Understanding The Value And Importance Of North Carolina's Marine Fisheries: A Workshop In Socioeconomics

North Carolina
MARINE
FISHERIES
Dept. of Environment and Natural Resources

May 13, 2004

EXECUTIVE SUMMARY

Understanding the Value and Importance of North Carolina's Marine Fisheries:
A Workshop in Socioeconomics

New Bern, North Carolina
May 13, 2004

In the fall of 2003, members of the North Carolina Marine Fisheries Commission (NCMFC) made a request of the North Carolina Division of Marine Fisheries (NCDMF) to present information to the Commission regarding the current social and economic state of the fisheries and fishing communities. The Division responded by planning a daylong socioeconomic conference to be held in conjunction with the NCMFC's May, 2004 meeting in New Bern, North Carolina.

Approximately 150 individuals made presentations or attended the meeting. The attendees represented a wide range of backgrounds – members of the NCMFC, Federal and state level fisheries managers, persons from other state agencies, representatives of elected officials, academics, fishermen, and members of the general public.

After introductions, the workshop began with a presentation by Dr. Brian Cheuvront (NCDMF, Socioeconomics Program Manager) describing the purpose and order of conference events. It was pointed out that both the Federal Magnuson – Stevens Act of 1996 and the North Carolina State Fisheries Reform Act of 1997 require that social and economic factors be taken into account when making fisheries management decisions. Reaching and maintaining appropriate biomass levels in fisheries is paramount. Yet, fisheries management can have a direct impact on fishing communities, the behavior of individual fishermen, and act as an economic stimulus or hindrance. Socioeconomics can help to lessen negative or perhaps even enhance positive impacts of fisheries management schemes.

The first set of presentations that followed focused on issues particularly relevant to commercial fisheries. The presentations were given in order to go from a more broad, state-level perspective, to a discussion of economic impacts on individual North Carolina counties, and then impacts on specific communities and fisheries. These presentations were followed by firsthand accounts by participants in commercial fisheries. After these presentations, two special topics were introduced: determining fishing capacity in fisheries and the impact of imports on the North Carolina shrimp fishery.

The recreational fisheries portion had presentations on current trends and preferences among saltwater anglers in North Carolina. This was followed by a presentation on the economic importance of recreational fisheries in North Carolina. A presentation was also made on the social and economic characteristics of the participants who hold the Recreational Commercial Gear License. Finally, a fisherman actively engaged in recreational fisheries made a presentation.

Profiles of North Carolina's Commercial Fishermen

Dr. Cheuvront gave the first formal presentation on a statewide profile of North Carolina commercial fishermen. The data showed that the number of commercial fishing licenses has remained fairly constant in the four years since the new license system was in place. However, there does seem to be a decrease of 1.1 to 1.7% each year in the number of Standard Commercial Fishing Licenses (SCFL) sold to North Carolina residents. In the same period there were cumulative increases in the number of Retired Standard Commercial Fishing Licenses and licenses to harvest Shellfish without a SCFL. There is an overall slight trend towards more SCFL's and Land or Sell licenses purchased by persons from out of state. Nonetheless, the overall percentage of these licenses held by out of state persons varies between 1.5 and 2.0% in any given year. At this point there is no definite trend towards a significant increase in the number of out of state persons buying North Carolina commercial fishing licenses.

In an average year, 58 to 63% of the SCFL's sold have actually recorded commercial transactions on trip tickets. There are several legitimate reasons why someone might buy a commercial license, but not actually have recorded landings. These licenses might be held as a financial investment, holding on to it to give later to another person, used to help declare a tax loss, or because the person may fish in North Carolina, but sell their catch in another state. Additionally, recreational fishermen might buy the SCFL so that they can harvest commercial quantities, or because they want to use gears not allowed under recreational rules.

With the overall trend of fewer licenses being used each year, it was hypothesized that younger people were not buying licenses. Consequently, it had largely been presumed that the fishing population is getting older. That was not the case. The average age of commercial fishermen holding the SCFL, Retired SCFL, and Shellfish License Without A SCFL has dropped about one full year each year. This indicates that possibly older fishermen are leaving fishing, or that younger fishermen are coming in at a rate faster than older fishermen are leaving.
Through a series of interviews conducted by NCDMF and by Drs. Jeff Johnson (East Carolina University) and Michael Orbach (Duke University), measured general trends and attitudes about commercial fishing. When asked about the issues that are most important to commercial fishermen, the most frequently cited was that they felt it is difficult keeping up with rules and proclamations. Other important issues included imports, overfishing, too many areas closed to commercial fishing, and too much local competition. Average fishermen feel they have to work harder now than in the recent past to land the same amount of their

targeted species. In the NCDMF surveys, about 11% of fishermen reported no profit or a net loss from their fishing business. Only 6% of fishermen reported annual profits greater than $30,000 per year.

Declining Economic Impact of Commercial Fishing in North Carolina's Coastal Fishing Counties

Alan Bianchi (NCDMF, Commercial Statistics Program) made a presentation on the economic impacts of commercial fishing in North Carolina's coastal fishing counties. The number of pounds of marine fishery resources removed from the water averaged from 50,000,000 to 150,000,00 pounds from 1972 to 2002 (landings of menhaden are not included). Average gross fishing income varied greatly by county from a high of nearly $70,000 in Camden County to a low of just under $4,000 per fishermen in Hertford County. Average fishing income in any county is greatly influenced by the number of fishermen, the percent of fishermen who fish full time, and the value of the species harvested.

Four counties were selected for in-depth presentation. Dare County was chosen as a county where traditional commercial fishing is being threatened by the very lucrative tourism industry. The number of commercial fishermen dropped over 13% from 1997 to 2002. In 1997 commercial fishermen made up 4.33% of the total workforce in the county. By 2002 the percentage had dropped to 3.05%. However, fishermen in the county made significantly more in annual wages than did the average worker across all industry sectors.

Hyde County was chosen primarily because it remains relatively undeveloped by other industries. Yet in 1997 commercial fishermen made up 8.68% of the workforce. By 2002 it had dropped to 7.54%. Similar to Dare County, the number of persons working as commercial fishermen had dropped nearly 13%. Commercial fishing is lucrative in Hyde County. The average fishermen makes between 150 and 200% of the average worker's wage in Hyde County.

Carteret County was profiled because it falls somewhere between Dare and Hyde Counties in terms of involvement in commercial fisheries. The number of fishermen in Carteret County dropped by over 16% between 1997 and 2002. The corresponding percent of the workforce made up by commercial fishermen dropped from 4.46% in 1997 to 3.93% in 2002. Carteret County fishermen earn only about 83% of the average annual wage of other workers in the county.

New Hanover County was selected because it no longer has a significant commercial fishing industry. The decline in commercial fisheries in New Hanover County took place prior to the new licensing system. Since the implementation of the new license system in the latter half of 1999, the number of fishermen has remained relatively constant. From 1997 to 2002 the percentage of the workforce that are commercial fishermen dropped from .48% to .34%. The average commercial fisherman in New Hanover County makes approximately 1/3 the annual salary of all workers in the county.

North Carolina's Changing Fishing Communities

Dr. Kathi Kitner (South Atlantic Fisheries Management Council, Anthropologist) made a presentation regarding the changes that have been occurring over the years in North Carolina's fishing communities. The fishing communities in North Carolina are similar to those in the surrounding states in that commercial fisheries are declining in importance. North Carolina's traditional fishing communities are seeing a reduction in the number of people engaged in commercial fisheries, boats used in fishing operations, and the number of processors and shore side services.

Fisheries Diversity

Dr. Louis Daniel (NCDMF, Special Assistant to the Director) presented three case studies indicating how the behavior of fishermen has changed as a result of recent regulatory actions. The three fisheries are the snapper-grouper, southern flounder, and dogfish shark fisheries.

The snapper-grouper fishery was examined to see what the effects were of the implementation of a limited entry program. There were well over 200 participants in the fishery in 1994. By 1999, there were 153 permit holders and by 2002 the number of permit holders had declined to 103. Not all the fishermen who were forced out of the snapper-grouper fishery left altogether. The fishermen who left put significant pressure on other fisheries, most notably Atlantic croaker and bluefish. The shift in effort went from the more high value, low volume, low bycatch hook and line snapper-grouper fishery, to fisheries with lower value, necessitating a higher removal volume using primarily gill nets and trawls.

The southern flounder fishery was selected because in 1999 rules were enacted to close parts of the Pamlico Sound to flounder gill nets in order to reduce the number of interactions with endangered sea turtles. Forty-one fishermen who had been very active in the fishery prior to the closure were monitored via their trip ticket landings to see how they coped with the closure. Some of these fishermen left fishing altogether, however, many switched to low value, high volume fisheries such as Atlantic croaker. The overall ex-vessel landings values for these 41 fishermen went from $1.1 million in 1999 to $570,000 in 2000. However, the pounds of fish removed only dropped a little over 100,000 pounds from 835,000 pounds to 730,000 pounds.

North Carolina fishermen were essentially shut out of the dogfish fishery beginning in 2000. Dogfish fishermen traditionally were involved in many fisheries, but when the quota shut them out, they were unable to find any other fishery to take the place of dogfish in terms of quantity and value.

In conclusion, Dr. Daniel reported that what typically happens when fishermen are shut out of one fishery by regulatory action is they tend to move into less regulated or open access fisheries. He also stressed the need to look at fishery issues from an ecosystems approach because of the effects management of one fishery has on others. Fisheries managers need to consider the potential responses of fishermen to their regulatory actions and the impacts of regulations have on fishing communities.

Individual Perspectives on Commercial Fisheries

Willy Etheridge and David Beresoff (Commercial Seafood dealers and fishermen) spoke about the impacts of regulatory actions on their fishing businesses.

Capacity and Fisheries Management

Dr. Vishwanie Maharaj (South Atlantic Fishery Management Council, Economist) made a presentation on determining how large a fishing fleet a given fishery can support giving fishermen a decent profit and yet maintaining biological viability. A typical problem occurs when vessels have excess harvesting capacity, that is, when vessels have the ability to catch more than it currently does. This frequently occurs when there is a limited amount of resource available for harvest and there are too many vessels trying to land part of what is available. Potential responses to this problem could be limited access or rights based management such as individual transferable quotas or cooperative management. Things that need to be considered when trying to increase vessel capacity are making sure the management measures have specific goals and objectives, a sense of how quickly capacity is to be reduced, and what is likely to happen to those vessels and fishermen that leave the fishery.

Shrimp Landings and Adjusted Values

Dr. John Maiolo (East Carolina University, Professor Emeritus) provided a historical presentation on the impact of imports in the commercial shrimp fishery. The unadjusted price per pound of shrimp showed that the ex-vessel value of shrimp increased by 43% from 1990 to 2000. He showed how the actual, deflated value of shrimp on average has decreased, annually, using examples based on the consumer price index (CPI) and the producer price index (PPI).

Since 2000 the actual value of shrimp has plummeted even further. A pound of shrimp in 2003 was worth only 80% of its value in 1991, but only 56% of its value in 1994.

During the time when the value of North Carolina wild-caught shrimp has decreased, the amount of imports has increased. In 1983 there were 341 million pounds of shrimp imported into the United States. By 2001 that amount had increased to 882 million pounds.

Shrimp consumption in the US has increased to the point now where it is the most consumed seafood product. Even though the actual price per pound of shrimp has decreased over the years, the price to the consumer has not changed.

Recent Changes in Recreational Fishing

Doug Mumford (NCDMF, Recreational Fisheries Statistics) described recent changes in recreational fishing activity based primarily on data obtained from the Marine Recreational Fishery Statistic Survey (MRFSS). Among the states of the Atlantic coast, North Carolina comes in second, behind the east coast of Florida in terms of the number of annual recreational fishing trips and pounds landed in a given year.

MRFSS data show that the trend is towards a higher percentage of the fishermen being older than previous years. The number of North Carolinians fishing in North Carolina waters is remaining fairly constant; however, the number of anglers from out of state is increasing at a high rate. The majority of these out of state fishermen are coming from Virginia, primarily to fish on the Outer Banks. The number of anglers fishing in North Carolina doubles about every 10 years. Beginning in 1980, there were 600,000 anglers. By 1990 the number had increased to 1.3 million and by 2000 there were 2.2 million saltwater anglers in North Carolina. That number is expected to increase to 3 to 4 million by 2010.

Species targeted by these anglers is largely tied to the availability of the species. For example, striped bass were not targeted by many anglers from the late 1980's through the mid-1990's. However, when the striped bass began to recover, the number of anglers who started targeting them increased.

Economic Importance of Marine Recreational Angling in North Carolina

Brad Gentner (NMFS, Senior Research Economist) presented data from MRFSS that determined the economic value of the fishing activities or marine recreational anglers. His analysis found that recreational fishing had an overall economic impact of $1.6 billion and adds approximately 11,000 jobs to the North Carolina economy. He found that all modes of fishing (for hire, shore, and private boats), trip only expenditures totaled about $350 million.

He acknowledges that his estimates are higher than that of the US Fish and Wildlife Service (USFWS) and the American Sportfishing Association (ASA). The reason he gave for the differences were that the MRFSS participation rates in surveys are higher and because NMFS accounts for imports and used purchases.

Socioeconomic Characteristics of Recreational Commercial Fishing

Chris Wilson (NCDMF, RCGL Fishery Survey Program) presented data from the 2001 annual and annual monthly survey of participants in the Recreational Commercial Gear License (RCGL) survey program. He noted that since 2001 when the surveys were first instituted that the number of RCGL's being sold had been decreasing.

The majority of RCGL fishermen live on or near the North Carolina coast, the majority being males over 40 years old. Over 2/3 of the survey participants were North Carolina natives. Nearly half of them have had the license since it first became available in 1999.

The majority of the fishermen felt that they were familiar with fisheries regulations, and felt that there was not too much gear in the water in the areas where they fish, and subsequently would like to be allowed to use more gear. Nonetheless, they were satisfied with the current limits. The majority of the fishermen felt they did not have conflicts with commercial or other recreational fishermen.

These fishermen in 2001 spent an average of $74 on a typical day fishing trip for food, ice, bait, and fuel. Expenditures for a typical overnight trip by these fishermen averaged $260 and included expenses for lodging and higher average expenses for food, ice, bait, and fuel than for day trips.

Trips are taken in every month, however, the percentage of RCGL's fished in a given month increases from January through October. The percentage of licenses used in November and December decreases dramatically. However, the monthly fishing rate among RCGL holders rarely exceeds 30%. The overall contribution of RCGL landings in 2003 was less than 1% of the total commercial and recreational harvest.

Individual Perspectives on Recreational Fisheries

Bryan Horsley (recreational fisherman and business owner) spoke about the current state of affairs for recreational fishing interests. He spoke of how recreational fishing in North Carolina is becoming more popular and how the future seems quite optimistic for businesses tied to recreational fishing.

Workshop Summary

Dr. Louis Daniel presented a summary of the workshop designed to help stimulate conversation during the panel discussion. He pointed out that the goal of fisheries management is to prevent overfishing and rebuild overfished stocks. Too often socioeconomic data are presented as an afterthought and given too little attention when management decisions are made. The point was made that socioeconomics can be used to help influence management decisions while still accomplishing conservation and rebuilding goals.

Dr. Daniel pointed out that fisheries managers need to keep two key concepts in mind when making management decisions: future behavior of fishermen in the event of closures and cumulative impacts of multiple regulations.

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Marine Fisheries: A Workshop in Socioeconomics

May 13, 2004

New Bern Riverfront Convention Center
New Bern, NC

<u>Welcome</u>

8:30	8:35	J. Johnson, MFC chairman	
8:35	8:45	B. Cheuvront	Introduction of the workshop

<u>Commercial Fisheries</u>

9:45	9:10	B. Cheuvront	Profiles of NC's commercial fishermen
9:10	9:35	A. Bianchi	Economic significance of commercial fishing in NC
9:35	10:00	K. Kitner	NC's changing fishing communities
10:00	10:30	L. Daniel	Fisheries Diversity: Case studies on the impacts of regulations and diversity

<u>Break</u>

10:30 10:45

<u>Commercial Fisheries</u>

10:45	11:15	W. Etheridge D. Beresoff	Individual perspectives on commercial fisheries
11:15	11:40	V. Maharaj	Capacity and fisheries
11:40	12:00	J. Maiolo	Impact of imports: the shrimp industry

<u>Lunch</u>

12:00	1:15		Provided

<u>Recreational Fishing</u>

1:15	1:35	D. Mumford	Recent changes in recreational fishing
1:35	2:00	B. Gentner	Economic significance of recreational fishing in NC
2:00	2:20	C. Wilson	Socioeconomic characteristics of RCGL fisheries
2:20	2:30	B. Horsley	An individual perspective on recreational fisheries

<u>Break</u>

2:30 2:45

<u>Panel Discussion Question and Answer Period</u>

2:45	3:00	L. Daniel	Socioeconomic implications for fisheries management
3:00	5:00	Panel discussion and audience questions to the speakers, representatives of commercial and recreational fishing interests, and NC fisheries managers. Panel participants include: Jimmy Johnson, MFC Chairman, Preston Pate, NC DMF Director, Charlie Adams, Murray Fulcher, Steven Hissey, and Susan West.	

Understanding the Value and Importance of North Carolina’s Marine Fisheries

A Workshop in Socioeconomics

May 13, 2004

New Bern, NC

Why this workshop, why now?

- The purpose is to draw out the relationship between fisheries management and how the people of North Carolina are affected by management decisions.
  - Economic
  - Social
  - Cultural

Why this workshop, why now?

- Federal and state law requires the consideration of socioeconomics when developing fisheries management strategies.
  - Magnuson Act – 1977
    - EEZ – (3 to 200 miles off the coast)
  - NC Fisheries Reform Act – 1997
    - State's territorial waters
  - MFC requested NC DMF provide this information

What is fisheries socioeconomics?

- Fishing-related behavior
  - We manage fisheries by affecting the behavior of people who fish
    - Fishing communities
    - Relationships between groups of fishermen
    - Characterization of fishermen
    - Historical importance of fisheries

What is fisheries socioeconomics?

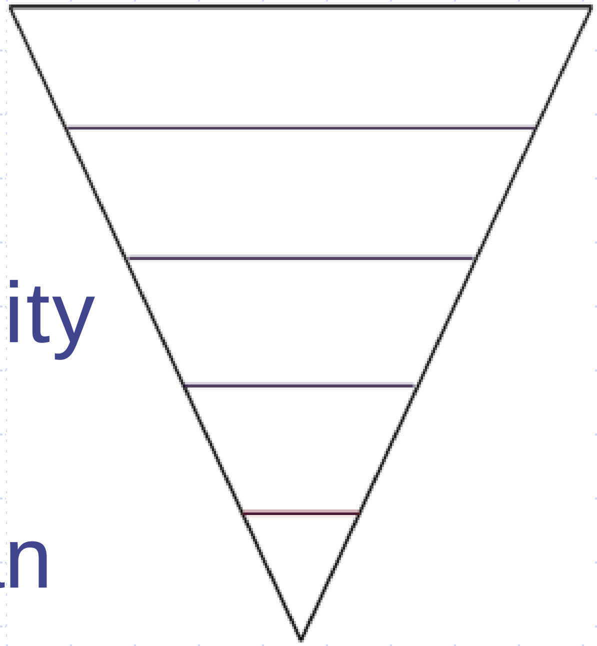
- Fisheries economics
  - Costs and income associated with participating in fisheries
    - Trip costs
    - Economic impacts

Types of presentations

- Commercial and recreational fisheries
  - Fishermen
  - Managers – state and regional
  - Researchers
- Formal presentations
- Informal presentations
- Panel discussion

Commercial fisheries presentation approach

Macro – state
county
community
fishery
Micro – fisherman



General

Specific

Presentations on special topics

Recreational fisheries presentation approach

- Marine recreational anglers
  - Fishing behavior
  - Economic impacts
- Recreational use of commercial gear
  - Demographics, behavior, and impacts

Profiles of North Carolina’s Commercial Fishermen

Brian Cheuvront, Ph.D.
Socioeconomics Program
NC Division of Marine Fisheries

May 13, 2004

How do we learn about NC's commercial fishermen?

- License database & trip ticket landings
- Personal interviews

License and Trip Ticket Landings Databases

NC Commercial Fishing Licenses

- Standard Commercial Fishing License (SCFL) - primary fishing license
- Retired Standard Commercial Fishing License (RSCFL) - NC residents only
- Shellfish without a SCFL (Shellfish) - NC residents only
- Land or Sell License - an out of state boat that fishes in the EEZ, but wants to sell its catch in NC.

How many people are buying commercial fishing licenses?

		Total	% Change	Cumulative Change
2000	Licenses	9,699		
	Individuals	8,604		
2001	Licenses	9,666	*-0.3%*	*-0.3%*
	Individuals	8,768	*1.9%*	*1.9%*
2002	Licenses	9,701	*0.4%*	*0.0%*
	Individuals	8,880	*1.3%*	*3.2%*
2003	Licenses	9,484	*-2.2%*	*-2.2%*
	Individuals	8,714	*-1.9%*	*1.3%*

How many North Carolinians are buying commercial licenses?

		NC Res.	*% Change*	*Cumulative Change*
2000	Licenses	9,555		
	Individuals	8,473		
2001	Licenses	9,523	*-0.3%*	*-0.3%*
	Individuals	8,634	*1.9%*	*1.9%*
2002	Licenses	9,564	*0.4%*	*0.1%*
	Individuals	8,751	*1.4%*	*3.3%*
2003	Licenses	9,305	*-2.7%*	*-2.6%*
	Individuals	8,543	*-2.4%*	*0.8%*

Trends among North Carolinians

		SCFL	*% Change*	Cum. Change
2000	Licenses	6,914		
	Individuals	6,017		
2001	Licenses	6,693	*-3.2%*	*-3.2%*
	Individuals	5,948	*-1.1%*	*-1.1%*
2002	Licenses	6,551	*-2.1%*	-5.3%
	Individuals	5,873	*-1.3%*	-2.4%
2003	Licenses	6,414	*-2.1%*	-7.3%
	Individuals	5,773	*-1.7%*	-4.1%

Trends among North Carolinians

		RSCFL	*% Change*	Cum. Change	Shellfish w/o SCFL	*% Change*	Cum. Change
2000	Licenses	513			2,097		
	Individuals	498			2,097		
2001	Licenses	629	*22.6%*	*22.6%*	2,175	*3.7%*	3.7%
	Individuals	607	*21.9%*	*21.9%*	2,175	*3.7%*	3.7%
2002	Licenses	676	*7.5%*	32%	2,304	*5.9%*	9.9%
	Individuals	656	*8.1%*	32%	2,304	*5.9%*	9.9%
2003	Licenses	727	*7.5%*	42%	2,131	*-7.5%*	1.6%
	Individuals	713	*8.7%*	43%	2,131	*-7.5%*	1.6%

Out of state buyers of Licenses*

		Other States	% Change	Cum. Change	% Other States
2000	Licenses	144			1.5%
	Individuals	131			1.5%
2001	Licenses	143	*-0.7%*	*-0.7%*	1.5%
	Individuals	134	*2.3%*	*2.3%*	1.5%
2002	Licenses	137	*-4.2%*	*-4.9%*	1.4%
	Individuals	129	*-3.7%*	*-1.5%*	1.5%
2003	Licenses	179	*30.7%*	*24.3%*	1.9%
	Individuals	171	*32.6%*	*30.5%*	2.0%

* Includes SCFL and Land or Sell licenses combined.

License Eligibility Pool

- The number of applicants from year to year has been decreasing.

	2000	2001	2002	2003
Applicants	318	213	90	68
Approved	157	110	46	38
% Approved	*55%*	*59%*	*55%*	*62%*
% NC res.	*89%*	*96%*	*87%*	*89%*
Denied	128	75	37	23
% Denied	*45%*	*41%*	*45%*	*38%*
% NC res.	*99%*	*96%*	*97%*	*100%*
Tabled	33	28	7	7

How many people are fishing?

Year License	SCFL NC	SCFL Others	SCFL % Other	RSCFL	Shellfish w/o SCFL	Land or Sell
2000 - Sold	6,914	75	1.08%	515	2,097	65
Used	4,080	35	0.86%	244	741	52
% Used	59%	47%		47%	35%	80%
2001 - Sold	6,693	90	1.34%	630	2,175	53
Used	4,197	51	1.22%	325	894	37
% Used	63%	57%		52%	41%	70%
2002 - Sold	6,551	80	1.22%	676	2,304	58
Used	3,916	36	0.92%	304	900	40
% Used	60%	45%		45%	39%	69%
2003 - Sold	6,414	88	1.37%	727	2,131	91
Used	3,697	43	1.16%	306	767	62
% Used	58%	49%		42%	36%	68%

Percent of licenses with recorded trip ticket landings

License	% w/ Landings
SCFL - NC	60%
SCFL - Other	50%
RSCFL	46%
Shellfish	38%

Why don’t some licenses have trip ticket landings?

- In the case of SCFLs and RSCFLs:
  - Financial investment
  - Holding on to it to give to another person
  - Declare tax loss
  - May fish in NC, but land out of state
- Recreational fishermen who want to:
  - land commercial quantities
  - use gears not allowed under recreational rules

Trends in licenses

- In 2001 and 2002, more North Carolinians bought licenses than the previous year.
- Slightly fewer North Carolinians bought commercial fishing licenses in 2003.
- Since 2001, fewer North Carolinians are using their SCFLs.

Is the average commercial fisherman in NC getting older?

	Average Age by License Type			
License	2000	2001	2002	2003
SCFL	50	49	48	48
RSCFL	75	74	74	73
Shellfish	49	47	47	46
Overall Avg	51	50	50	49

- The average age of people who buy licenses is getting lower.
- This may indicate
  - older fishermen are leaving fishing, or
  - younger fishermen are entering faster than older fishermen are leaving.

Interview Data

- Johnson & Orbach, 1996 (SeaGrant)
  - Measure socioeconomic conditions in fisheries
  - Advise Moratorium Steering Committee (prior to the FRA) regarding limited entry alternatives
  - Interviewed approximately 300 people with an Endorsement to Sell (ETS).

NC DMF Interview Data

- 913 Interviews completed since 1999:
  - Albemarle Sound (1999) – 126 interviews
  - Pamlico Sound (2002) – 146 interviews
  - Core Sound (2002) – 259 interviews
  - Southern Area (2003) – 268 interviews
  - Snapper/Grouper S. of C. Hatteras (2004) – 124 interviews

Important Issues

- Fishermen were asked to state the issues they thought were most important to them.

