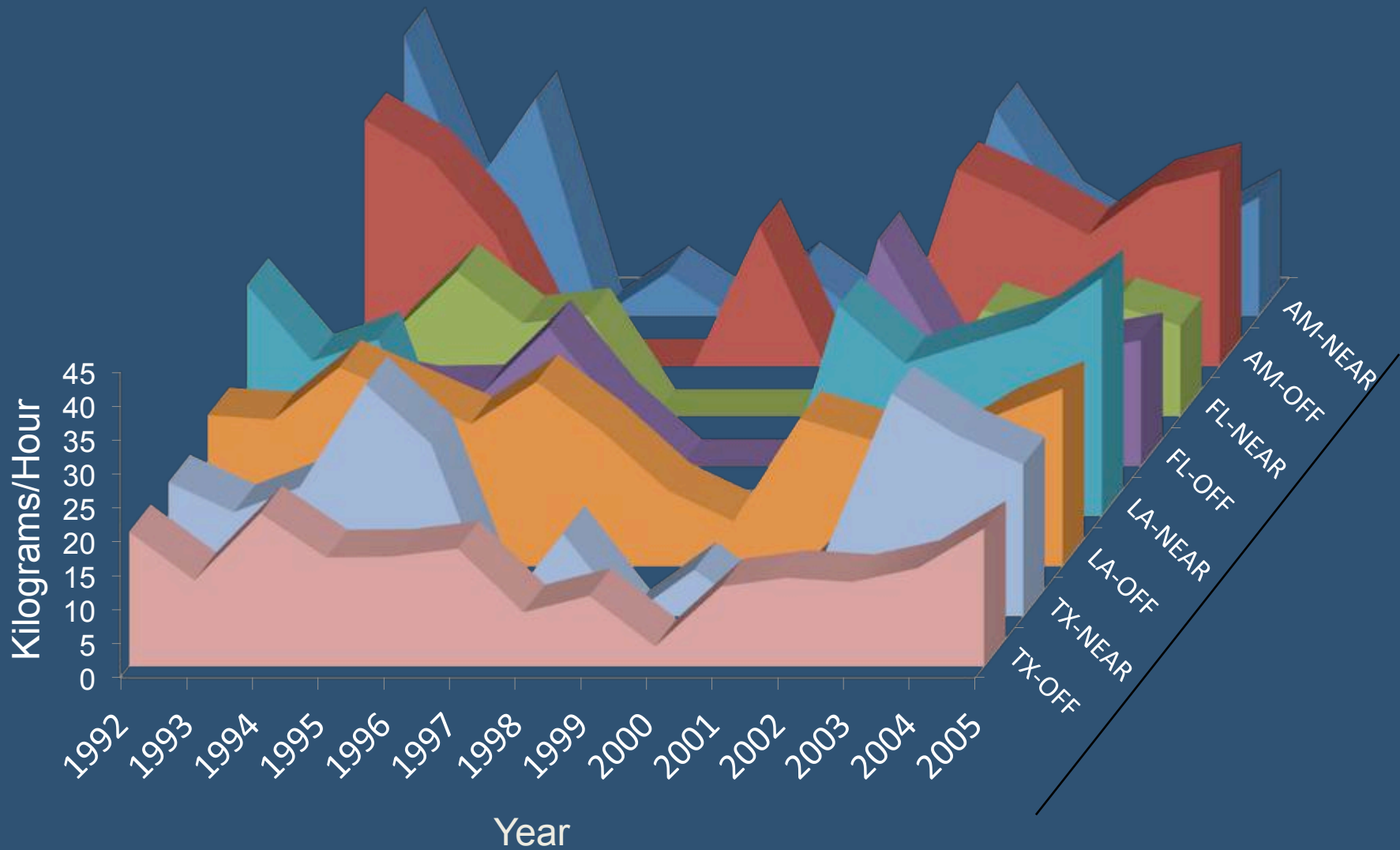
- Atlantic Croaker (21%)
- Brown Shrimp (14%)
- Grouped Fish - Pisces (27%)
- Invertebrate (5%)
- Longspine Porgy (5%)
- Non-Shrimp Crustaceans (6%)
- Other (4%)
- Pink Shrimp (3%)
- Seatrout Genus (5%)
- White Shrimp (9%)