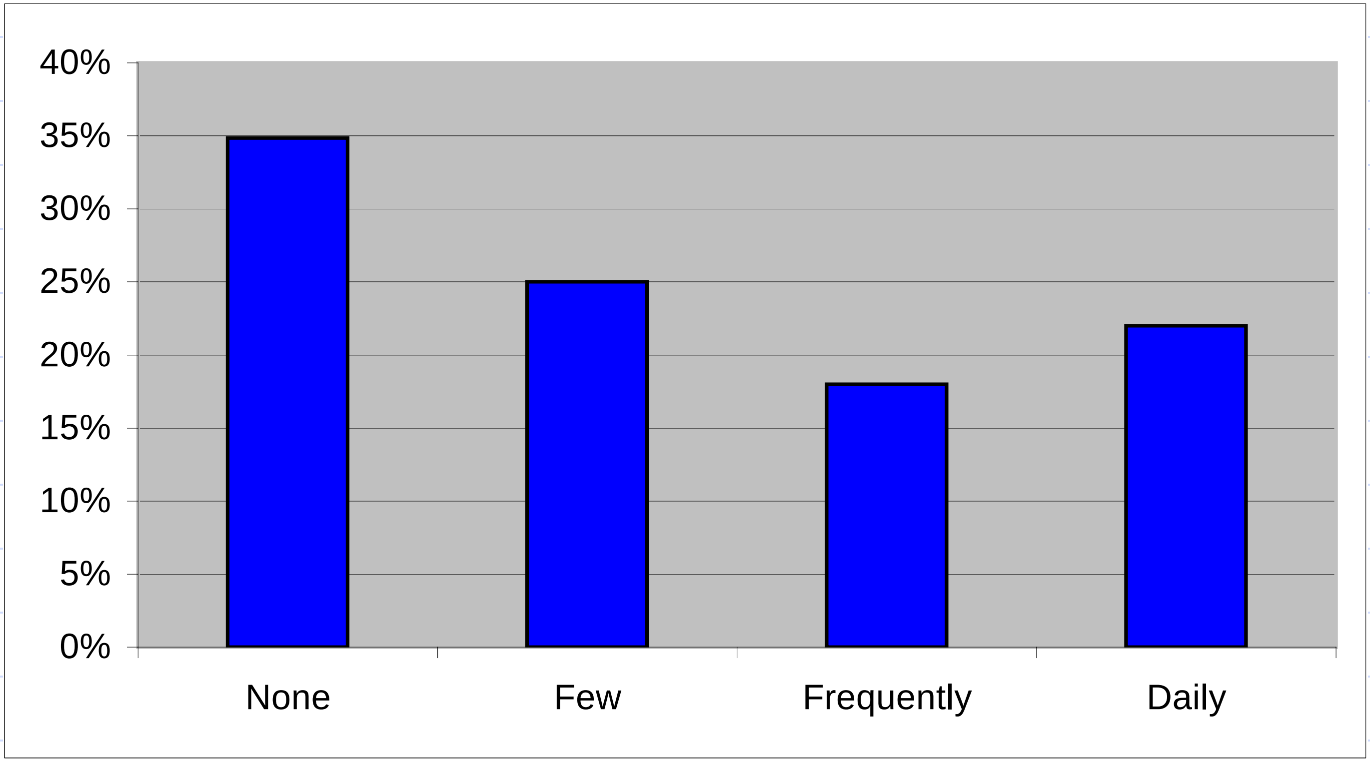
1. Keeping up with rules & proclamation changes
2. Too many rules
3. Low prices for seafood & imports
4. Overfishing
5. Closed areas
6. Too much local competition

Community Support

- Fishermen who lived in smaller communities generally felt
  - a greater degree of support for from the community for their fishing activities.
  - fishing is economically important to their community.
- All fishermen felt fishing is historically important in their community.

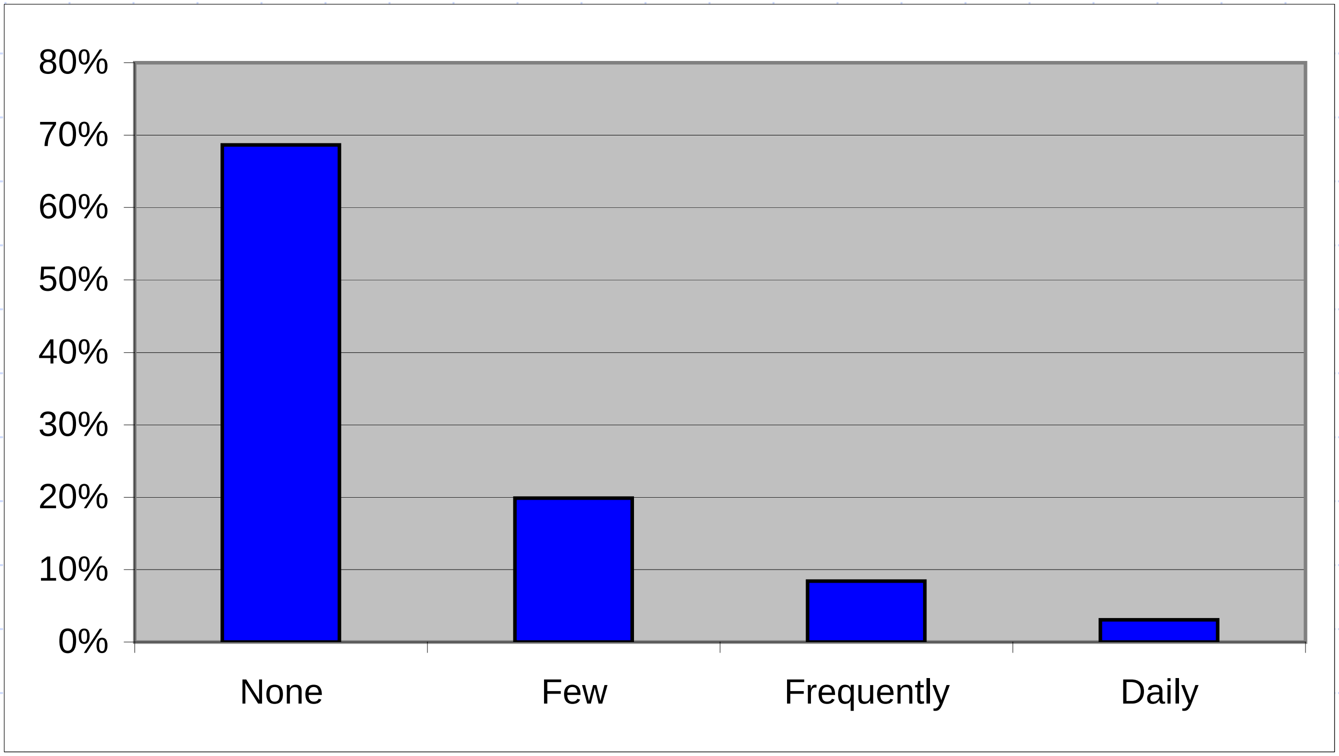
Attitudes towards regulation

- In the past year, how many times did you have negative experiences with state regulations?



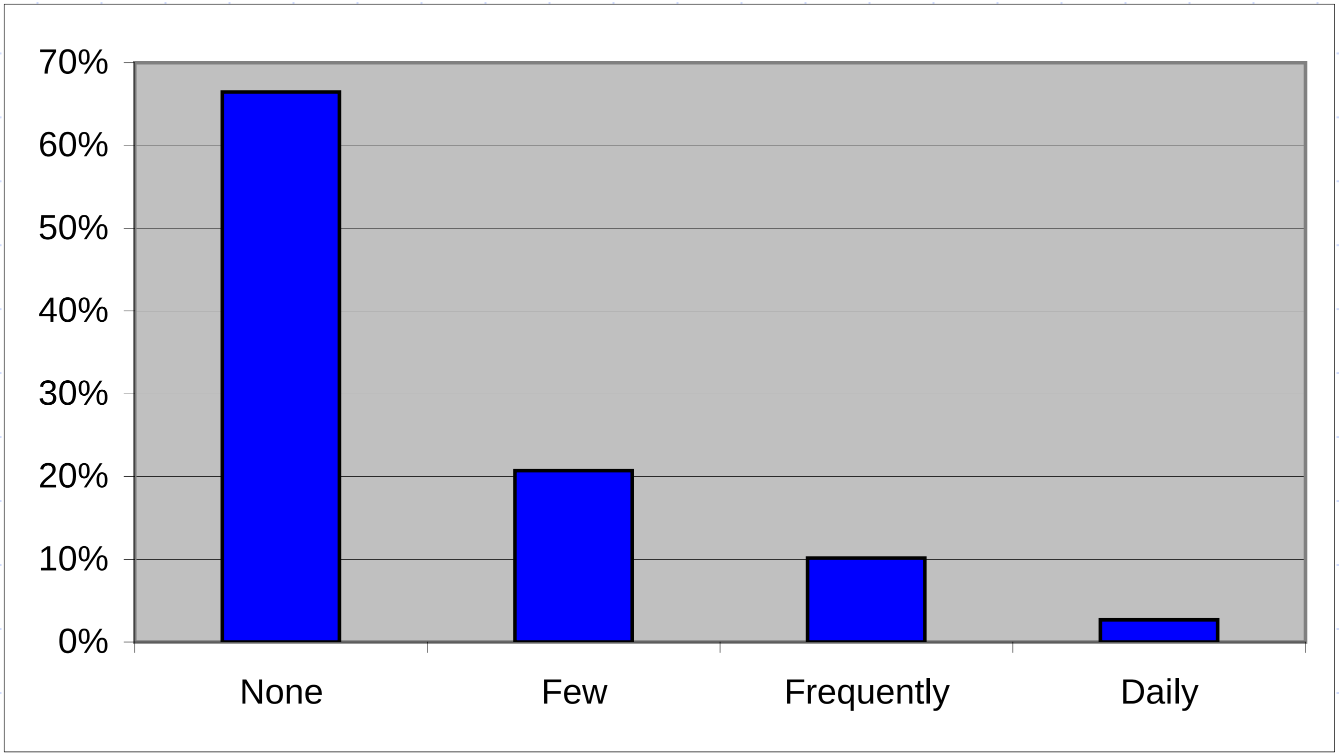
User Group Conflicts – Other Commercial Fishermen

- In the past year, how many times did you have negative experiences with other commercial fishermen?



User Group Conflicts – Recreational Fishermen

- In the past year, how many times did you have negative experiences with recreational fishermen?



Are fishermen working harder now than in the past?

- Fishermen were asked to rate how hard they work now compared to a few years ago to land the same amount of their targeted species.
- They used a 10 point scale:
  - 1 meant “much easier than before”
  - 5 meant “no difference”
  - 10 meant “much more difficult than before”

Are fishermen working harder now than in the past?

- The average rating across the DMF surveys was about 8, indicating that they do feel they have to work harder.
- Main reasons given for this feeling were:
  - Lack of species abundance
  - Regulation
  - Pollution/Water quality/Loss of habitat
  - Competing interests for the resources

Income from fishing

Income	Percent
$0 or lost income	11%
$1 - $5,000	31%
$5,001 - $15,000	26%
$15,001 - $30,000	26%
> $30,000	6%

Non-fishing income

- Johnson & Orbach and NC DMF interviews show that about 70% of fishermen also have shore-based work.
- Work done by B. Garrity-Blake, Maiolo, and Johnson & Orbach suggested that people hold on to fishing as long as possible, but seek a significant percent of their income from shore-based work.
- Leaving fishing altogether is a last resort.

Future Optimism

- Fishermen were asked about their future ability to make a living in fishing.
  - They used a 10-point scale
  - 1 being “extremely pessimistic”
  - 10 being “extremely optimistic”
- The average rating was about 4.4 indicating most fishermen were slightly pessimistic about their future ability to make a living in fishing.

Future Optimism

- Nearly two-thirds of all fishermen thought they would be fishing in 10 years.
- Those who didn't think they would be fishing in 10 years cited:
  - Retirement
  - A fear of being regulated out, or pushed out by recreational interests.

Acknowledgments

- Mary Neal, Kathy McEvoy, Jimmy Spruill and Rebecca Story conducted the NC DMF interviews.
- The ACCSP and the SAFMC supplied the funding for the DMF studies.
- Most of all, thanks to the fishermen who took the time to answer all the questions and tell us about themselves.

Declining Economic Impact of Commercial Fishing in NC’s Coastal Fishing Counties

By

Alan Bianchi

NCDMF

License and Statistics Section

May 13, 2004

Background

- Effective management strategy is difficult
- Fisheries Reform Act of 1997
  - State-level fisheries management plans need to utilize socioeconomic data
- Goals
  - Determine economic characteristics of NC commercial fisheries (state and county)
  - Provide baseline economic data for future FMP’s

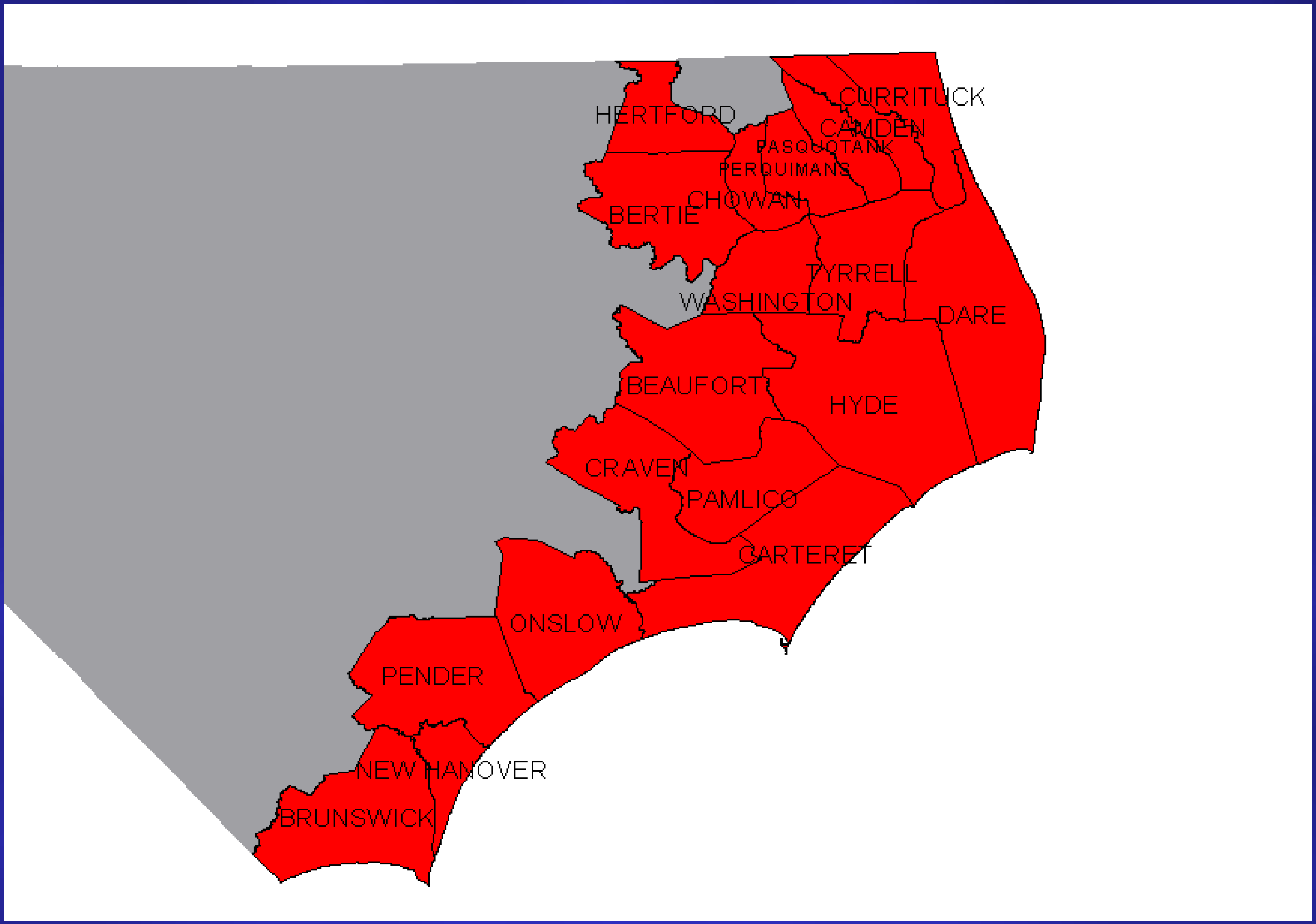
Methods

- Data Sources
  - License and Statistics Section
    - Trip Ticket Program
    - License Database
  - North Carolina Employment Security Commission
- Data Analysis
  - Landing trends (pounds and ex-vessel value)
  - Comparison of average fishing income to average annual wage per worker
  - Percent of workforce composed of commercial fishermen

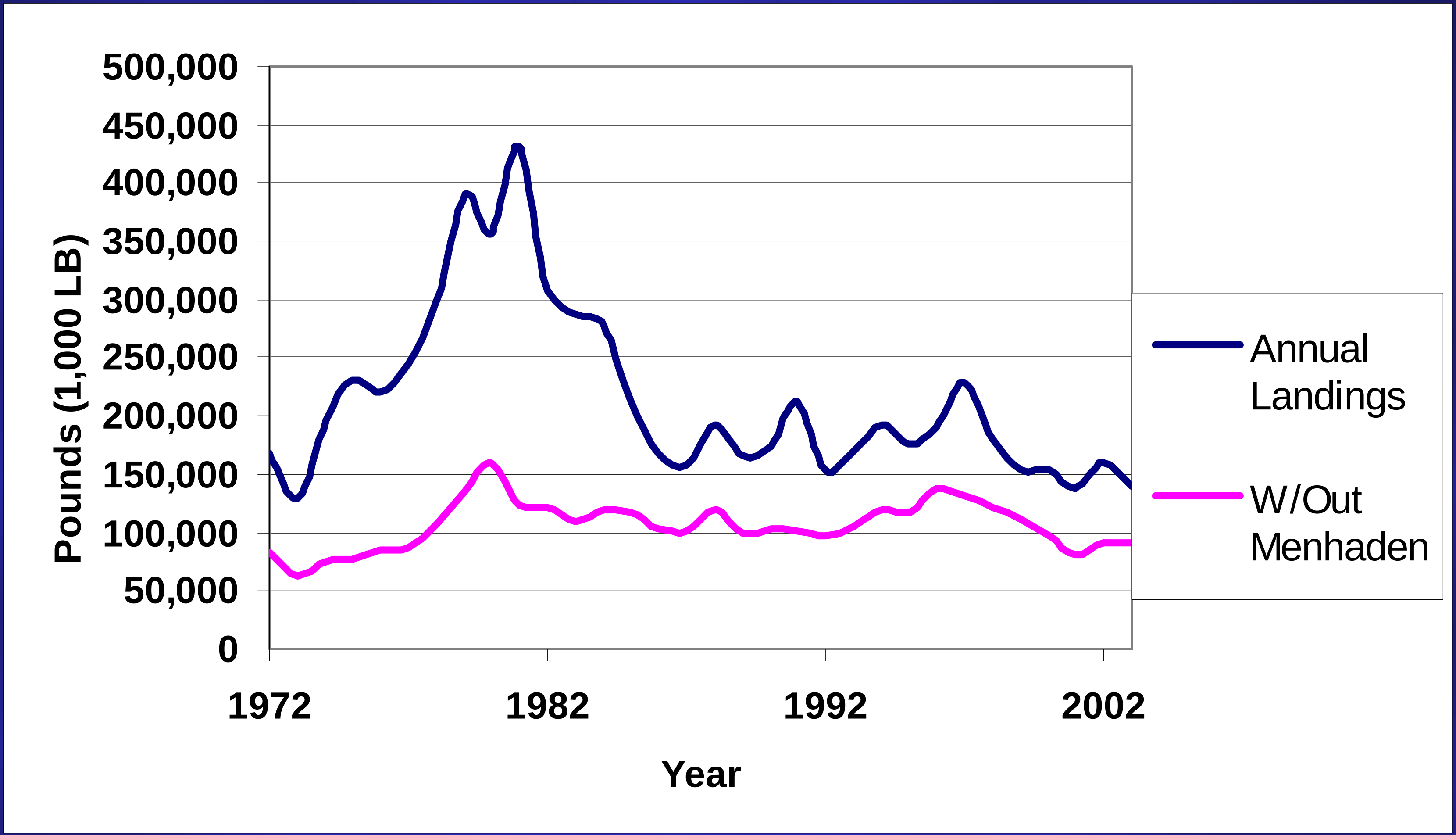
Data Limitations

- License Data
  - Move from ETS system to current system 1999
- Separate Databases
  - License Database and is separate from Trip Tickets
  - Need to combine databases
  - Ex-vessel value is the average price

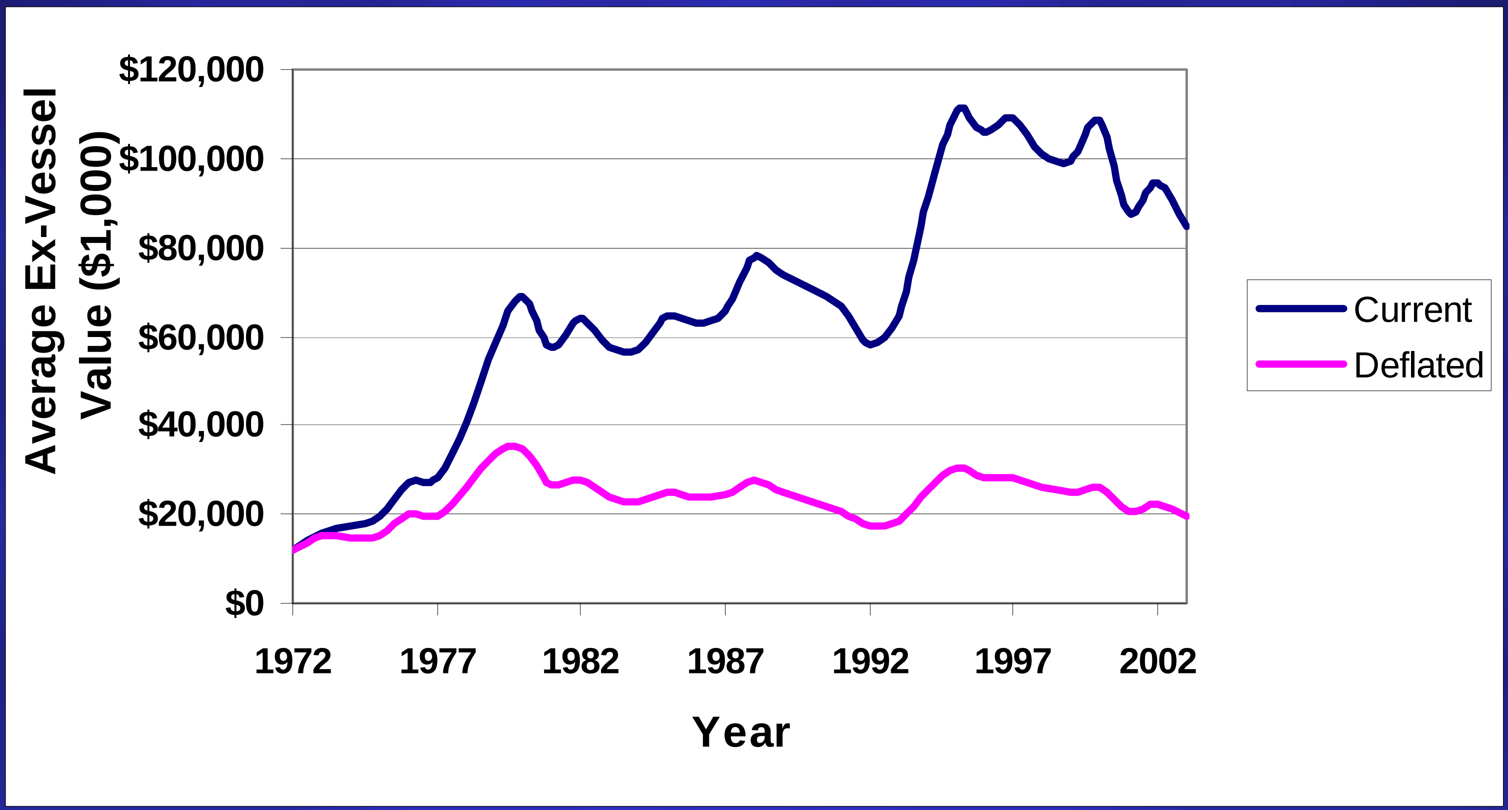
Study Area


CURRITUCK
HERTFORD
CAMDEN
PASQUOTANK
PERQUIMANS
CHOWAN
BERTIE
TYRRELL
WASHINGTON
DARE
BEAUFORT
HYDE
CRAVEN
PAMLICO
CARTERET
ONSLOW
PENDER
NEW HANOVER
BRUNSWICK

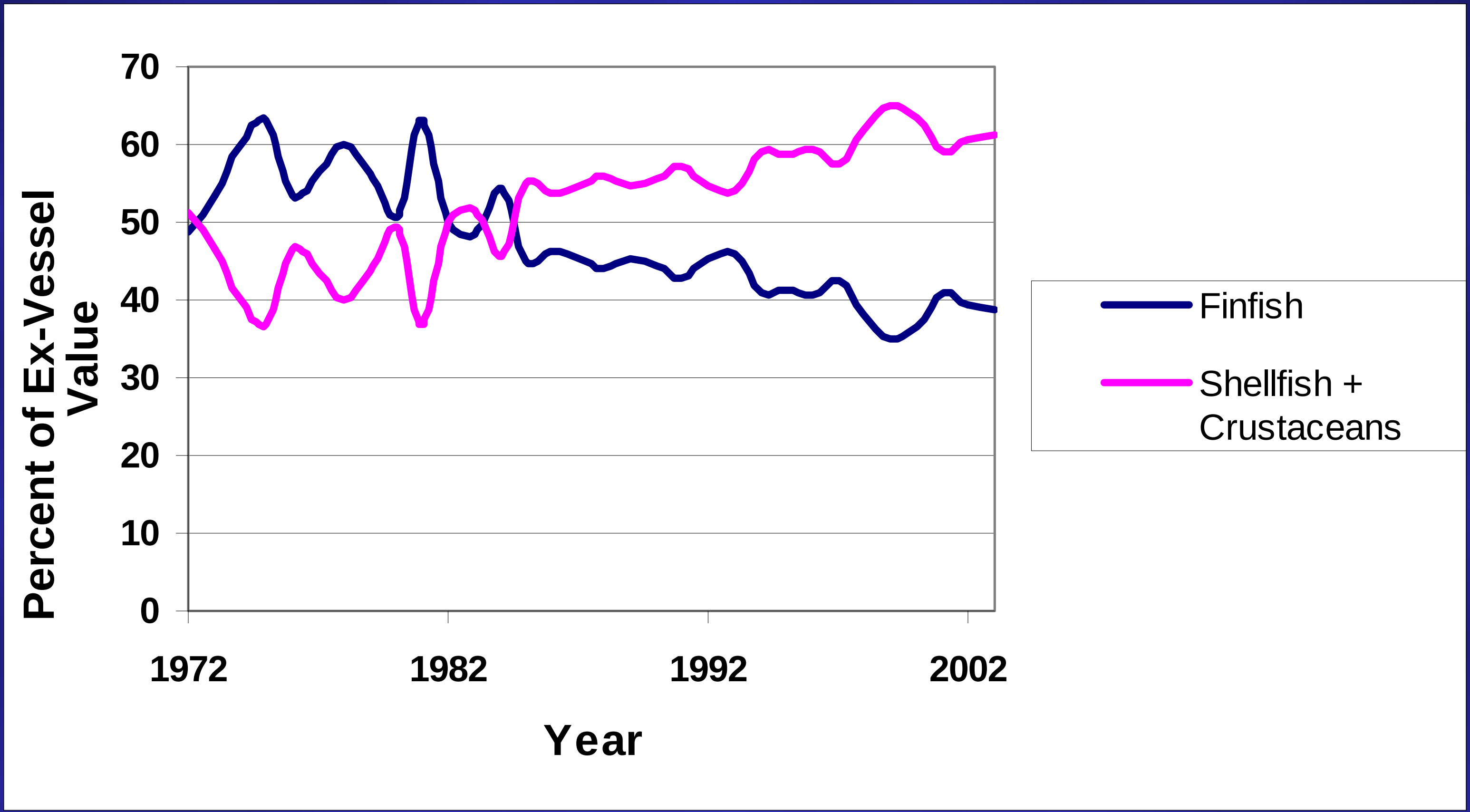
Historical Landings



Historical Landings- Ex-Vessel Value



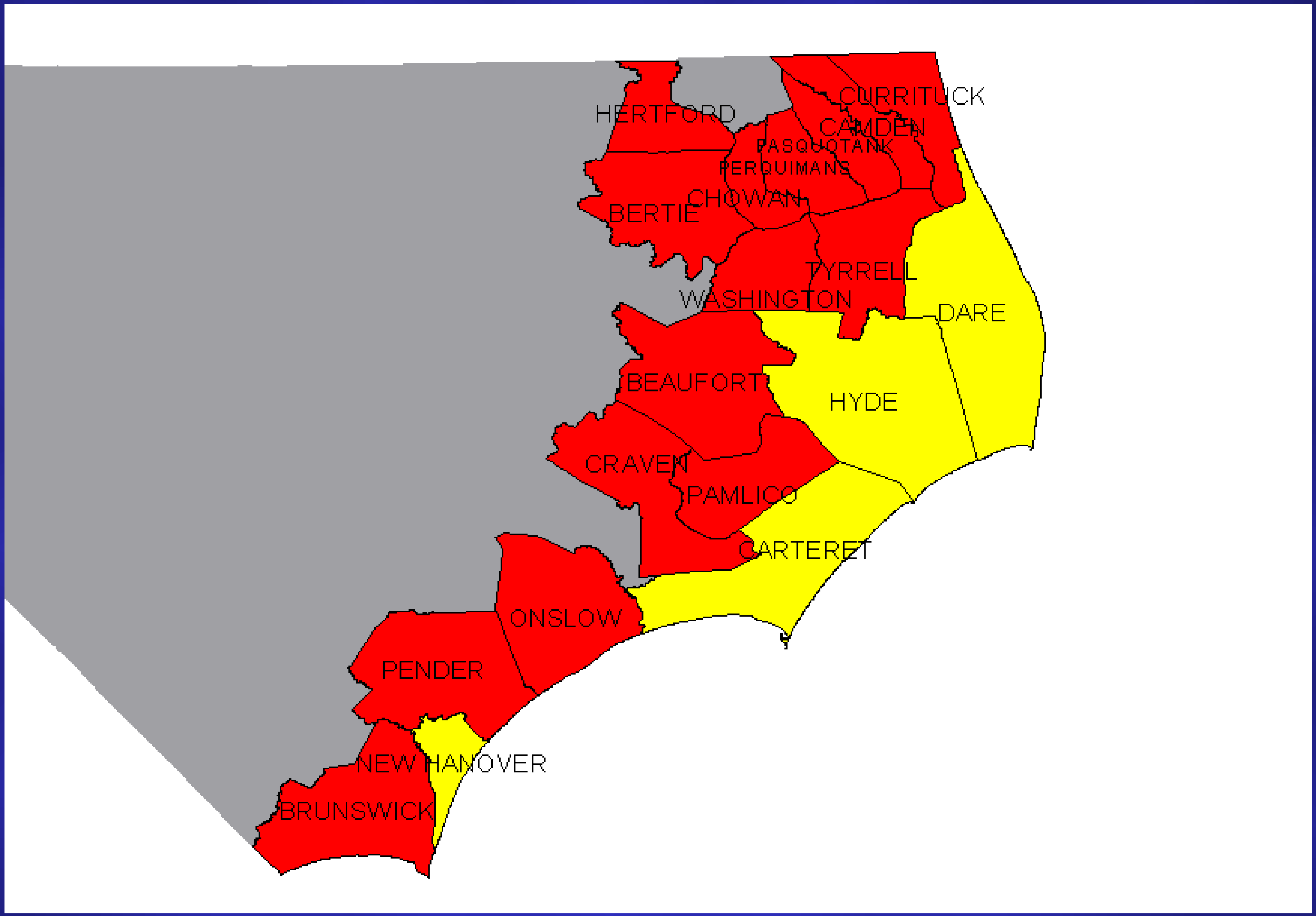
Historical Landings- Percent of Ex-Vessel Value



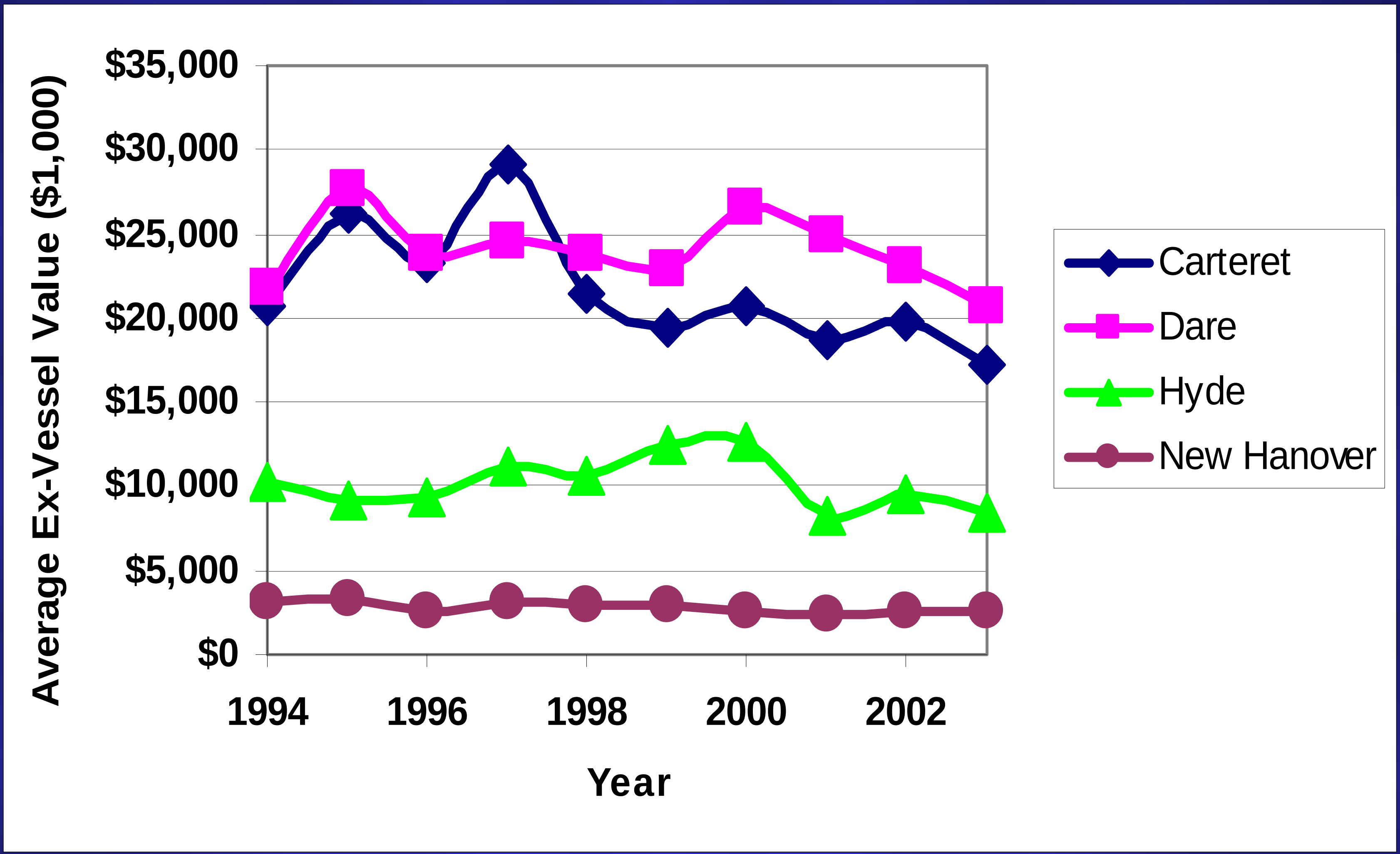
Economic Characteristics for the Commercial Fishing Sector-2003

County	No. of Lics Issued	No. of Fishermen	No. of Vessels	No. of Dealers	Avg. Fishing Income
Beaufort	582	316	400	36	$23,896
Bertie	17	7	7	3	$13,806
Brunswick	880	370	358	92	$9,379
Camden	72	52	56	5	$69,762
Carteret	2,256	966	880	142	$16,984
Chowan	73	47	54	5	$13,619
Craven	217	78	82	10	$13,241
Currituck	199	115	123	31	$24,494
Dare	1,059	536	683	89	$34,109
Hertford	13	3	7	2	$3,905
Hyde	395	202	249	33	$32,085
New Hanover	583	265	291	69	$9,393
Onslow	1,047	493	434	55	$9,815
Pamlico	402	191	223	41	$24,796
Pasquotank	118	65	76	8	$38,561
Pender	333	146	160	39	$5,974
Perquimans	79	56	66	5	$22,977
Tyrrell	101	75	105	13	$41,341
Washington	44	26	31	5	$17,399

Counties to Be Profiled



Ex-vessel Value by County



Profile of Dare County

Year	No. of Fisher-men	Avg. Annual Employment For All Industries	% of Work-force	Avg. Fishing Income	Avg. Annual Wage per Worker	% of Annual Wage
1997	704	16,260	4.33	$30,489	$17,989	169.49
1998	645	16,290	3.96	$31,788	$19,008	167.23
1999	700	16,900	4.14	$28,317	$19,716	143.62
2000	622	17,550	3.54	$37,881	$20,946	180.85
2001	615	17,060	3.60	$36,096	$22,215	162.48
2002	611	20,059	3.05	$32,051	$22,672	141.37

Profile of Hyde County

Year	No. of Fisher-men	Avg. Annual Employment For All Industries	% of Work-force	Avg. Fishing Income	Avg. Annual Wage per Worker	% of Annual Wage
1997	244	2,810	8.68	$39,414	$17,476	225.53
1998	235	2,750	8.55	$40,173	$18,165	221.16
1999	260	2,860	9.09	$37,755	$18,810	200.72
2000	251	2,880	8.72	$37,092	$19,648	188.78
2001	238	2,970	8.01	$28,586	$21,064	135.71
2002	217	2,877	7.54	$34,177	$21,632	157.99

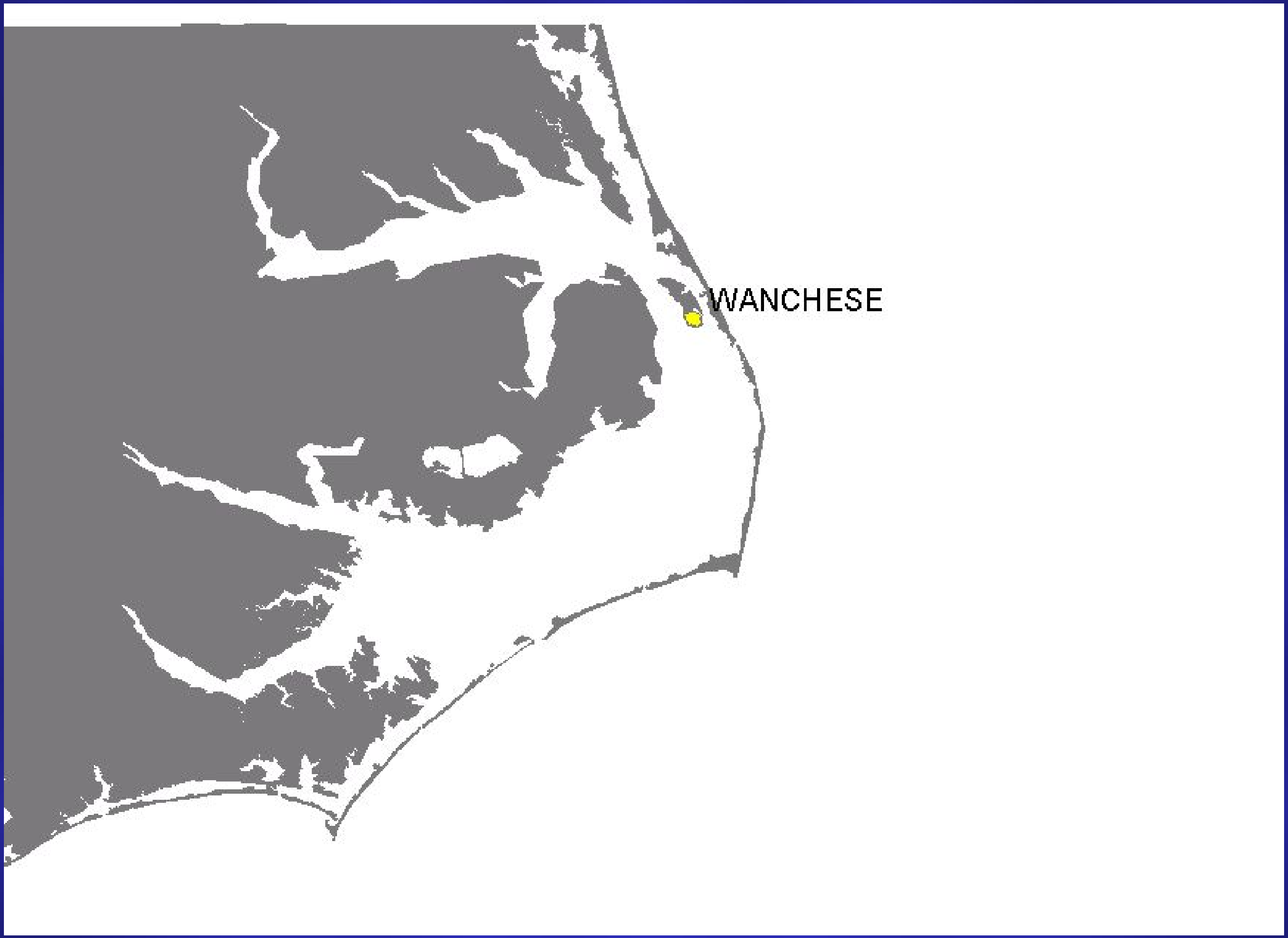
Profile of Carteret County

Year	No. of Fisher-men	Avg. Annual Employment For All Industries	% of Work-force	Avg. Fishing Income	Avg. Annual Wage per Worker	% of Annual Wage
1997	1,248	28,010	4.46	$22,284	$18,229	122.24
1998	1,054	27,460	3.84	$19,373	$19,002	101.95
1999	1,196	27,670	4.32	$15,613	$19,765	78.99
2000	1,173	27,780	4.22	$17,184	$20,901	82.22
2001	1,199	27,680	4.33	$15,622	$21,779	71.73
2002	1,074	27,335	3.93	$18,433	$22,308	82.63

Profile of New Hanover County

Year	No. of Fisher-men	Avg. Annual Employment For All Industries	% of Work-force	Avg. Fishing Income	Avg. Annual Wage per Worker	% of Annual Wage
1997	360	75,470	0.48	$7,685	$25,067	30.66
1998	306	75,320	0.41	$8,372	$25,823	32.42
1999	306	77,540	0.39	$8,273	$27,309	30.29
2000	272	78,920	0.34	$9,547	$28,549	33.44
2001	283	78,750	0.36	$8,422	$29,683	28.37
2002	282	83,102	0.34	$9,380	$29,796	31.48

Study Area



Profile of Wanchese

Year	No. of Fisher-men	No. of Vessels	No. of Dealers	Avg. Fishing Income	Ex-Vessel Value per Vessel
1997	112	140	9	$59,780	$47,824
1998	110	134	10	$53,646	$44,038
1999	130	249	12	$56,620	$29,561
2000	139	211	10	$68,824	$45,339
2001	140	214	9	$58,325	$38,157
2002	124	186	12	$61,770	$41,180

Discussion

- Future Potential Economic Impact
  - Dare County- heavy development and tourism
  - Carteret County- increasing tourism influence
  - New Hanover County- commercial fishing is no longer a major industry
  - Mainland Hyde County- one of the few counties to still have relatively untouched commercial fishing communities

Discussion

- Future Potential Economic Impact- continued
  - Regulations
    - Spiny Dogfish
    - Snapper-Grouper Complex
    - Protected Resources
  - Imports
  - Loss of infrastructure
  - Hurricanes
    - The storms of 1996,1998,1999,2003
  - Others

Conclusions

- Pounds, ex-vessel value, and participation ranges widely from county to county
- Overall declining trend in pounds and ex-vessel value across counties
- Many factors are making it more and more difficult for the commercial fisherman to maintain his community

Acknowledgements

- I would like to thank:
  - Commercial Fishing Industry
  - Marine Fisheries Commission
  - Dr. Brian Cheuvront
  - Dee Lupton
  - Don Hesselman
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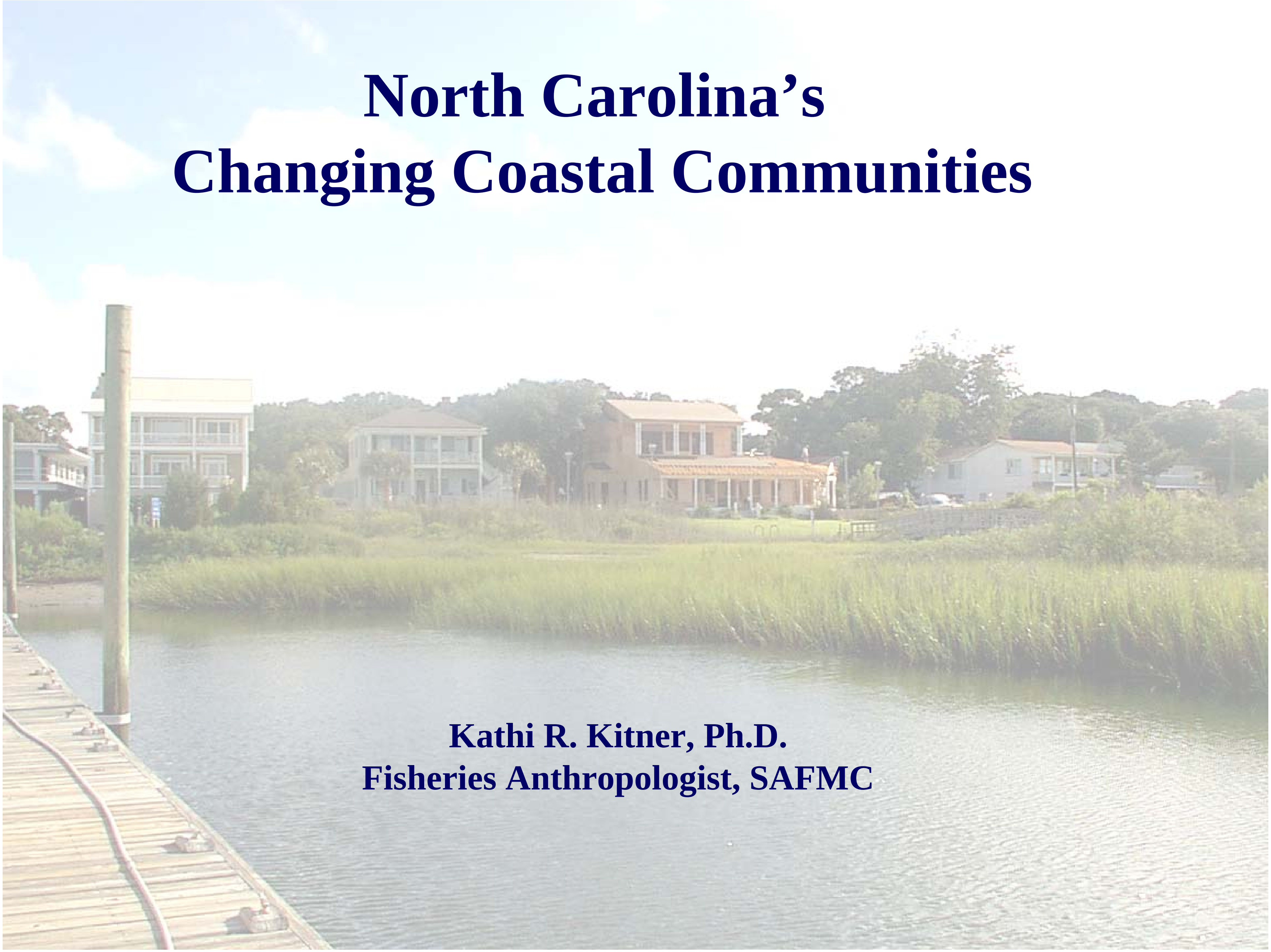
  - Dr. John Whitehead
  - Grace Kemp
  - Lees Sabo
  - Maury Wolff
  - Joe Grist



North Carolina's Changing Coastal Communities

Kathi R. Kitner, Ph.D.
Fisheries Anthropologist, SAFMC

Social Characteristics of South Atlantic Fisheries

- Commercial sector composed of smaller, predominately family-owned enterprises
- Commercial fishing communities range from rural (NC – GA) to urban (FL)
- Recreational catch exceeds the commercial harvest for a number of species (dolphin, AJs, king mackerel, black sea bass, some snappers)
- *Both* recreational and commercial fishing are threatened by *extensive coastal development*

What are the threats to South Atlantic (and North Carolina's) fishing communities?

- Growing population (also retirees, 2nd homes)
- Shift in economic base from primary production to service industry
- Shift from small independent businesses to large corporations (Sam's Hardware to Wal-Mart)
- Less access to coast and water due to construction blockage, privatization of waterfront, rising taxes/rising land value
- Runoff pollution impacting bays and estuaries

Communities are also faced with:

- **Increased competition (conflict) for resources**
- **Growing class disparities**
- **Exponential growth of regulations on industry**

Non-Random Statistics

- ***Rural to Urban Ratio has shifted greatly***
- ***The South now holds greatest percent of population in US***
- ***1990 – 2000 North Carolina increased its population by 21 %***

Population Growth in Brunswick County

1970	1980	1990	2000
24,223	35777	50985	73143

Brunswick County, NC Tourism Revenues ($ Millions)

1990 = $115.83 ***2002 = $263.35***

Southport, NC

Employment	1980	1990	2000
Agriculture, Fishing, Mining	N/A	16	5
Construction	N/A	4	97
Services	N/A	65	429

Hilton Head, SC

Employment	1980	1990	2000
Ag, Fishing, Mining	158	216	41
Construction	607	923	2459
Services	681	1693	5914

Gone, as of late 2003

Gone,
December, 2003
H & C Fish House,
Murrells Inlet, SC

Current and Future Challenges

Are We Protecting Fishing Communities?

- How do we protect what we still cannot identify?
- How do we Address the Lack of Sufficient Data?
- How do we proceed with the Lack of Sufficient Funds?

Solutions?

- Ecosystem thinking /Thinking Big
- Sustainability – What do we want to sustain?
- Think Cultural Diversity a la David Griffith

  (Environmental Justice - Fairness and Equity)
- Allocation – What do we want our fisheries to

  look like in the future?
- <u>Think OUT LOUD so others hear us!</u>

Fisheries Diversity

Case studies on the impacts of regulations and diversity

Why Diversify?

- Economics
- Cultural Tradition/Availability
- Regulations

Three case studies

- Snapper-Grouper Fishery – Regulated through numerous plans that have increased size limits, closed seasons, quotas, limited entry.
- How has the fishery responded to regulations and what are the trends in landings and participation?

Southern Flounder

- Identify fishermen involved in the deepwater, large mesh gill net fishery in the area that became the Pamlico Sound Gill Net Restricted Area and assess the impacts of that closure on their fishing patterns.

Dogfish Sharks

- Identify fishermen who participated in the dogfish fishery and assess the impacts of the regulations that ultimately closed the fishery in 2001

South Atlantic Snapper-Grouper (1994 – 2002)

- Selected fishermen who landed at least 1,000 pounds of snapper-grouper species in 1994.
- Follow those fishermen through time to determine if trends were identifiable in terms of participants, landings, effort and diversity.