Southeastern Atlantic

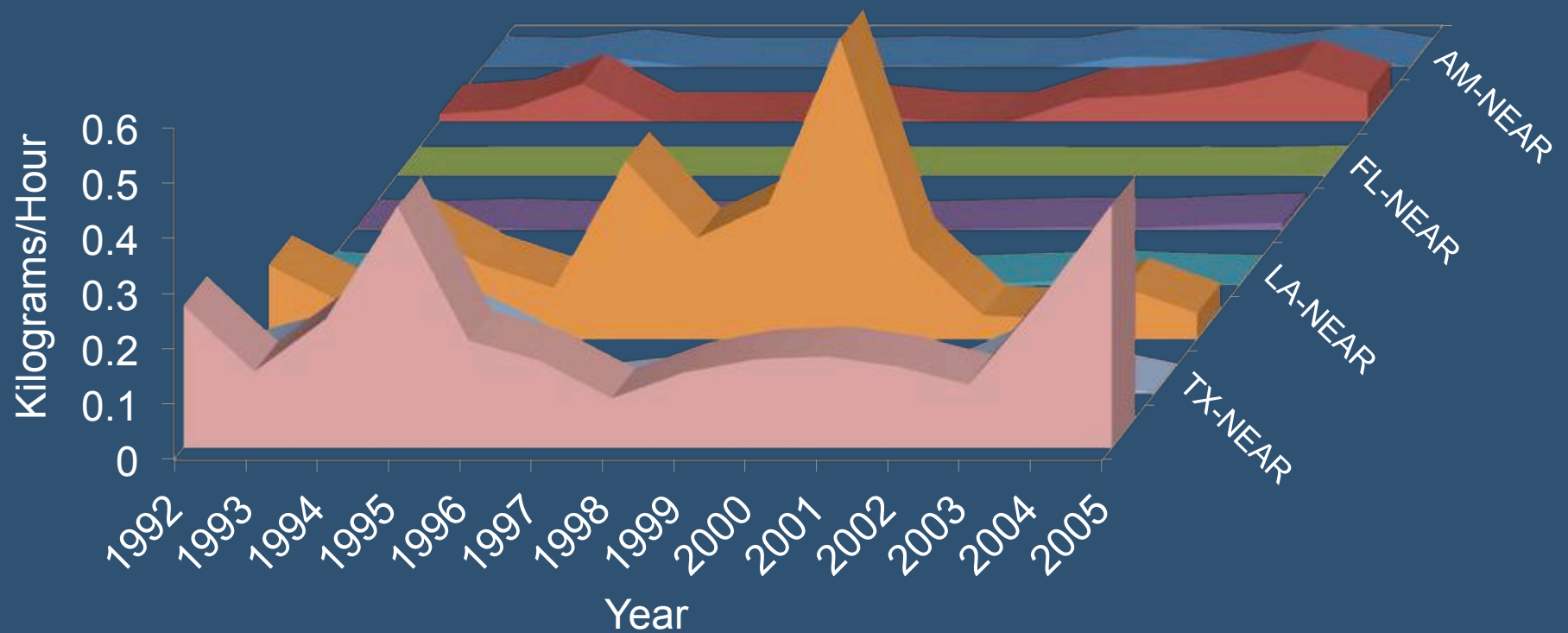


- Atlantic Croaker (32%)
- Brown Shrimp (7%)
- Grouped Fish - Pisces (8%)
- Invertebrate (5%)
- Jellyfish Family (3%)
- Non-Shrimp Crustaceans (3%)
- Other (18%)
- Spot (8%)
- Star Drum (5%)
- White Shrimp (12%)

Shrimp Trawl: Fish CPUE by State and Depth



Shrimp Trawl: Red Snapper CPUE by State and Depth



Questions ?