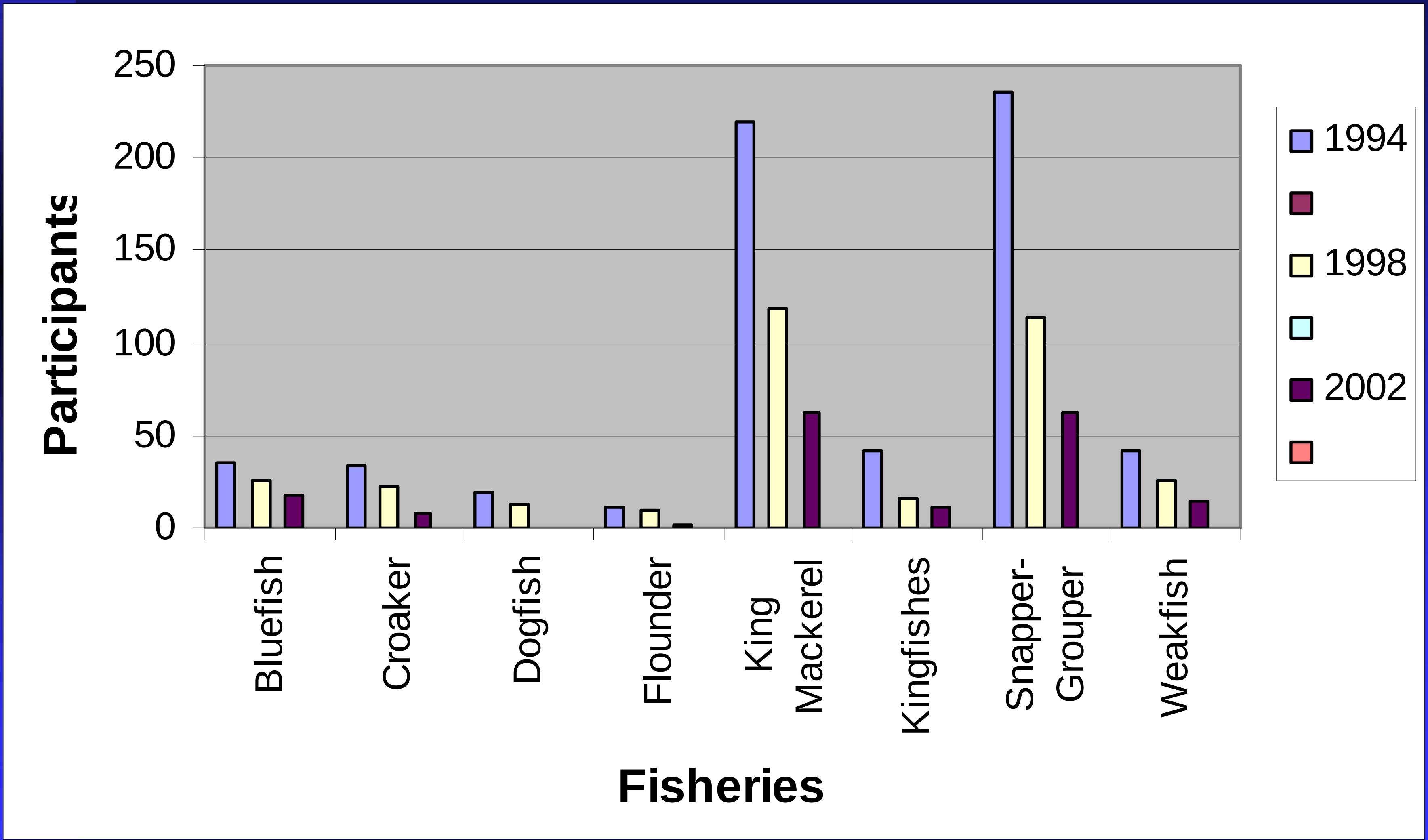
Year	Participants	Pounds	Trips
1994	227	3,008,152	5,880
1995	182	2,286,185	4,294
1996	159	1,761,094	3,242
1997	129	1,673,236	3,326
1998	117	1,441,825	2,922
1999	107	1,195,502	2,120
2000	99	1,009,547	1,987
2001	90	897,767	1,909
2002	87	1,039,457	1,922

Year	Total Pounds	Snapper-Grouper	All Others	% Snapper-Grouper	% Other
1994	14,319,859	3,008,152	11,311,707	21.01%	78.99%
1995	11,189,209	2,286,185	8,903,024	20.43%	79.57%
1996	10,507,805	1,761,094	8,746,711	16.76%	83.24%
1997	8,673,847	1,673,236	7,000,611	19.29%	80.71%
1998	7,310,559	1,441,825	5,868,734	19.72%	80.28%
1999	6,734,684	1,195,502	5,539,182	17.75%	82.25%
2000	7,742,626	1,009,547	6,733,079	13.04%	86.96%
2001	6,537,772	897,767	5,640,005	13.73%	86.27%
2002	6,018,916	1,039,457	4,979,459	17.27%	82.73%

“Other Fisheries” prosecuted by Snapper-Grouper participants

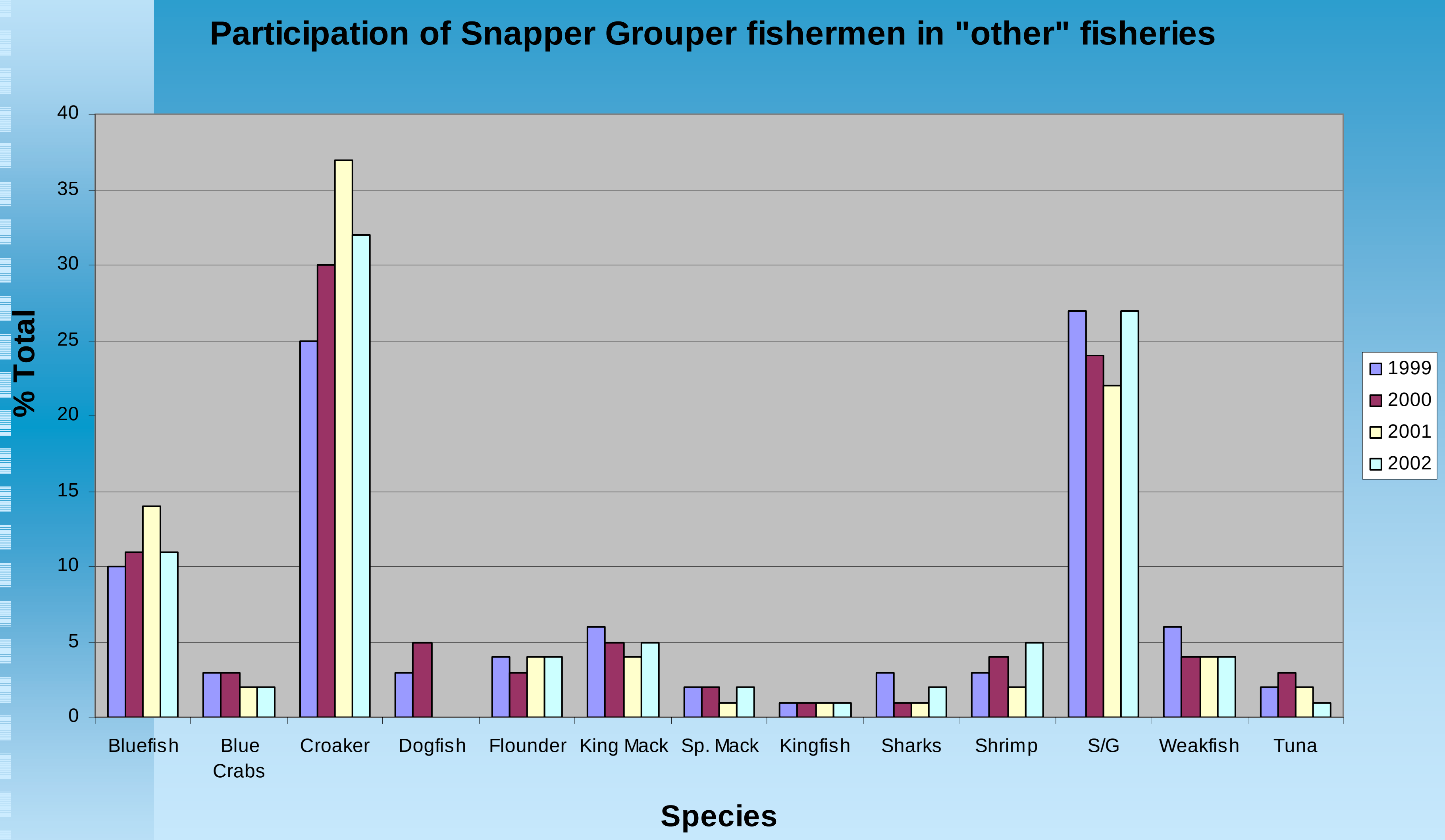
- Ocean gill net
- Estuarine gill net
- Shrimp trawl
- Blue crab
- Clam

Shift in Participants Over Time



Snapper-Grouper (1999 – 2002)

- Examining the fishery from 1994 – 2002 included the effects of limited entry
- However, conclusions will vary when looking from 1999-2002 after limited entry in place
- Began with 153 permit holders in 1999, numbers decline to 103 in 2002


Participation of Snapper Grouper fishermen in "other" fisheries
% Total
0
5
10
15
20
25
30
35
40
Bluefish
Blue Crabs
Croaker
Dogfish
Flounder
King Mack
Sp. Mack
Kingfish
Sharks
Shrimp
S/G
Weakfish
Tuna
Species
1999
2000
2001
2002

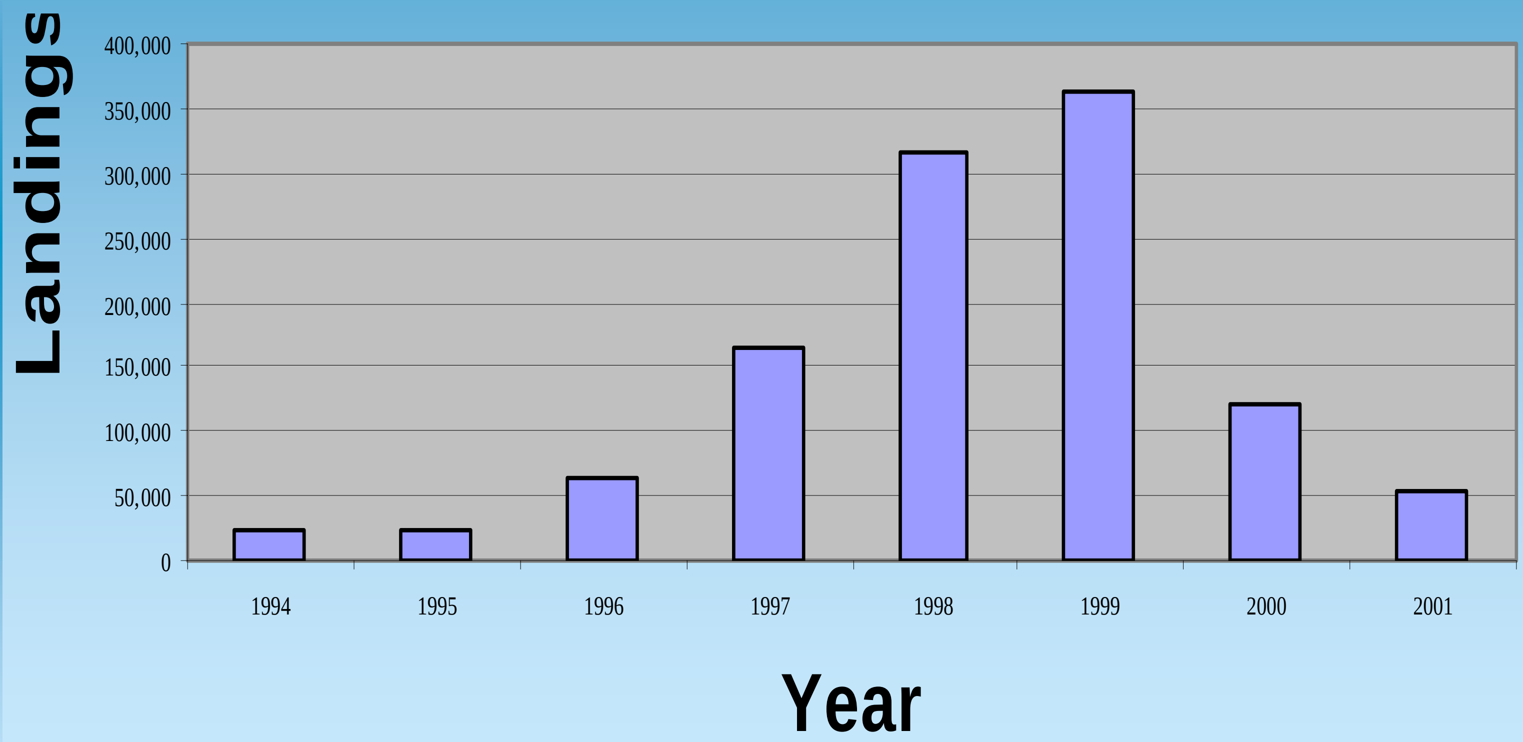
Conclusions

- Overall reductions in participants and effort
- Dependent on “other” fisheries, particularly croaker and bluefish
- Shift more effort from high value, low volume, low bycatch hook and line fishery to low value, high volume, higher bycatch gill net and trawl fisheries.

Southern Flounder

- Selected participants (n = 41) in the Pamlico Sound Gill Net Restricted Area who landed greater than 1,000 pounds of southern flounder in 1999.
- Track the impacts of closing the area to protect sea turtles, and
- How fishermen “reacted” to being unable to fish in the closed area.

Southern flounder landings by selected participants (1994-2001)



Landings of selected species by PSGNRA fishermen before and after the complete implementation of restrictions (1999 and 2000).

Species	1999	2000
Blue crabs	190,964 lbs.	72,140 lbs.
Gray trout	66,162 lbs.	13,984 lbs.
Shrimp	38,903 lbs.	25,577 lbs.
Flounder	441,879 lbs.	173,194 lbs.
Ocean Gill Net	97,880 lbs.	445,229 lbs.
Total lbs.	835,788 lbs.	730,124 lbs.
Total Value	$1,100,000	$570,000.

617,573 lbs. of finfish taken in the ocean gill net fishery in 2001.

Only 11 of 41 permitted fishermen obtained a permit in 2002.

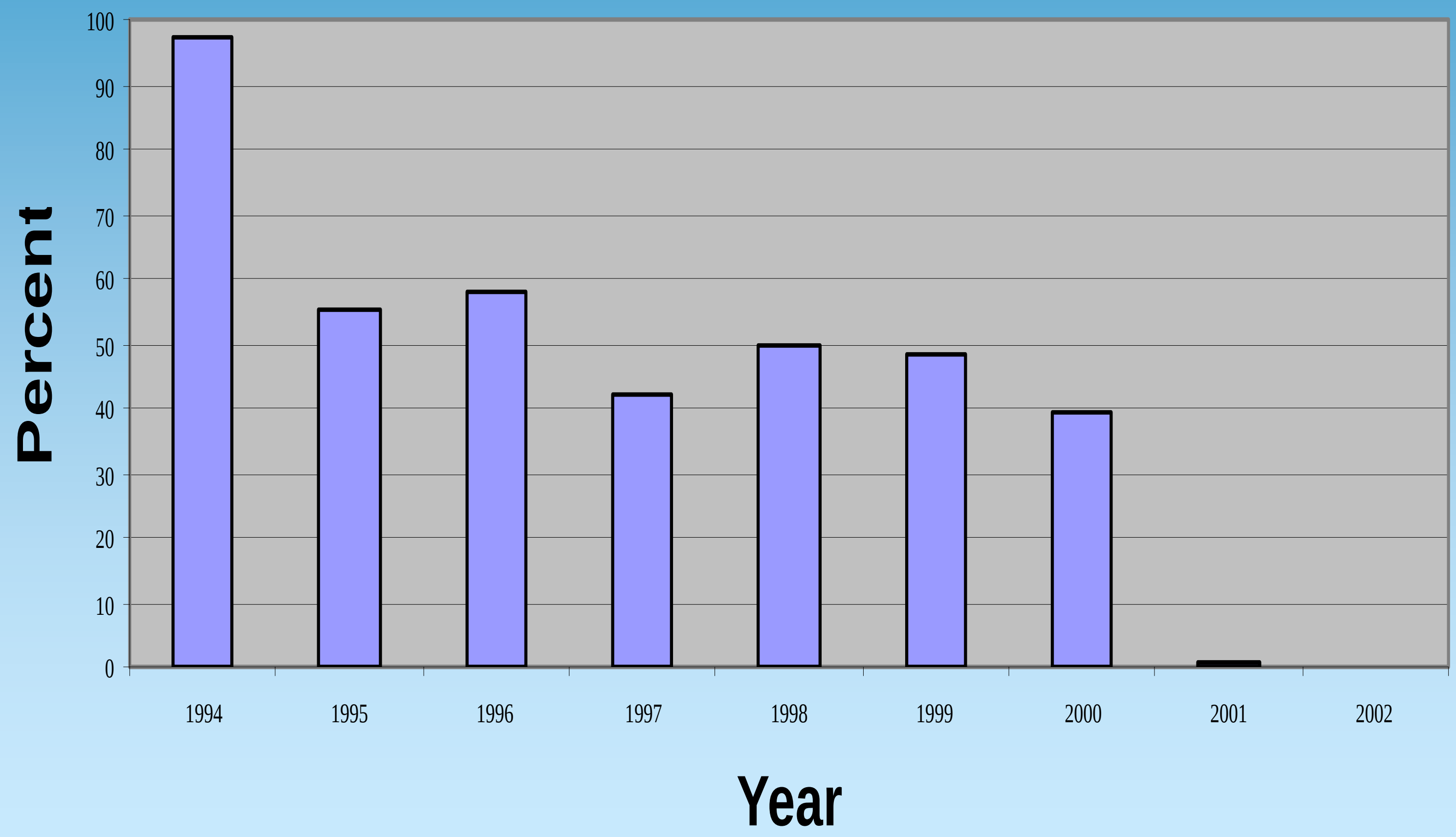
Dogfish Sharks

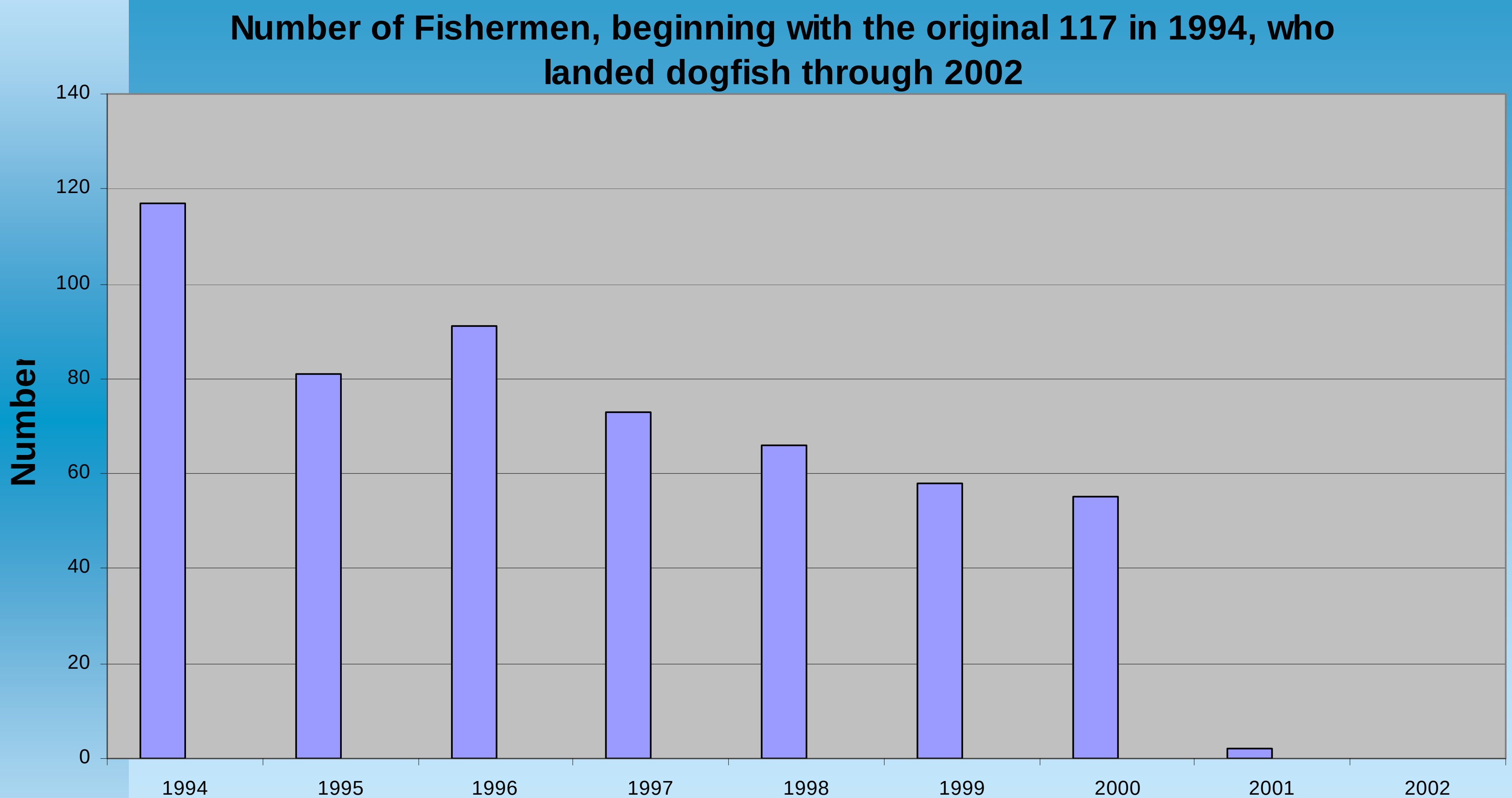
- Low landings before the early 1990s due to low value and lack of infrastructure.
- Once processing facilities opened, costs of gear and volume of dogfish caught made it a lucrative fishery.

Dogfish Sharks

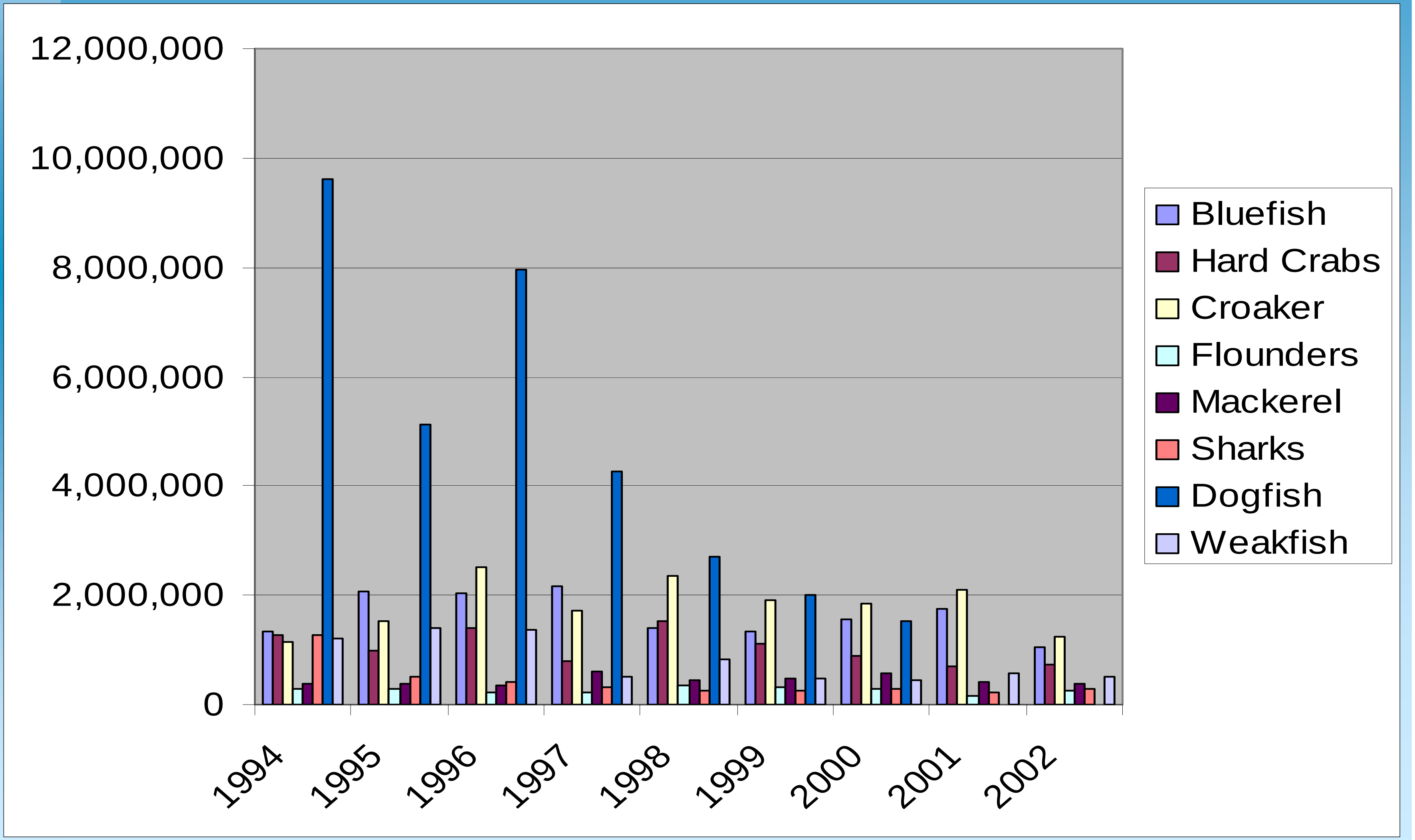
- Selected the 117 participants who landed at least 2,500 pounds of dogfish in 1994
- Followed fishermen from 1994 through 2002 to examine any attrition that occurred and how the fishery responded to the stringent regulations implemented in 2000.

Percent of Total Dogfish Landed by Selected Fishermen

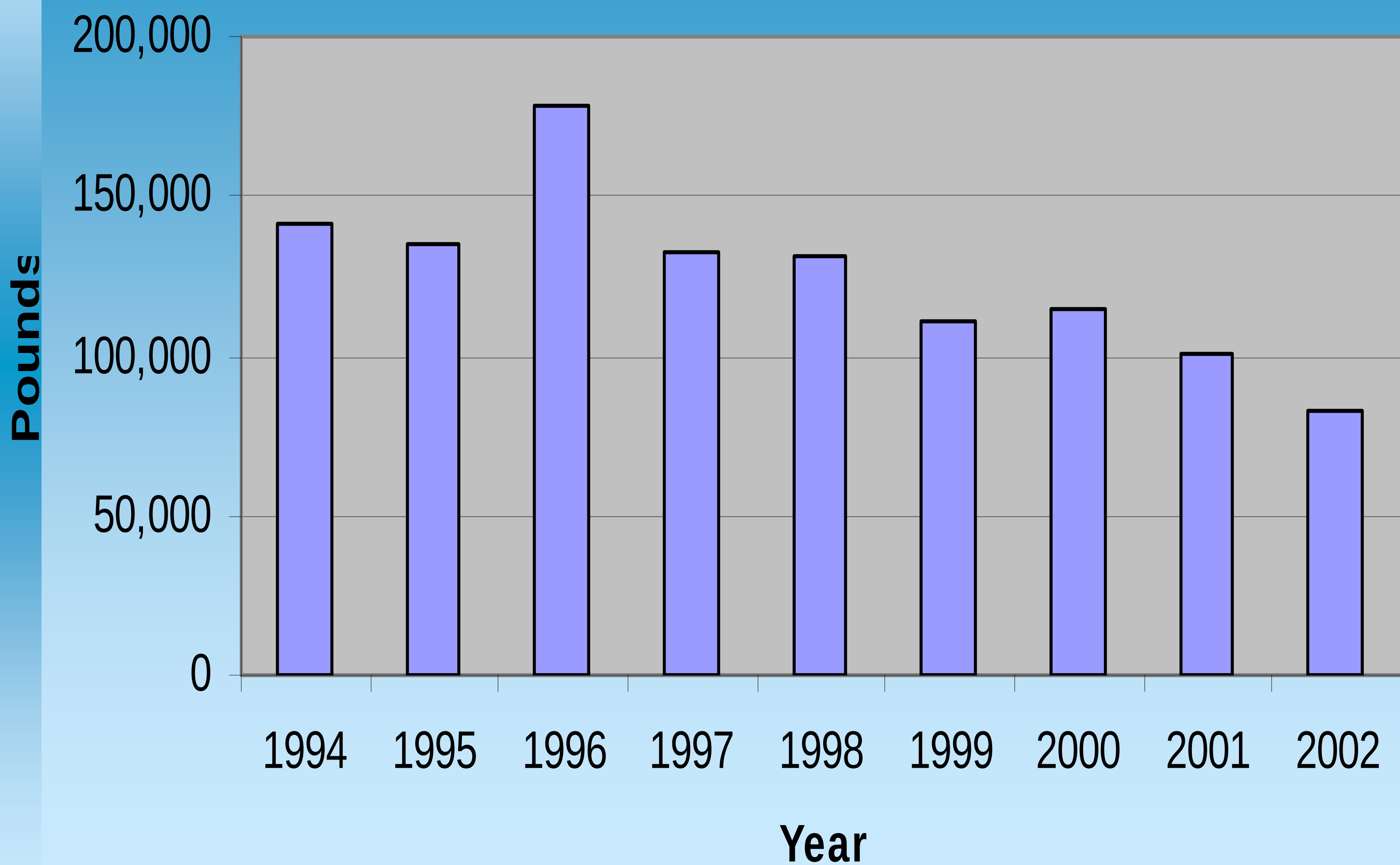



Number of Fishermen, beginning with the original 117 in 1994, who landed dogfish through 2002
Number
0
20
40
60
80
100
120
140
1994
1995
1996
1997
1998
1999
2000
2001
2002

Cumulative landings of "dogfish" fishermen



Average landings of all species per fishermen



Dogfish Sharks

- Participants have always been involved in multiple fisheries.
- While fishermen are now more reliant on weakfish, bluefish, and croaker, no other species has taken the place of dogfish since the closure resulting in lower overall catch rates per fishermen.

Overall Conclusions

- Diversity may be forced by regulations, choice, or markets or a combination of all three.
- Attrition due to any number of factors is resulting in reductions in effort and landings in many fisheries.

Conclusions (continued)

- Fishermen often move into less regulated or open access fisheries (e.g., croaker, spot, shrimp, blue crab) creating potential stresses on viable fisheries.
- Ecosystem impacts must be considered in terms of forage base and overall biomass.
- In some fisheries, fishermen must harvest huge quantities of lesser valued fishes to recoup loses in more lucrative fisheries.

Conclusions (continued)

- Requiring fishermen to use more gear and/or less selective gear increases bycatch concerns as well as potential interactions with protected resources (marine mammals and sea turtles).
- Especially important to consider diversity and recoupment issues when considering closed areas or seasons. How will the fishermen react and what are the impacts to fishing communities.

Additional Research Needs

- Follow-up surveys to determine the fate of fishermen no longer landing in NC.
- Examine economic ramifications of shifting fisheries.
- More micro-scale analysis of the data presented.

Capacity and Fisheries Management

Vishwanie Maharaj
Economist

South Atlantic Fishery Management Council

1 Southpark Circle, Suite 306
Charleston, SC 29407
email: safmc@safmc.net
Tel (843) 571-4366

Fishing Capacity

- Capacity – the ability of a vessel or fleet of vessels to catch fish
- Excess Harvesting Capacity – condition where a boat or fleet has the ability to produce more than it currently does

Overcapacity

- When a fleet's capacity exceeds the productivity of a fishery or is above a desired reference point (NOAA Fisheries, 2001).
  - Example of reference points:
    - OY
    - TAC

Potential Problems

- Pressure to harvest beyond sustainable levels
- Revenue is spread among many vessels with little or no profit
- Noncompliance with regulations

Economic Problems Associated with Overcapacity

Substantial Reduction in Vessel Profitability

Decreased
- Crew wages
- Number of crew

Reduced Spending on
- Insurance
- Vessel maintenance

Increased Debt e.g.
- Deferral of interest payments
- Unsettled accounts at the fish house

Potential Solutions

- Limited access program
- Rights based management programs
  - Cooperative management
  - Individual transferable quota systems
  - Community quotas

Limited Access

- Snapper/grouper fishery
  - Initial and continuing capacity reduction
  - 2 tiers of permits
  - New entrants need to purchase 2 permits
- Rock shrimp fishery
  - Initial capacity reduction
- North Carolina commercial fishery
  - Permit moratorium

Individual Quota Programs

- Set an overall TAC
- Initial Allocation
- Transferable or not transferable
- Level of quota aggregation

Conclusion

Well-specified goals and objectives

How fast do we want to reduce capacity?

What is likely to happen to those vessels that leave the fishery?

Composition of the fishery

SHRIMP LANDINGS AND ADJUSTED VALUES

1967-2000

John R. Maiolo


WE ALL KNOW WHAT THESE ARE

FIRST WE NEED TO REVIEW WHAT A CONSUMER PRICE INDEX IS, THE SO CALLED CPI?

WHAT DOES IT HELP US UNDERSTAND?

A QUICK DEFINITION

- The Consumer Price Index(es) (CPI) produce(s) monthly data on…
- Prices paid by urban consumers for…
- A representative “basket” of goods and services.

WHERE IT CAME FROM AND WHAT IT DOES!

- It was CREATED by the U.S. Government in 1967 as the baseline (100%).
- It adjusts for inflation because…
- It creates "constant," inflation free dollars…
- By "deflating" changing values for all goods and services and…
- Better illustrates "real" growth or decline.

FROM: HARD TIMES AND A NICKEL A BUCKET:

STRUGGLE AND SURVIVAL IN NORTH CAROLINA'S SHRIMP INDUSTRY

CHAPTER SIX: THE COMMERCIAL MAN


TIME OUT FOR MENDING NETS

CPI ANALYSIS IS AN AID TO HELP US UNDERSTAND HOW THE COMMERCIAL MAN ADAPTS TO CHALLENGES CONFRONTING HIM

- CHANGES IN ECONOMIC VALUES HELP US UNDERSTAND DECISIONS THE COMMERCIAL MAN MAKES.
- BUT WE MUST UNDERSTAND THE “REAL” CHANGES HE EXPERIENCES , NOT JUST THOSE THAT APPEAR ON THE SURFACE.
- APPLYING THE CPI IS A TOOL TO ACCOMPLISH THIS.

EXAMPLE: BEGINNING IN 1967

- I SELL SHRIMP IN 1967 FOR 37 CENTS A POUND AT THE DOCK.
- IT COSTS ME 22 CENTS TO PRODUCE EACH POUND.
- MY NET RETURN IS 15 CENTS, OR 40%.

EXAMPLE CONTINUED: 1980

- In 1980, I sell my shrimp for $1.75…
- An increase of over 372% over 1967.
- During the same period , the cost of living (production) increased by 47%. So, there is gain, but less than first appeared.
- Adjusting for this, the “real” increase during the period is 34 cents, or 92%, which is still pretty good—FOR NOW!!!

HOW THE MATH WORKS

- Each year's adjusted or deflated value (AV) was computed by the following formula: AV=AYV x 100, divided by YCPI, where AYV is the actual year value.
- YCPI is a given year's CPI in relation to 1967. For example, the 1970 CPI is 116.3, indicating a 16.3% increase in the cost of living from 1967 to 1970.

USING THE CPI: OR, HOW GOOD NEWS TURNS TO NOT SO GOOD NEWS!

Year	Ldngs	Value	Per #.	CPI	Adj. T	Adj. #
1967	4.9m	$1.8m	$0.37	100.0	$1.81	$0.37
1970	5.1	$ 2.5	$0.49	116.3	$2.14	$0.42
1975	5.2	$ 5.1	$0.98	161.2	$3.14	$0.61
1980	9.8	$17.2	$1.75	247.0	$6.96	$0.71
1985	11.7	$21.1	$1.81	318.5	$6.63	$0.57
1990	7.9	$15.9	$2.03	383.4	$4.13	$0.53
1995	8.7	$20.3	$2.34	446.1	$4.55	$0.53
2000	10.3	$25.4	$2.91	449.1	$5.08	$0.58

REFINEMENTS

- 1982: CATEGORY OF UNPROCESSED SHELLFISH. PPI.
- 1990: CATEGORY OF FROZEN AND PACKAGED SHELLFISH, AND OTHER SEAFOOD. PPI.
- DATA FOR BOTH INDICES BECAME AVAILABLE IN 1990.

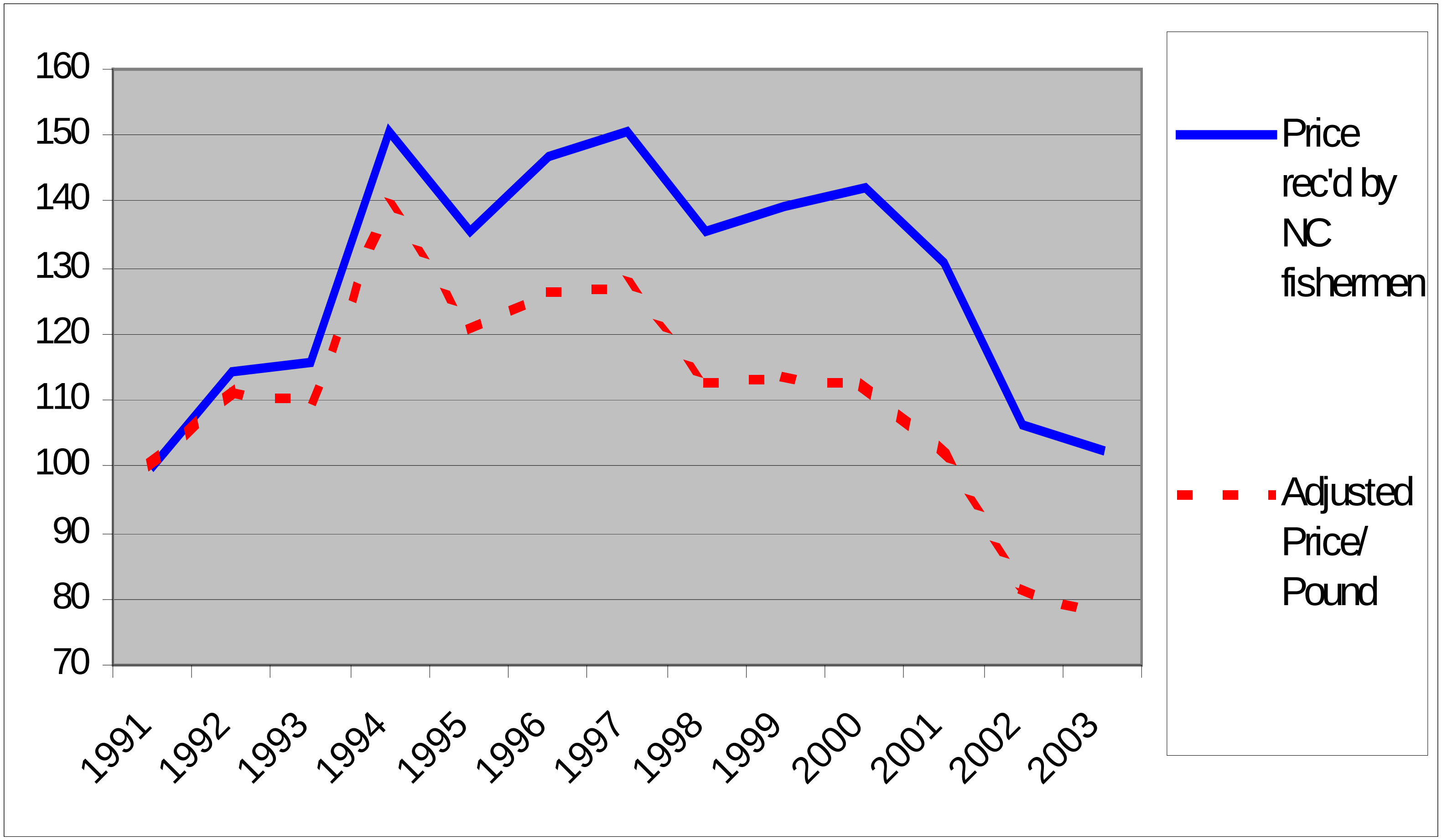
IT'S EVEN WORSE THAN WE FIRST THOUGHT!

Year	Unadj.	CPI* (All)	Frozen, Pack., Other**	Unproc. Shellfish ***
1990	$2.03	$0.53	$1.87	$2.03
1995	$2.34	$0.53	$1.68	$1.93
2000	$2.91	$0.58	$1.73	$1.71
90-2000	+43%	+9%	-8%	-16%
Base yr.	N.A.	1967	1990	1982

BRIAN CHEUVRONT'S ADDITION: PPI DATA FROM 1991 to 2003 FOR UNPROCESSED SHRIMP ONLY

- Adjusted shrimp prices in NC mirror national trends
- The annual unadjusted average price per pound of NC shrimp from 1991 to 1997 increased annually except for 1995.
- Since 1997, the overwhelming trend has been for the price to fall, with large annual unadjusted decreases beginning in 2001.
- By 2003 all the net gains made since 1991 had virtually evaporated. When the price per pound of unprocessed NC shrimp is adjusted for inflation (PPI), the deflated price per pound in 2003 had dropped to approximately 23% less than what it was in 1991

GRAPHIC ILLUSTRATION OF CHEUVRONT'S DATA



IMPORTS: VOLUME
COULD THIS BE THE CULPRIT?

- BY 1983: 341 MILLION LBS.
- 1989: 500 MILLION LBS.
- 2000: 759 MILLION LBS.
- 2001: 882 MILLION LBS.

IMPORTS:
WHOLESALE VALUES

- PER LB. AVERAGE DROPPED FROM $3.40 IN 89 TO $2.93 IN 90.
- 2000: 3.7 BILLION DOLLARS; $4.87 PER LB. (UNADJUSTED).
- +43% INCREASE SINCE 1989, +60% SINCE 1990.
- ADJUSTED: -8% SINCE 1989, BUT +7% SINCE 1990.

IMPORTS:
WHOLESALE VALUES CONT'D

- 2001: PER LB. DECREASE TO $4…
- 20% DECREASE IN UNADJUSTED VALUE.

OTHER STUFF

- Shrimp imports account for as much as 37% of the value of total edible imports.
- Ten nearby Latin countries, led by Mexico, sent 147 million lbs.
- Ten South American countries (led by Ecuador) sent another 147 million.
- Also from Europe, Asia, Oceania, and Africa.

OTHER STUFF CONT'D

- Thailand sends close to 300 million lbs. annually.
- This is more than one-third of the total.

CONCLUSIONS

- Both improved harvesting methods and DMF practices have resulted in increased shrimp production in North Carolina.
- Shrimp imports seem to have simultaneously assisted increased domestic consumption, and heavily impacted economic returns (negatively) to the fishermen resulting in…

CONCLUSIONS, CONT'D

- Shrimpers changing annual rounds to…
- Put more emphasis on other fisheries…
- Reduce fishing effort in exchange for land based sources of income (Maiolo 1980s), (Cheuvront 2000s) …
- Quitting fishing (almost) altogether.

MANY THANKS TO THOSE WHO MADE THIS RESEARCH POSSIBLE:

- The Commercial Man, Dealers and Processors
- The Staffs at DMF, NMFS, SAFMC, and SC Wildlife
- The NCFA, OFF, and CCA
- My colleagues who share my concern over and interest in our living marine resources
- East Carolina University
- UNC Sea Grant

Recent Changes in North Carolina Recreational Fishing Activity

May 13, 2004

Marine Recreational Fishery Statistic Survey (MRFSS)

- Intercept Survey
  - Catch Information (dockside)
  - Detailed Socio-Economic Data (periodically)
- Telephone Survey
  - Trip Information Only (no catch data)

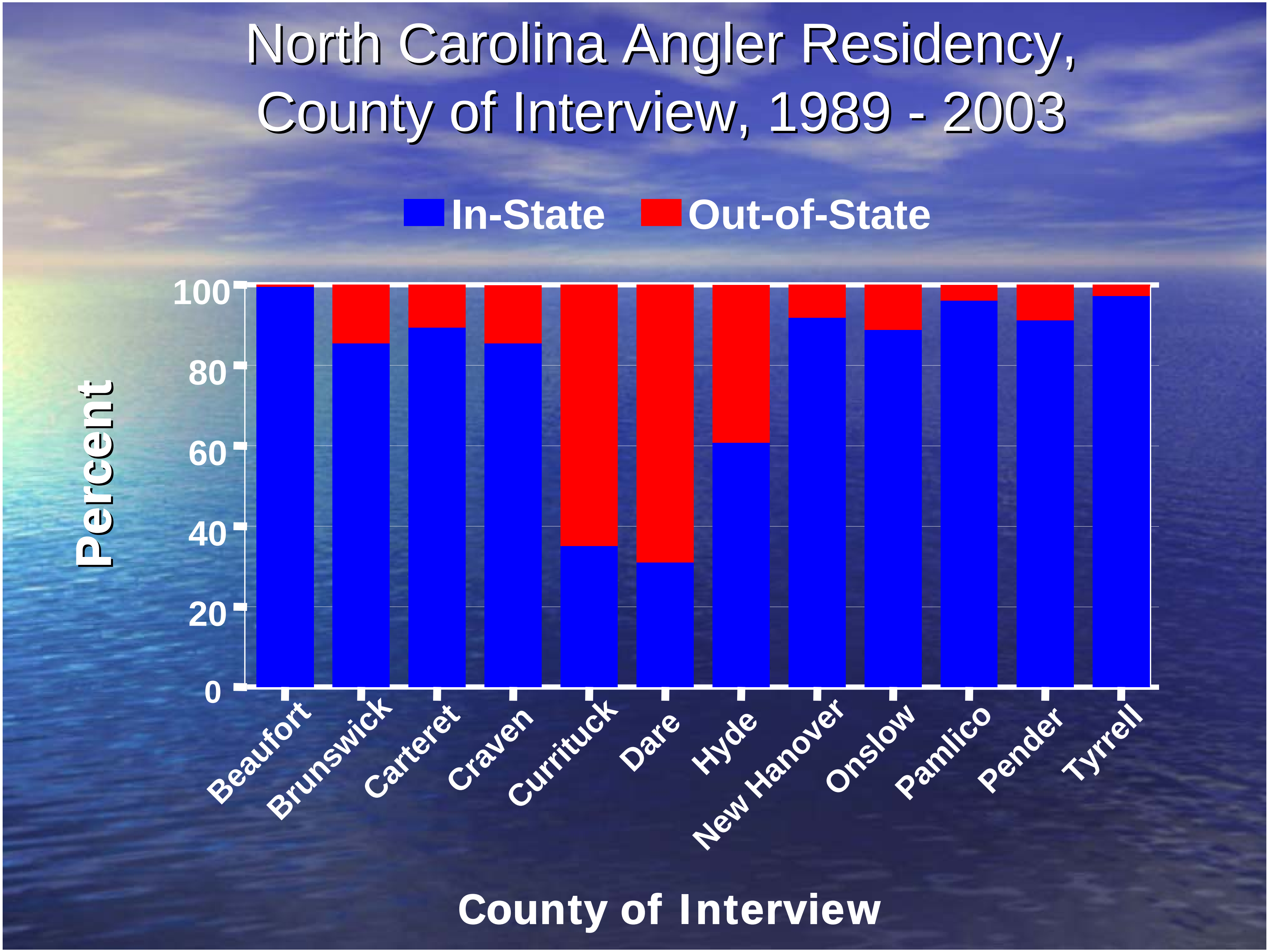
North Carolina Recreational Fishing

- Angler Demographics
- Angler Participation and Trips
- Target Species
- Catch

North Carolina

Marine Angler Demographics

- Angler Residency
- Age
- Gender


North Carolina Angler Residency,
County of Interview, 1989 - 2003
In-State
Out-of-State
Percent
0
20
40
60
80
100
Beaufort
Brunswick
Carteret
Craven
Currituck
Dare
Hyde
New Hanover
Onslow
Pamlico
Pender
Tyrrell
County of Interview

State of Residence
North Carolina Out-of-State Anglers, 2003 (Top Ten)

State of Residence	Percent
Virginia	48.6
Pennsylvannia	11.2
Maryland	9.6
New Jersey	4.3
Ohio	3.8
West Virginia	3.5
South Carolina	2.7
New York	2.4
Delaware	2.0
Florida	1.6

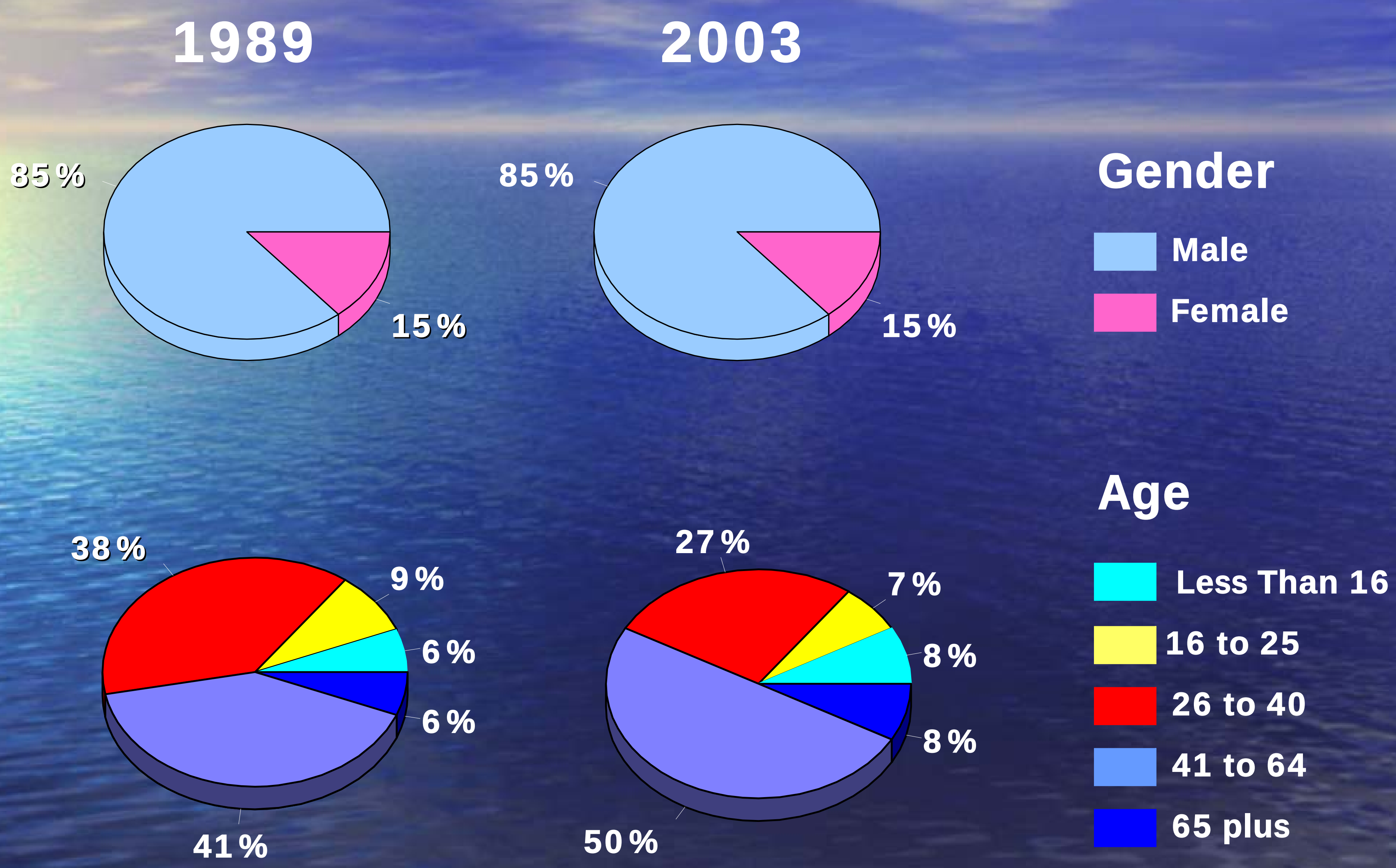
50 States Represented, 41 Foreign Countries

County of Residence
North Carolina Residents, 2003 (Top Ten)

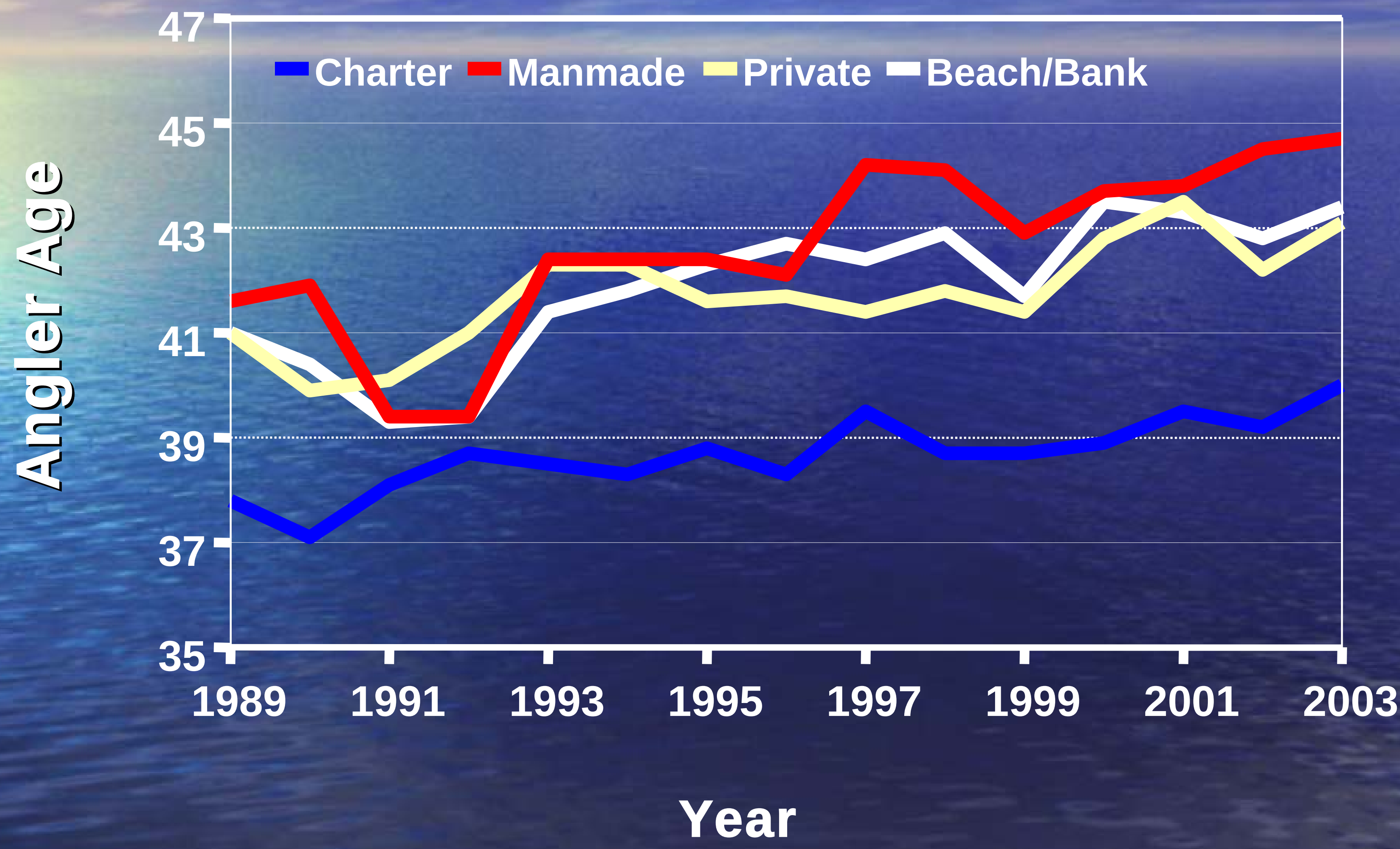
County of Residence	Percent
Dare	9.5
Wake	7.5
Carteret	6.4
New Hanover	5.5
Onslow	4.5
Craven	3.3
Pitt	3.2
Johnston	2.8
Guilford	2.7
Forsyth	2.5

99 Counties Represented

Age and Gender

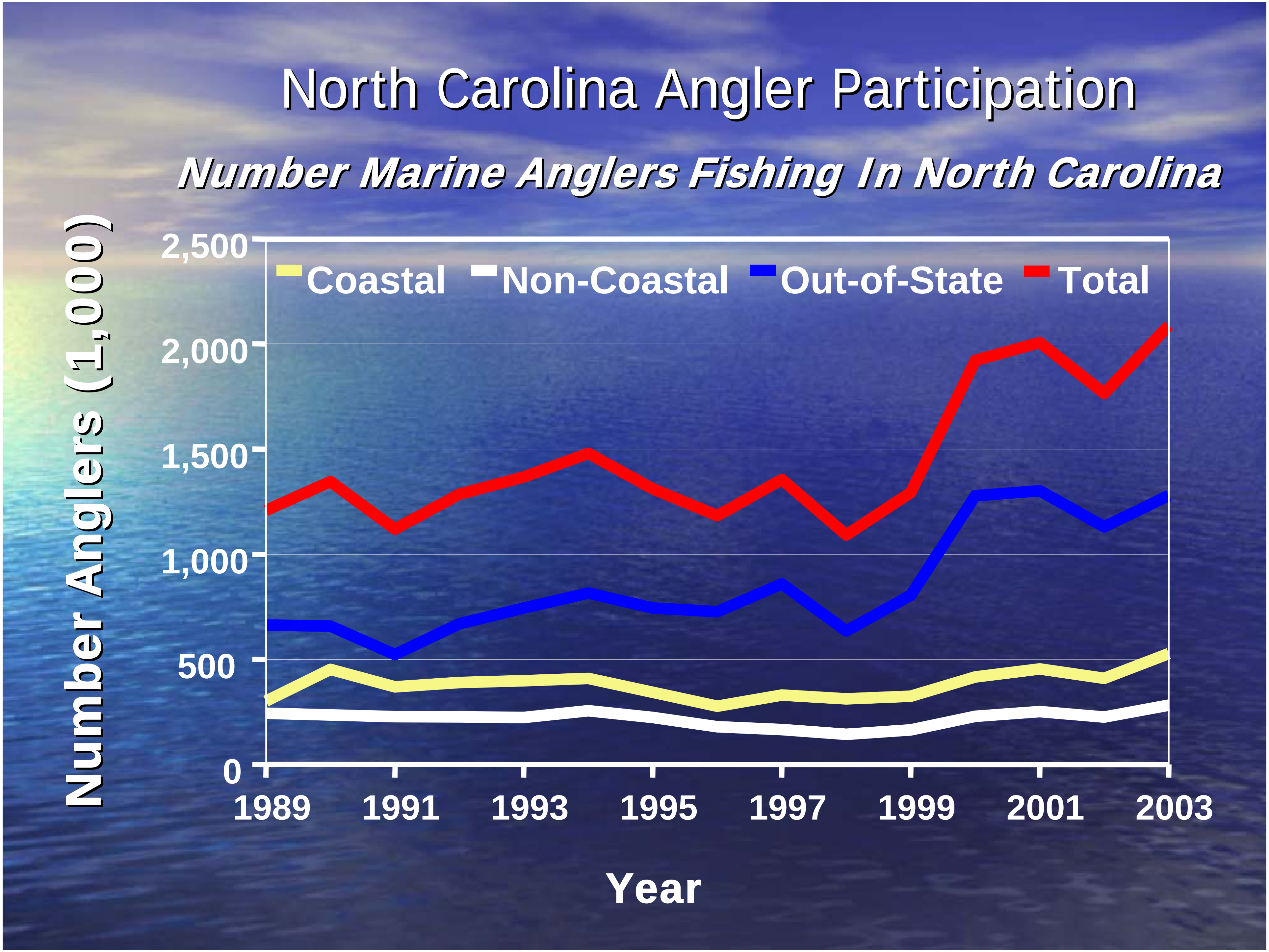


North Carolina Mean Angler Age
1989 - 2003

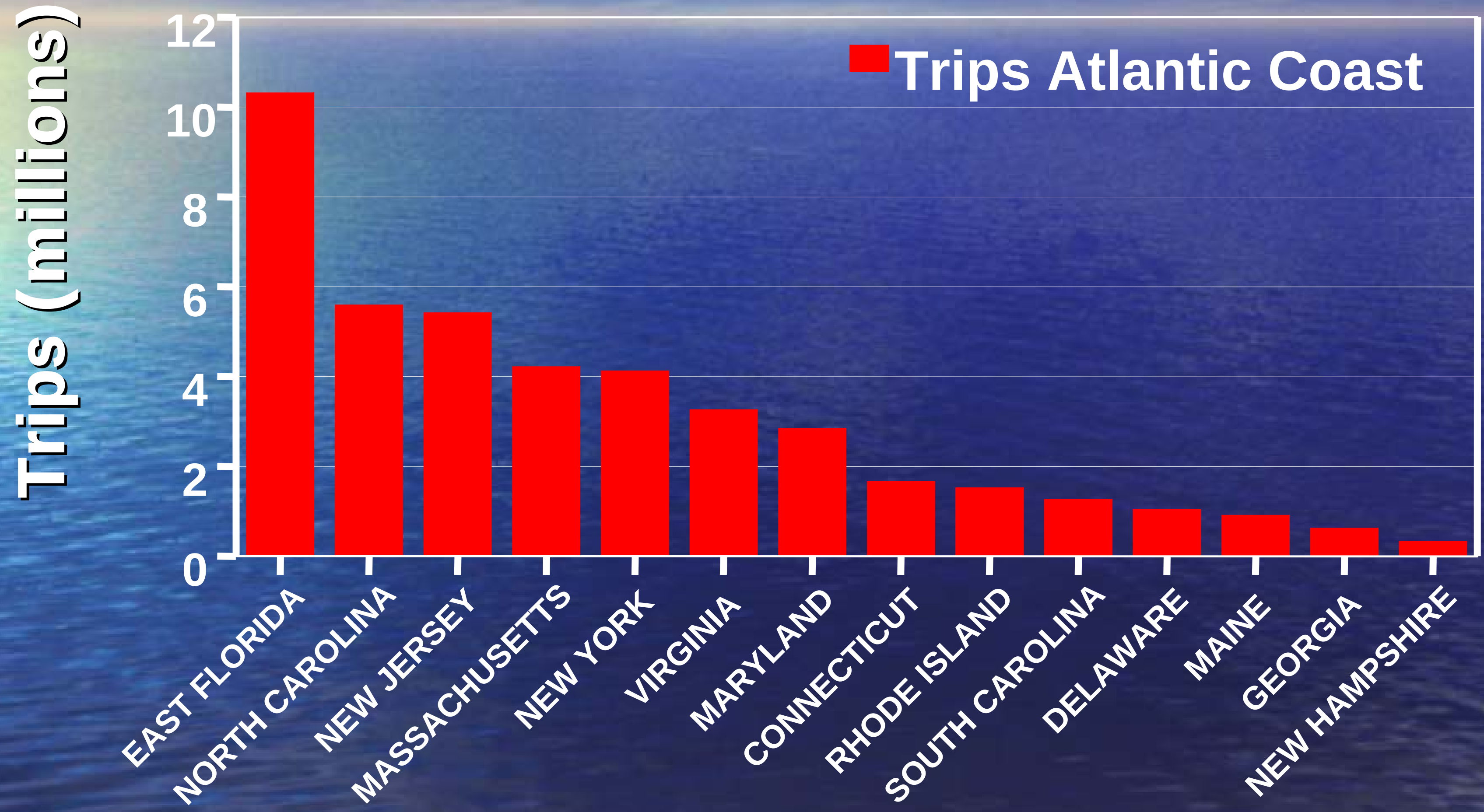


North Carolina Marine Angler Participation and Trips

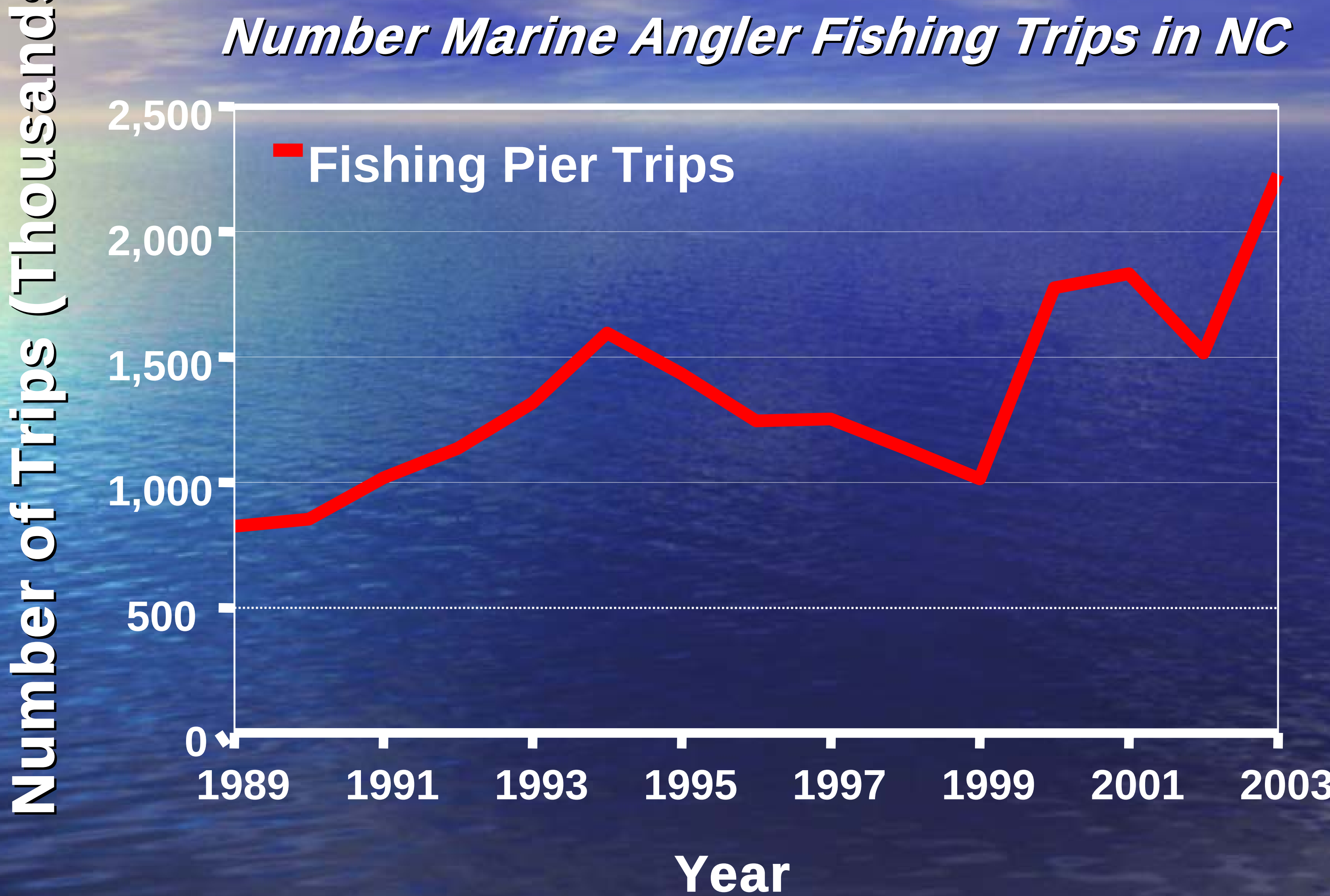
- Participation
- Recreational Fishing Trips
  - Atlantic Coast
  - North Carolina


North Carolina Angler Participation
Number Marine Anglers Fishing In North Carolina
Number Anglers (1,000)
2,500
2,000
1,500
1,000
500
0
Coastal
Non-Coastal
Out-of-State
Total
1989
1991
1993
1995
1997
1999
2001
2003
Year

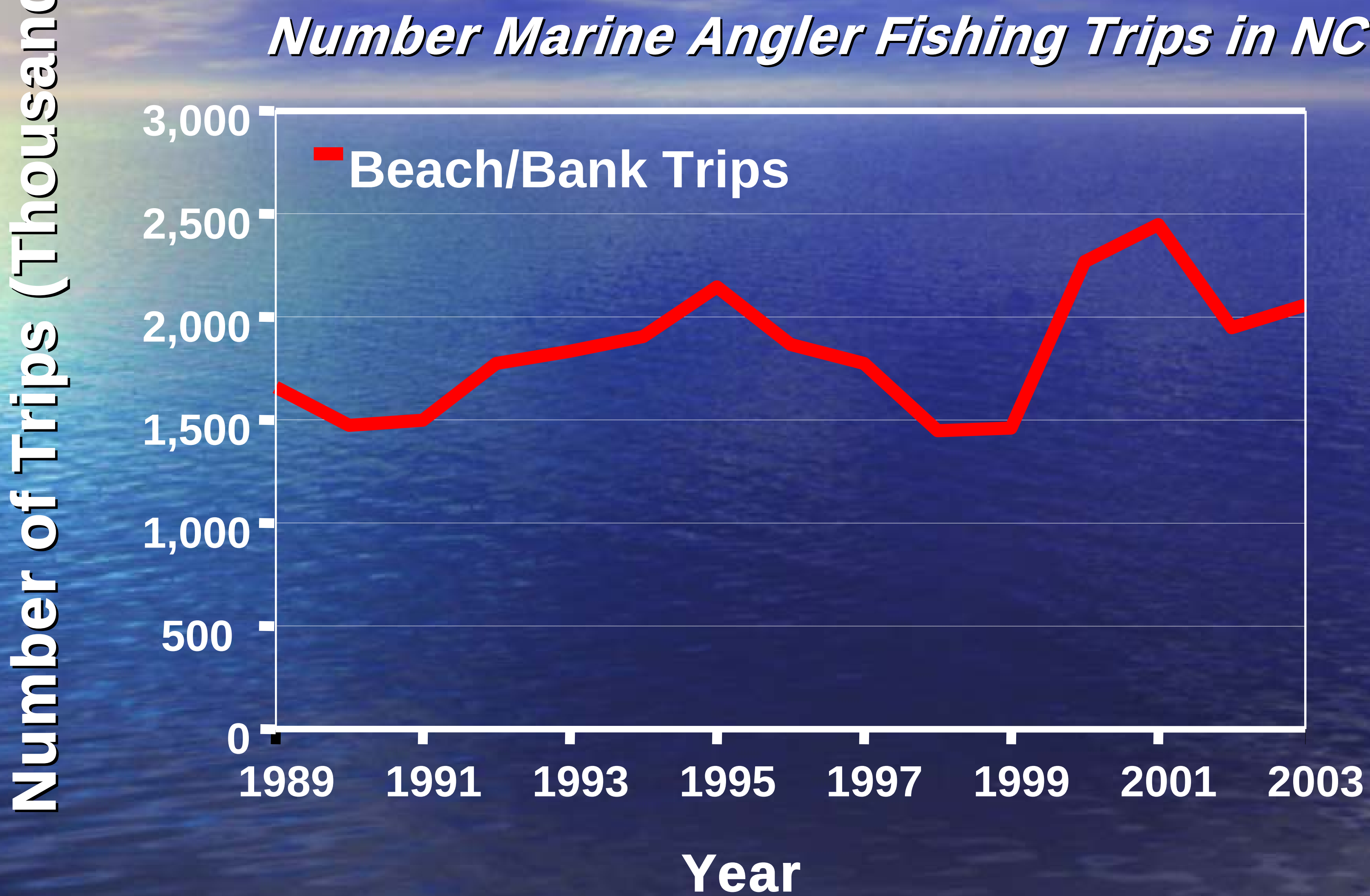
Atlantic Coast Angler Trips
2002

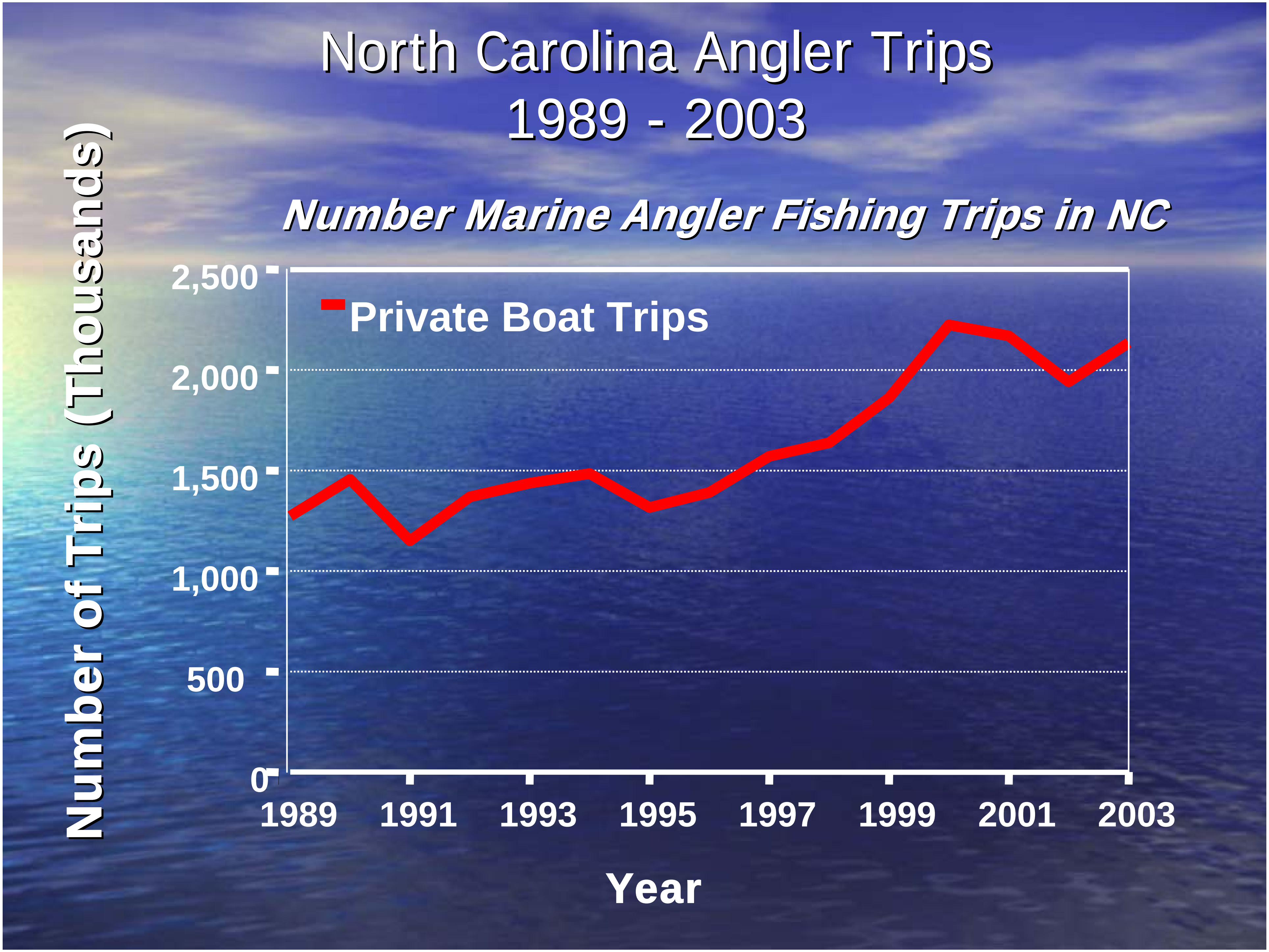


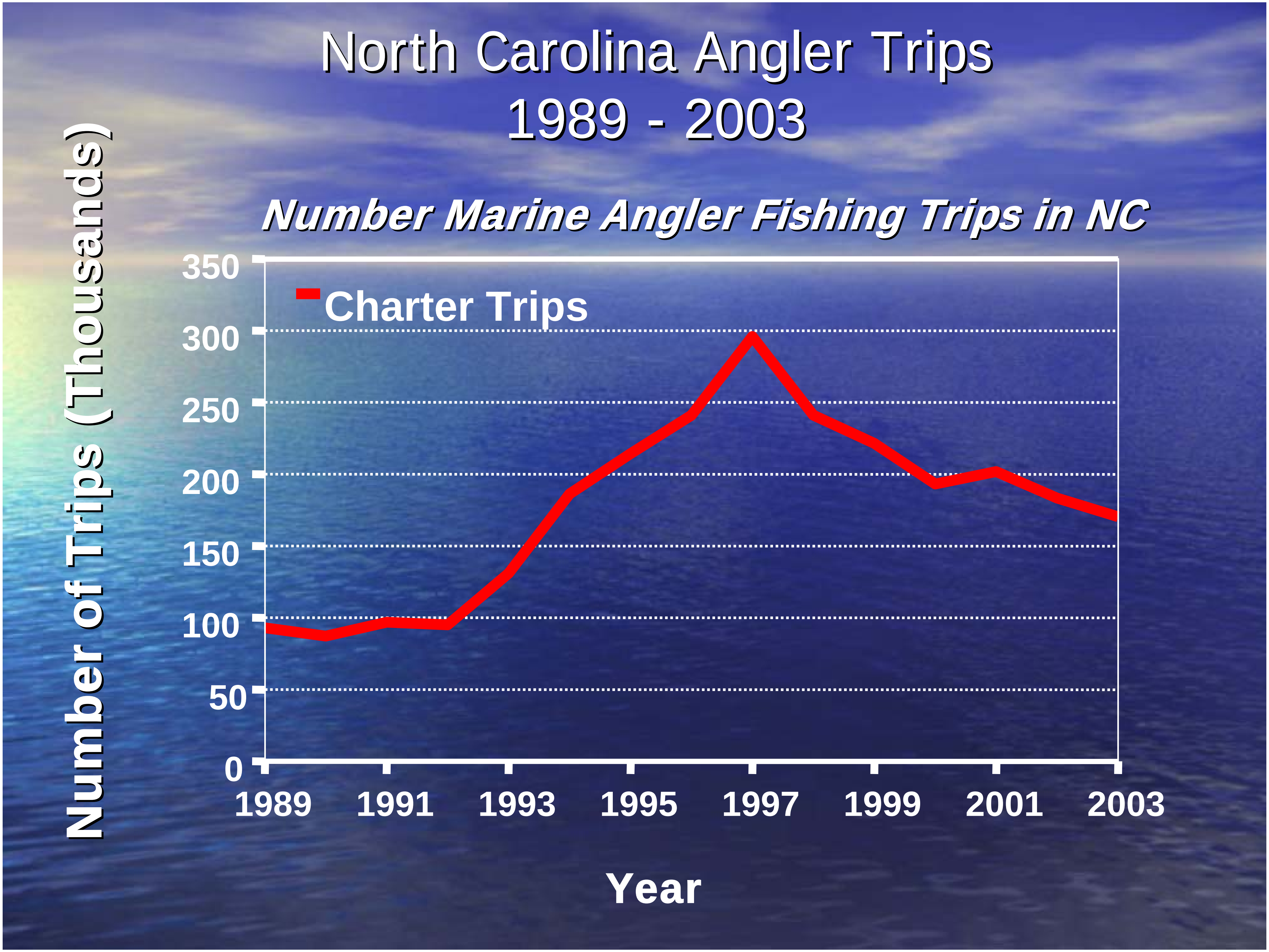
North Carolina Angler Trips
1989 - 2003



North Carolina Angler Trips
1989 - 2003




North Carolina Angler Trips
1989 - 2003
Number Marine Angler Fishing Trips in NC
Private Boat Trips
Number of Trips (Thousands)
2,500
2,000
1,500
1,000
500
0
1989
1991
1993
1995
1997
1999
2001
2003
Year

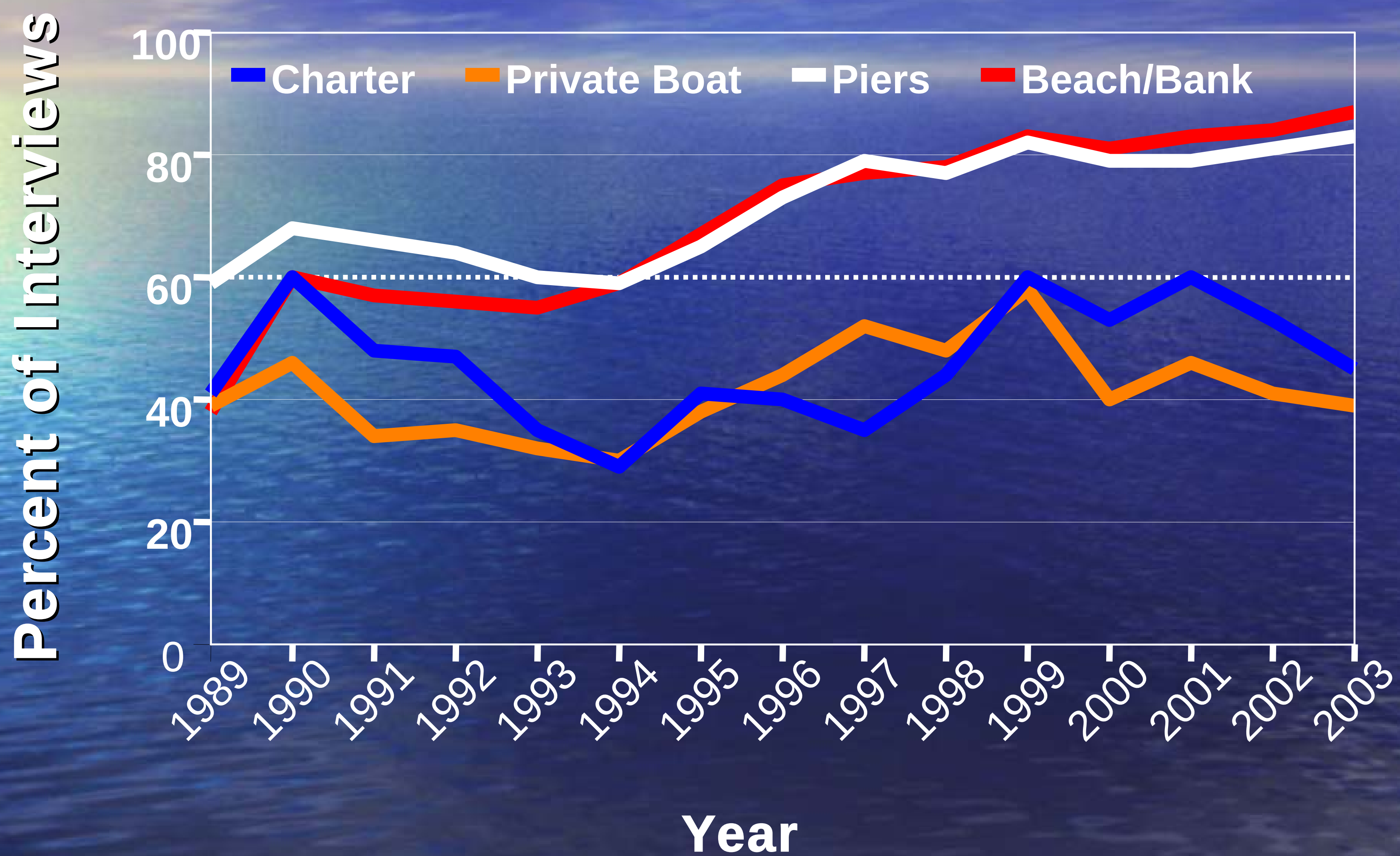

North Carolina Angler Trips
1989 - 2003
Number Marine Angler Fishing Trips in NC
Charter Trips
Number of Trips (Thousands)
350
300
250
200
150
100
50
0
1989
1991
1993
1995
1997
1999
2001
2003
Year

North Carolina Marine Angler

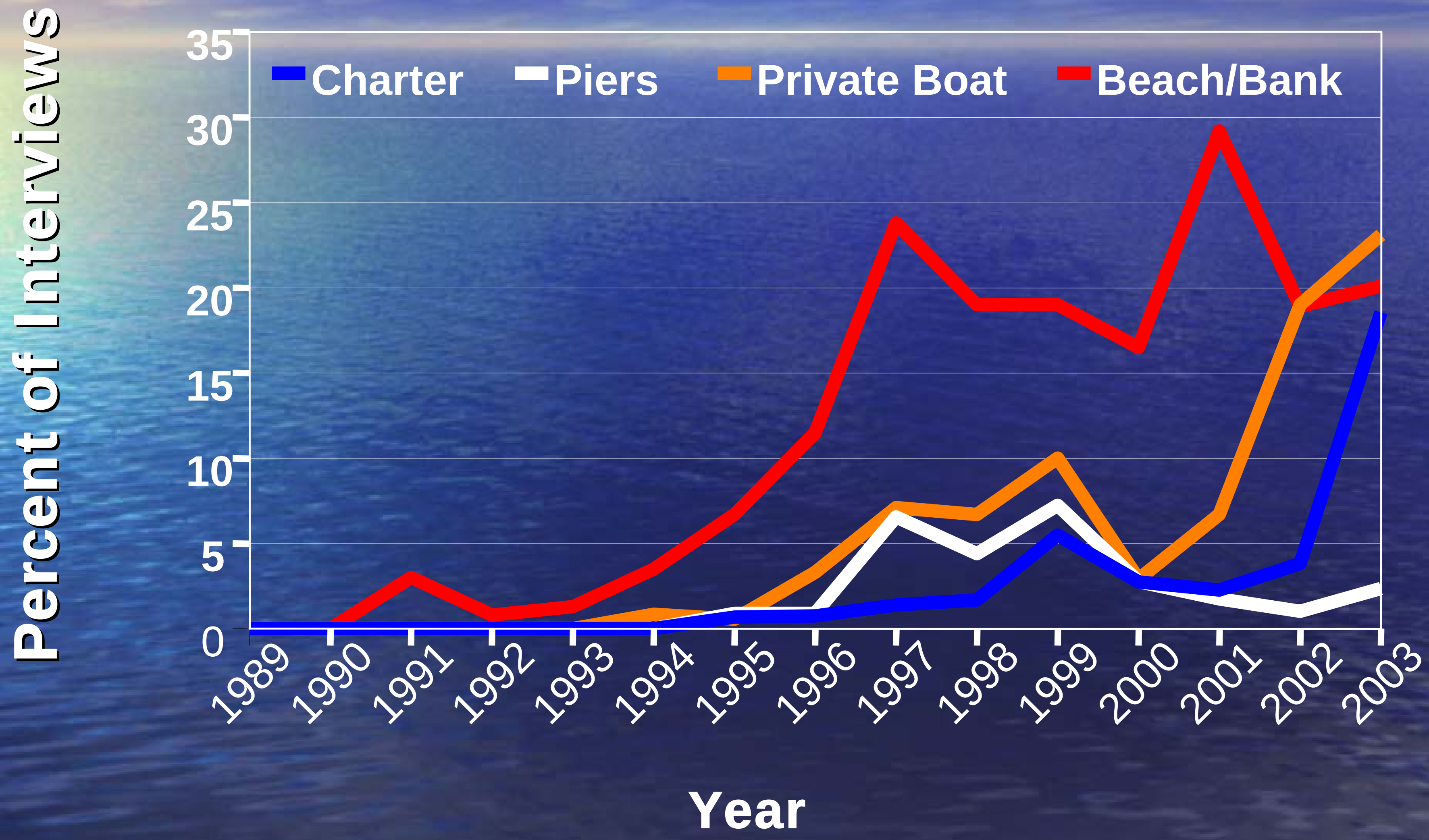
Target Species

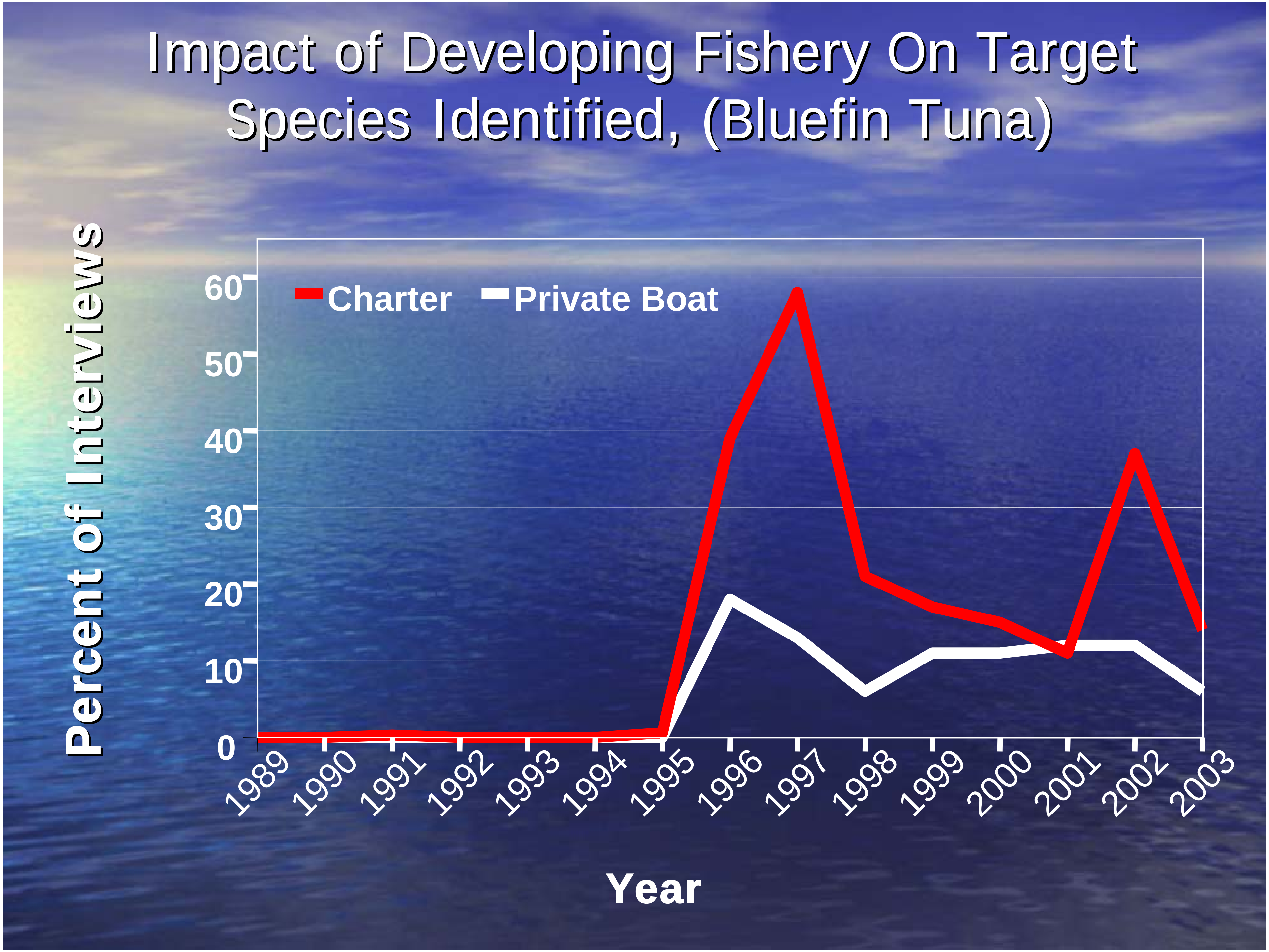
- Target Species Identified
- Recovering Fishery
- Developing Fishery
- Target Based On Availability

Percent Anglers Interviewed With No Target Species 1989-2003

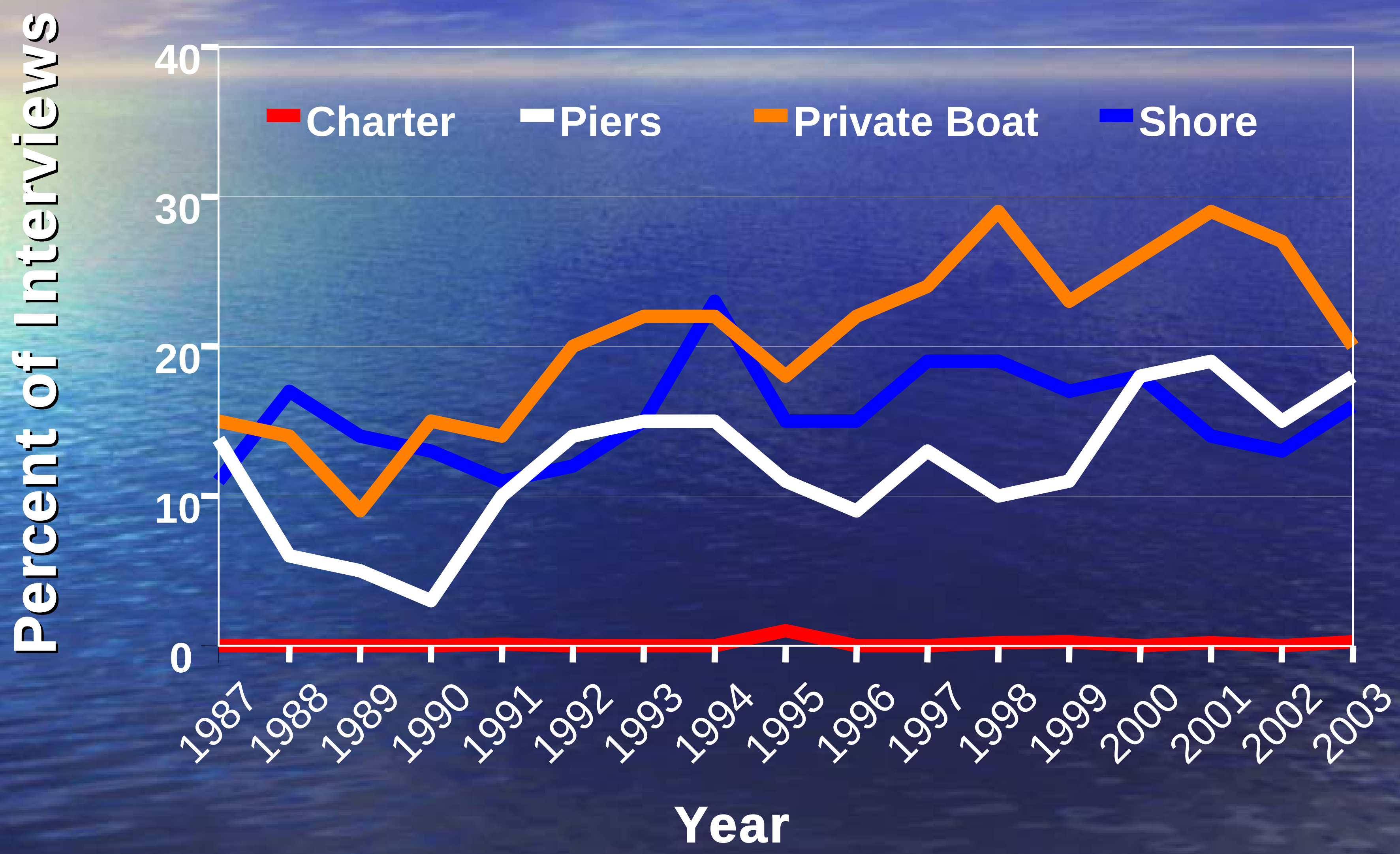


Impact of Recovering Fishery On Target Species Identified, (Striped Bass)

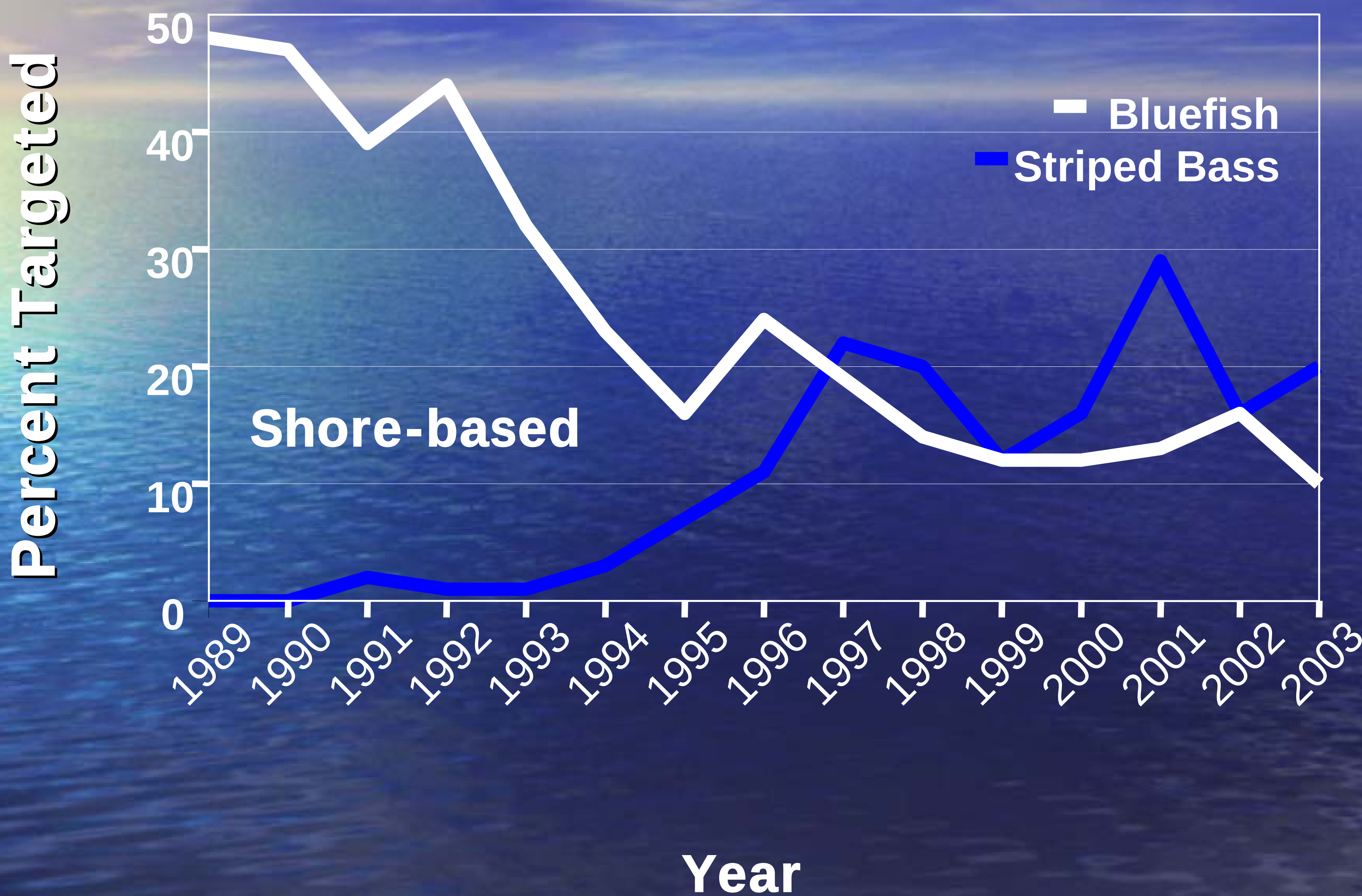



Impact of Developing Fishery On Target Species Identified, (Bluefin Tuna)
Percent of Interviews
Charter
Private Boat
60
50
40
30
20
10
0
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
Year

Percent Anglers Interviewed Targeting Flounder by Mode, 1989-2003

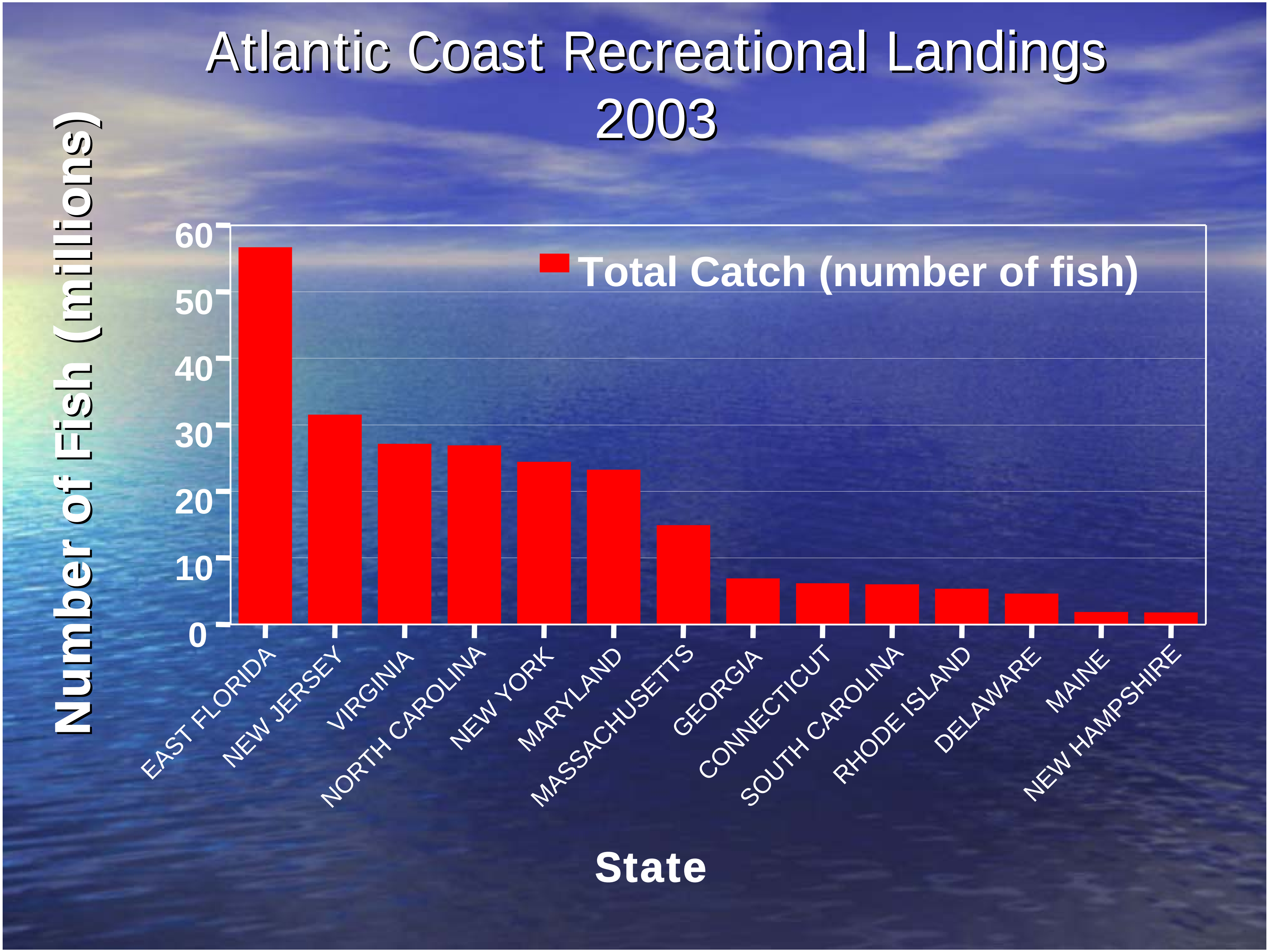


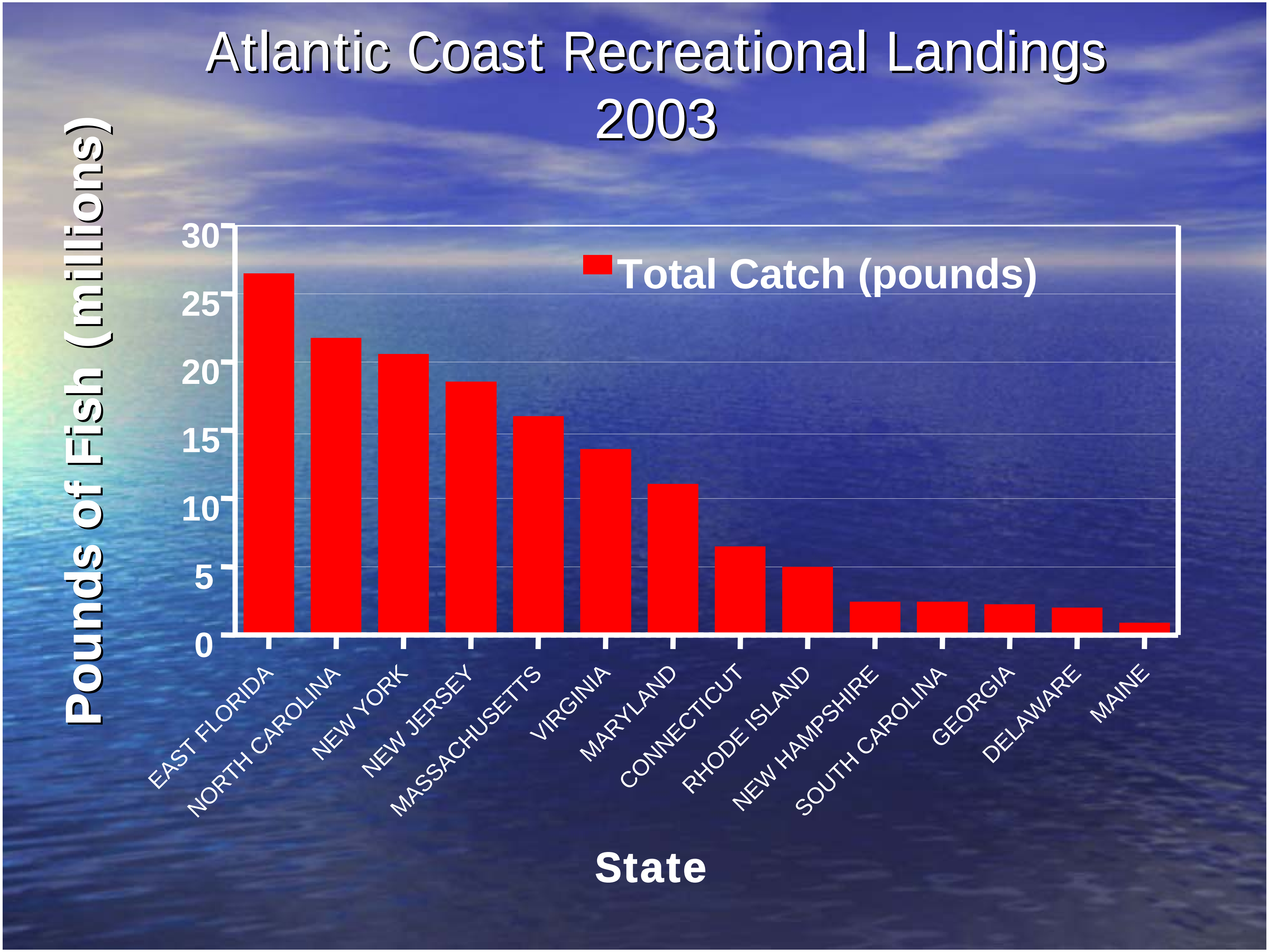
Target Species Shift Due To Availability Of Species, (Striped Bass and Bluefish)



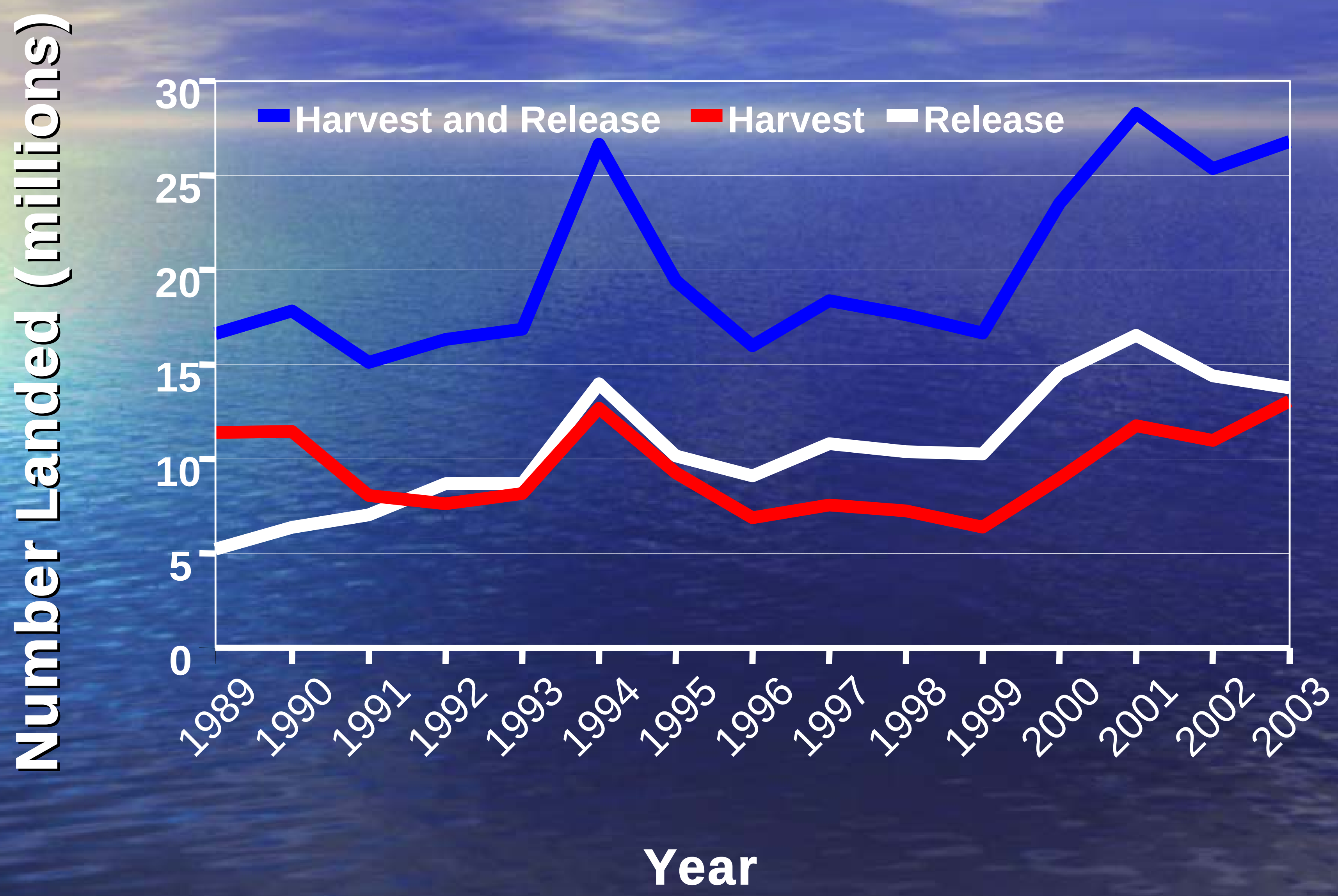
North Carolina Marine Angler Catch

- Recreational Catch
  - Atlantic Coast
  - North Carolina
- Harvest and Release
- Regulatory Considerations

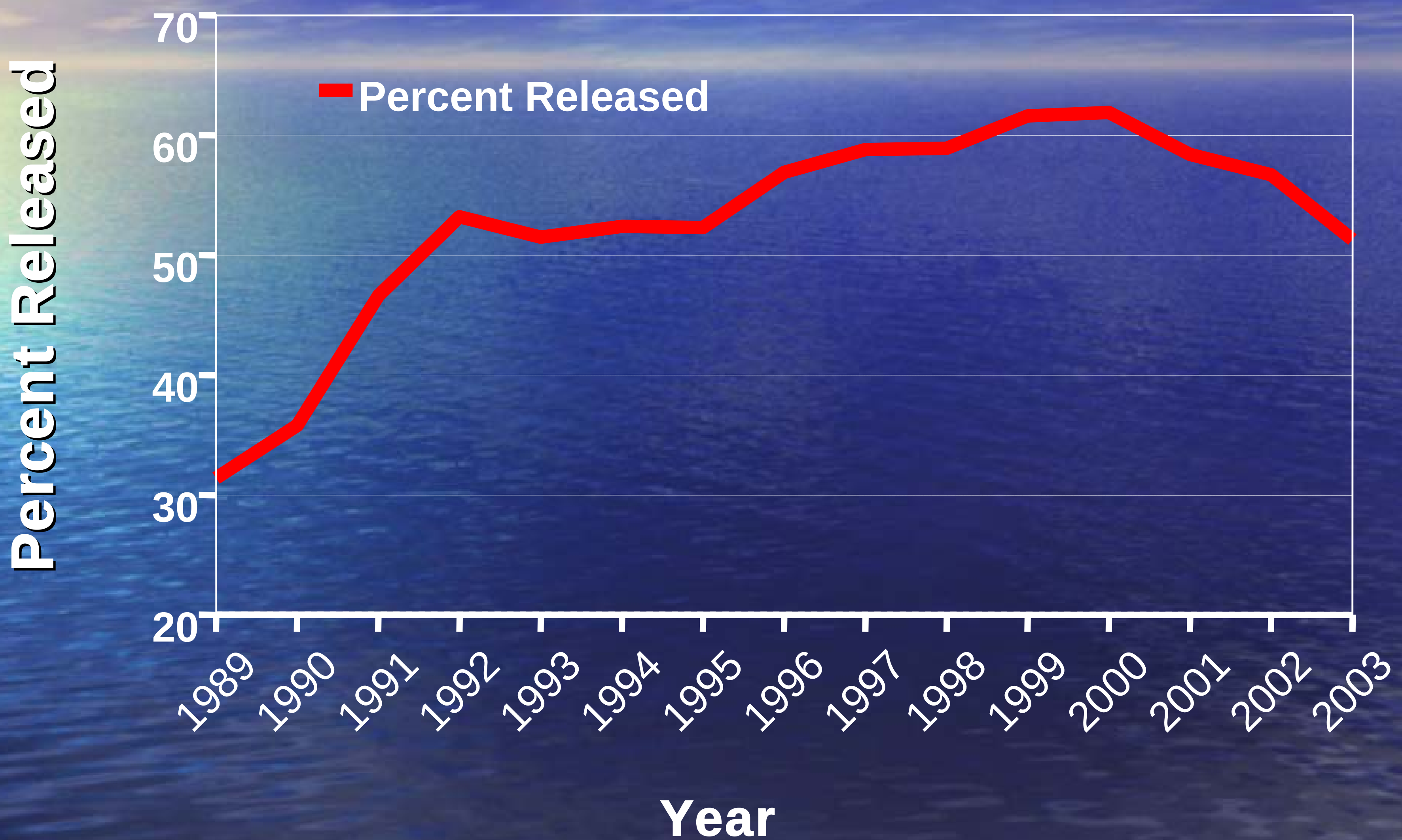

Atlantic Coast Recreational Landings
2003
Number of Fish (millions)
60
50
40
30
20
10
0
Total Catch (number of fish)
EAST FLORIDA
NEW JERSEY
VIRGINIA
NORTH CAROLINA
NEW YORK
MARYLAND
MASSACHUSETTS
GEORGIA
CONNECTICUT
SOUTH CAROLINA
RHODE ISLAND
DELAWARE
MAINE
NEW HAMPSHIRE
State


Atlantic Coast Recreational Landings
2003
Total Catch (pounds)
Pounds of Fish (millions)
0
5
10
15
20
25
30
EAST FLORIDA
NORTH CAROLINA
NEW YORK
NEW JERSEY
MASSACHUSETTS
VIRGINIA
MARYLAND
CONNECTICUT
RHODE ISLAND
NEW HAMPSHIRE
SOUTH CAROLINA
GEORGIA
DELAWARE
MAINE
State

North Carolina Recreational Harvest and Release, 1989 - 2003 (all species)



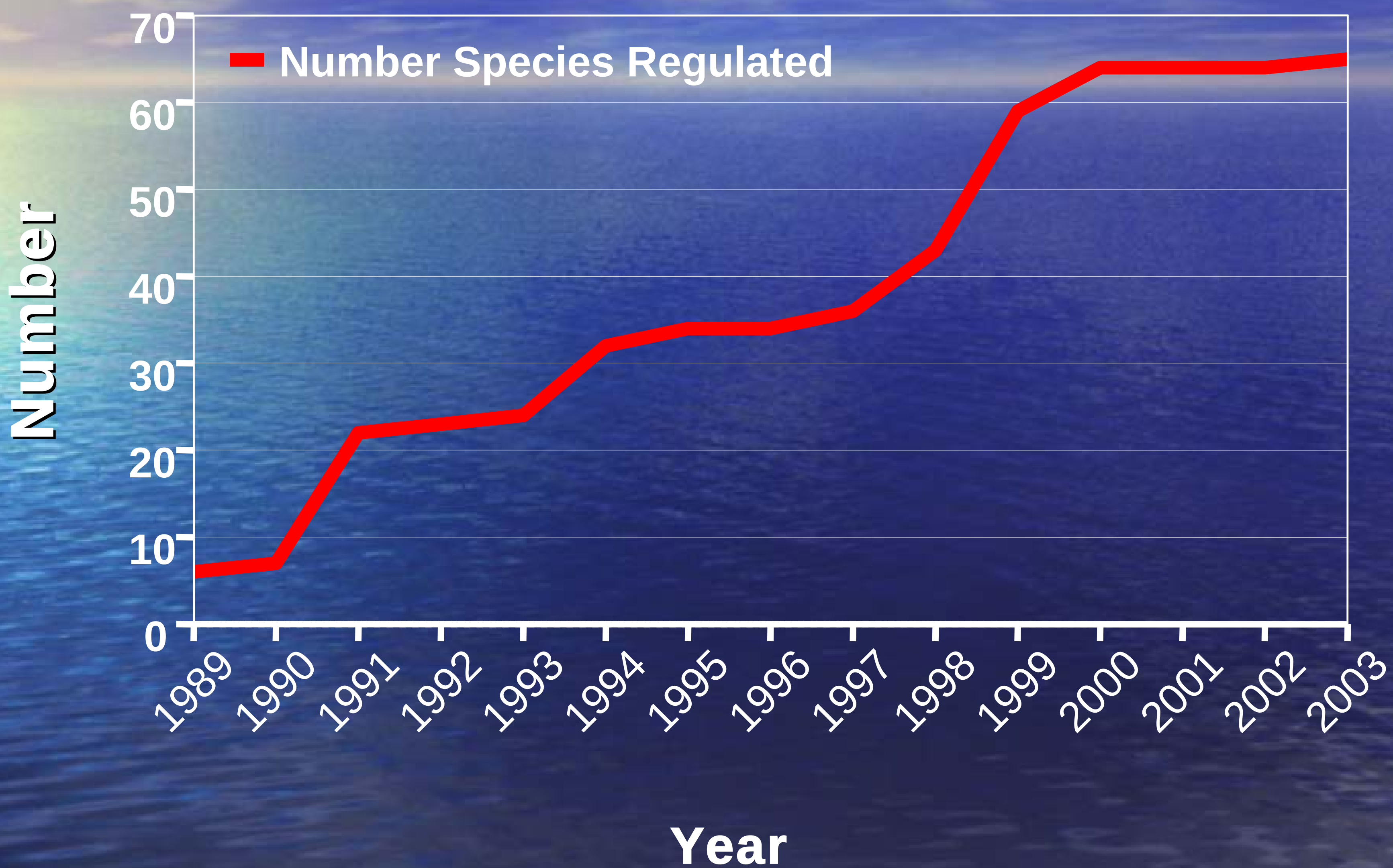
Percent Released Catch in North Carolina 1989-2003 (all species)



Reasons Anglers Release Fish

- Undesirable Species
- Catch and Release Practices
- Regulations

Number North Carolina Recreational Species With Size, Bag or Season Limits, 1989-2003

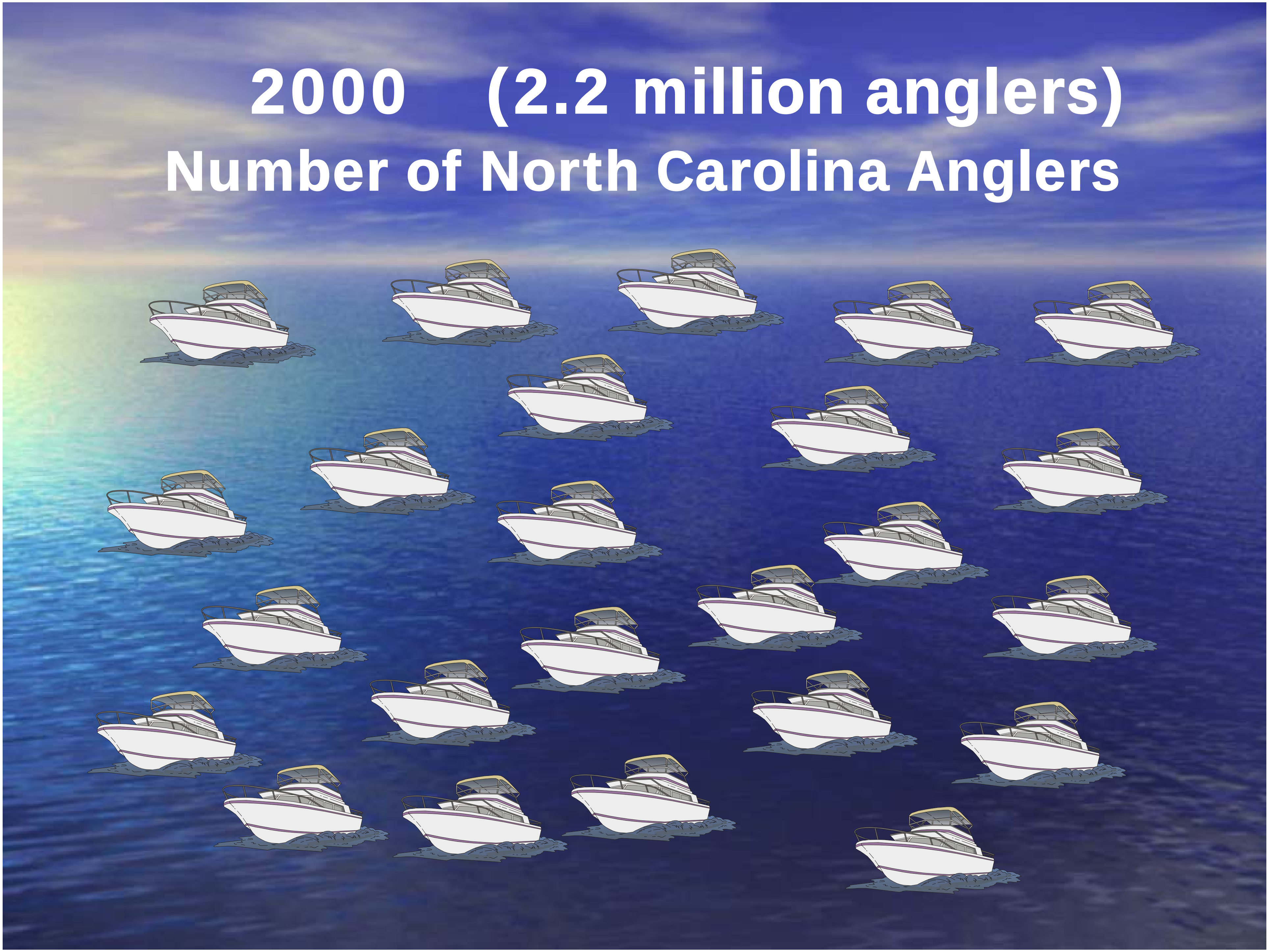


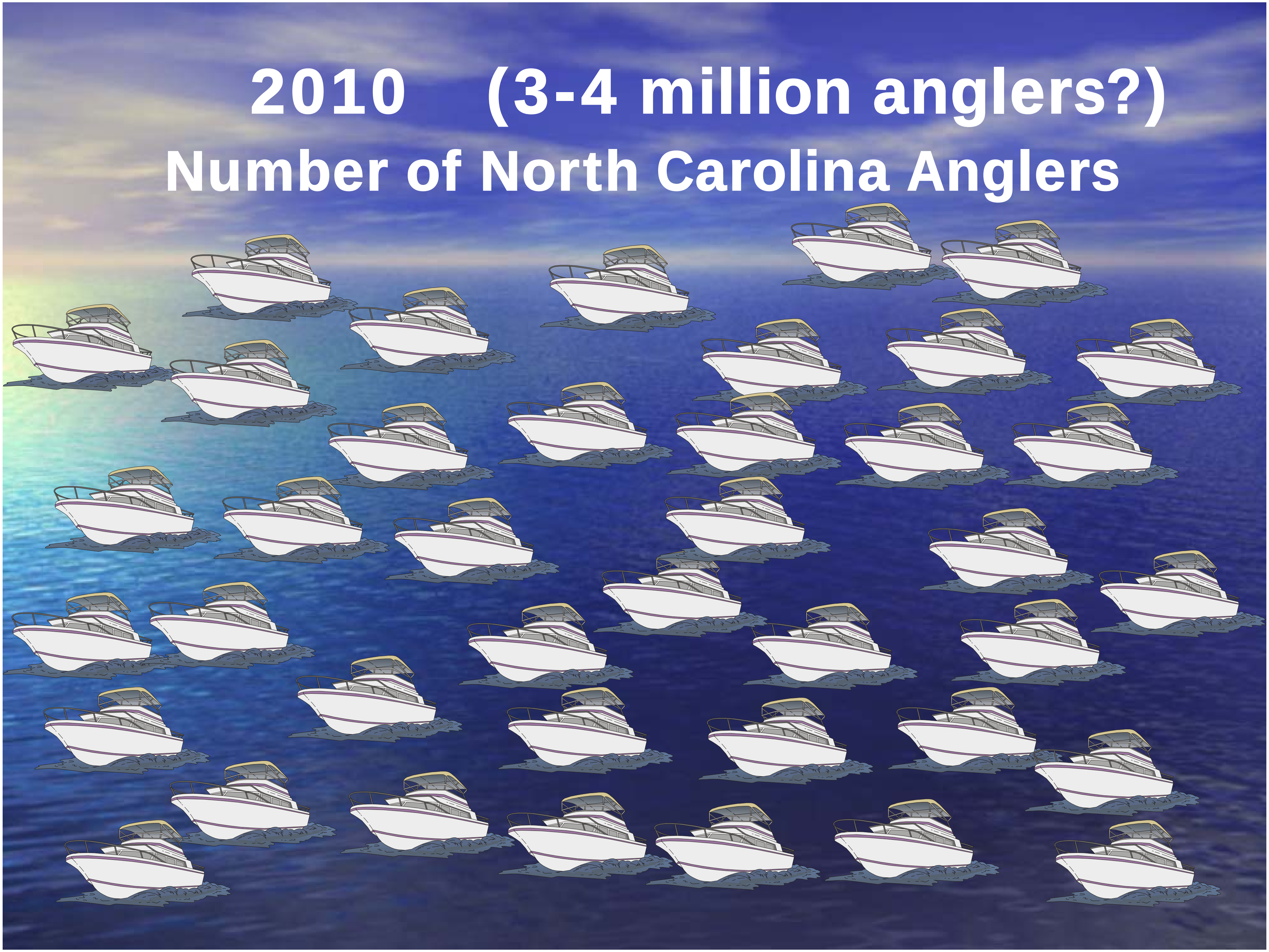
Future Considerations

- Increase in Participation
- Increase in Trips and Catch
- Management Challenges


1980 (.6 million anglers)
Number of North Carolina Anglers


1990 (1.3 million anglers)
Number of North Carolina Anglers


2000 (2.2 million anglers)
Number of North Carolina Anglers


2010 (3-4 million anglers?)
Number of North Carolina Anglers

Economic Importance of Marine Recreational Angling in North Carolina

Brad Gentner

Senior Research Economist

Office of Science & Technology

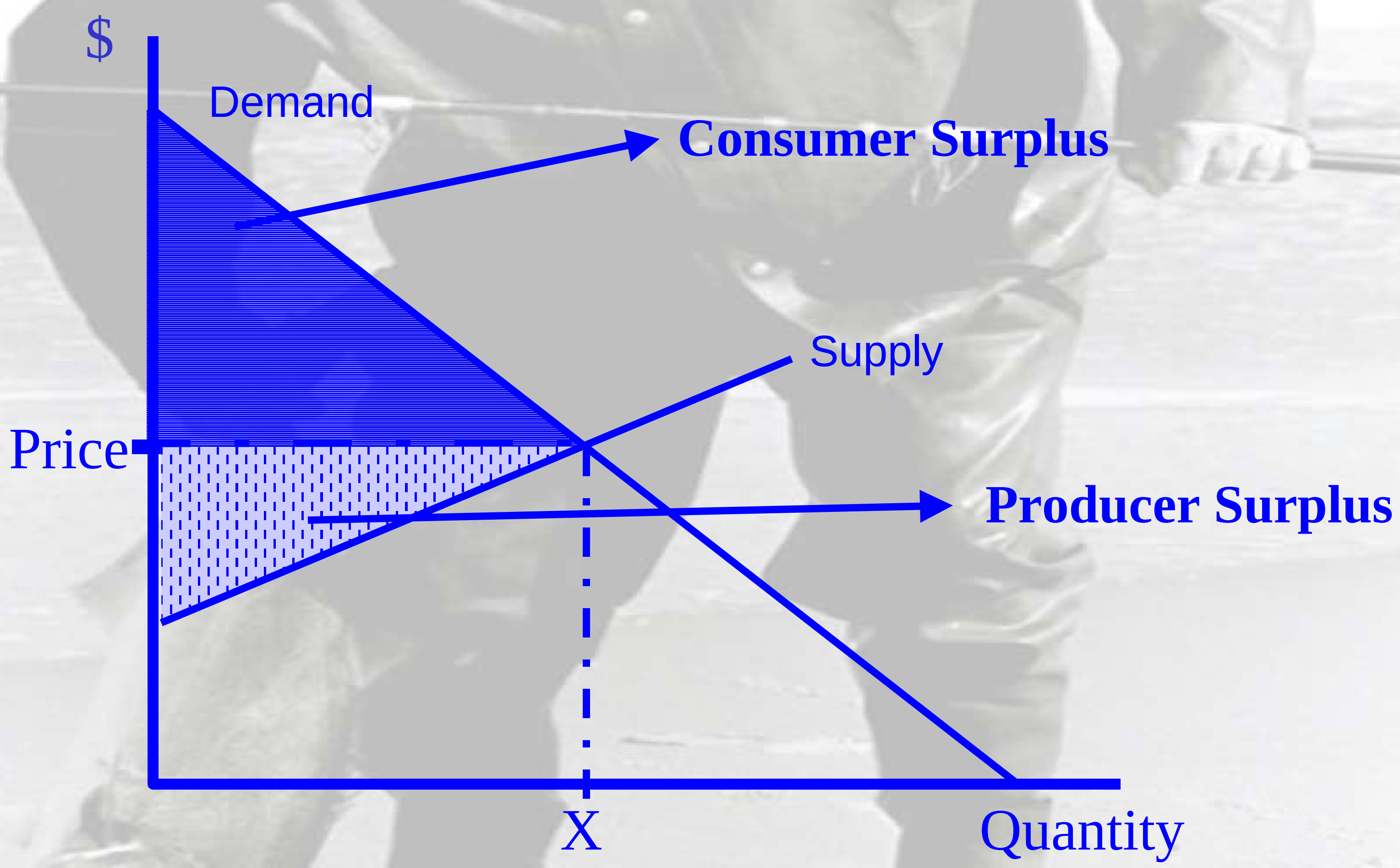
Division of Economics and Social Science

NOAA Fisheries

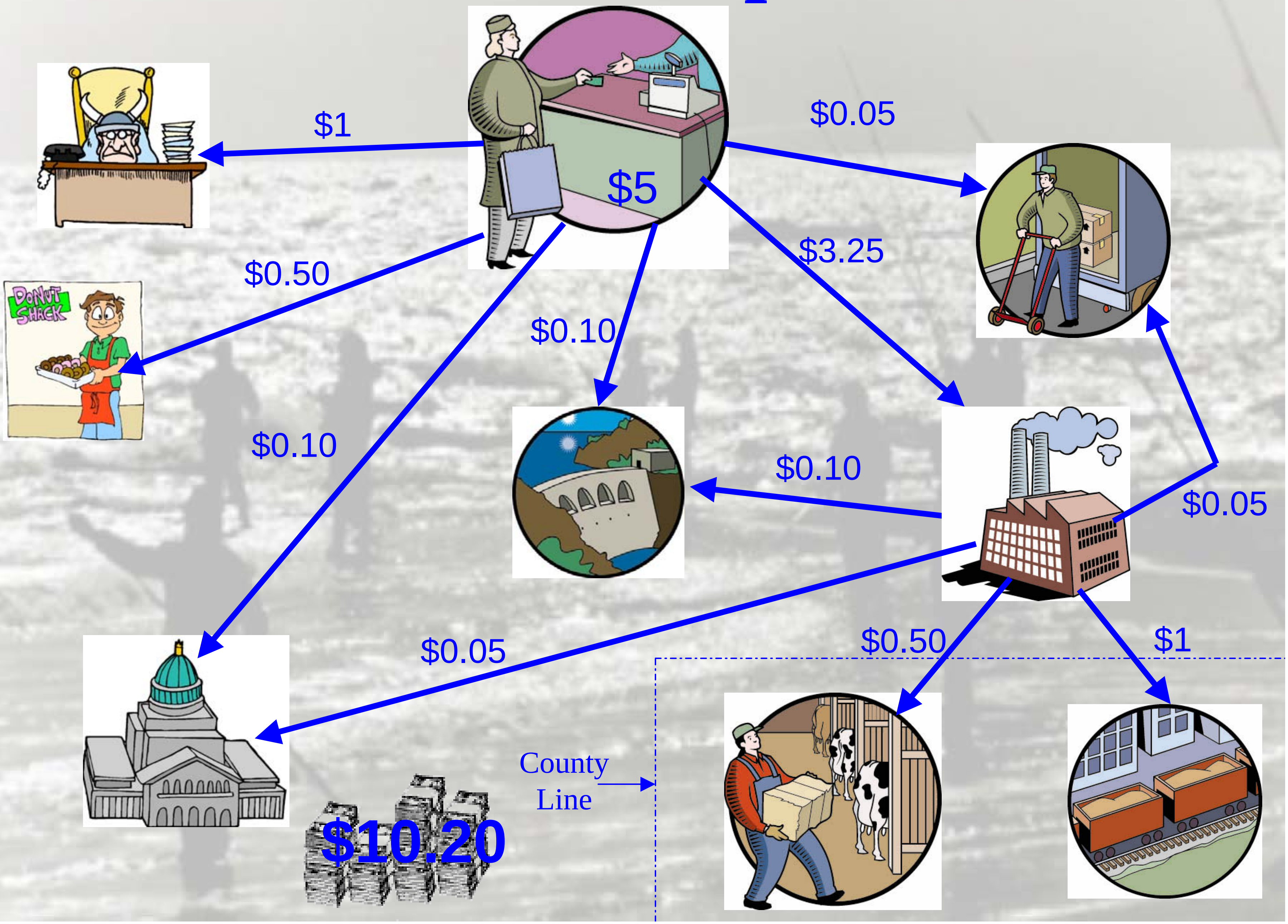
Economic Importance

- **Economic Value**
  - – Monetizes the value people place on resources.
  - – Is society better or worse off as the result of a policy?
- **Economic Impacts**
  - – Examines the flow of expenditures in through a community.
  - – Who wins and who loses as a result of a policy?

Economic Value



Economic Impacts



Economic Add-ons

- Utilizes MRFSS sampling frame
- Three potential survey modes
- Many survey types available
  - Expenditure/impact
  - Revealed preference valuation
  - Stated preference valuation
  - Socioeconomic/demographic
  - For hire cost earnings

Northeast RUM Results (millions of $'s)

State	Total Value of Access	Total Value of a One Fish Increase in			
		Big Game	Small Game	Bottom Fish	Flat Fish
Virginia	111.5	12	6.5	4.7	8.9
Maryland	34.7	18.7	9.9	7	15.2
Delaware	1.4	3.9	2.1	1.4	2.9
New Jersey	79.9	28.5	15.2	9.8	19.7
New York	94.5	20.2	10.6	7.1	13.6
Connecticut	3.4	6.6	3.7	2.5	4.9
Rhode Island	4.2	5.7	3.1	2.1	4.4
Massachusetts	27.2	19.2	10	6.6	14.1
New Hampshire	0.3	1.95	1.02	0.7	1.5
Maine	3.9	4	2.3	1.6	3.5
All States	NA	120.8	64.4	43.6	88.7

Southeast RUM Results (millions of $'s)

State	Total Value of Access	Total Value of a One Fish Increase in			
		Big Game	Small Game	Bottom Fish	Flat Fish
North Carolina	77.4	71.5	32.4	14.9	110.9
South Carolina	10.8	23.8	10.9	5	36.9
Georgia	1.5	8.3	3.7	1.7	12.75
Florida (East)	135.7	140.2	63.3	28.9	215.3
Florida (West)	627.8	173.8	78.8	35.8	269
Florida (All)	5,059.4	NA	NA	NA	NA

Total Impacts in North Carolina

	Total Impact	Impacts			
Resident status	Expenditures	Direct	Indirect	Induced	Total
		Sales (thousand dollars)			
Resident	1,336,178	457,972	99,880	145,795	703,647
Non-resident	237,085	164,669	39,569	52,068	256,306
Total	1,573,263	622,641	139,449	197,863	959,953
		Income (thousand dollars)			
Resident	1,336,178	188,629	40,213	52,796	281,638
Non-resident	237,085	68,082	13,939	18,858	100,879
Total	1,573,263	256,711	54,152	71,654	382,517
		Employment (jobs)			
Resident	1,336,178	7,182	1,279	1,988	10,449
Non-resident	237,085	3,733	457	710	4,900
Total	1,573,263	10,915	1,736	2,698	15,349

Total Impacts in Virginia

Resident Status	Total Impact Expenditures	Impacts: Direct	Indirect	Induced	Total
		Sales (thousand dollars)			
Resident	281,675	132,327	29,290	42,614	204,231
Non-resident	58,676	33,689	7,991	12,790	54,470
Total	340,351	166,016	37,281	55,404	258,701
		Income (thousand dollars)			
Resident	281,675	55,870	11,788	15,751	83,409
Non-resident	58,676	14,282	2,921	4,749	21,952
Total	340,351	70,152	14,709	20,500	105,361
		Employment (jobs)			
Resident	281,675	2,265	363	596	3,224
Non-resident	58,676	718	91	178	987
Total	340,351	2,983	454	774	4,211

Total Impacts in South Carolina

Resident Status	Total Impact Expenditures	Impacts			
		Direct	Indirect	Induced	Total
		Sales (thousand dollars)			
Resident	297,901	166,220	34,344	48,160	248,724
Non-resident	51,923	35,890	7,109	10,458	53,457
Total	349,824	202,110	41,453	58,618	302,181
		Income (thousand dollars)			
Resident	297,901	66,671	15,009	17,457	99,137
Non-resident	51,923	15,294	2,474	3,793	21,561
Total	349,824	81,965	17,483	21,250	120,698
		Employment (jobs)			
Resident	297,901	2,513	515	721	3,749
Non-resident	51,923	812	90	157	1,059
Total	349,824	3,325	605	878	4,808

Total NC Trip Expenditure Impacts by Mode

Mode and resident status	Total trip expenditures	Impacts: Sales	Impacts: Income	Impacts: Employment
	(thousand dollars)			(jobs)
Party Charter				
Resident	9,431	13,898	5,430	380
Non-resident	17,971	25,690	10,001	698
Total	27,402	39,588	15,431	1,078
Private boat				
Resident	89,991	89,399	34,687	1,607
Non-resident	53,689	58,112	22,222	1,063
Total	143,680	147,511	56,909	2,670
Shore				
Resident	70,852	84,233	32,637	1,577
Non-resident	108,189	127,934	48,340	2,337
Total	179,041	212,167	80,977	3,914
All Modes				
Resident	170,274	187,530	72,754	3,564
Non-resident	179,849	211,736	80,563	4,098
Total	350,123	399,266	153,317	7,662

Tax Impacts in NC

Sector	$ Dollars
Enterprises (Corporations)	140,735
Federal Government Non-Defense	103,533,666
State/Local Govt Non-Education	76,415,079
State Total	180,089,480

Discussion

- American Sportfishing Association has also estimated economic impacts in North Carolina
- Our expenditure estimates are higher
  - USFWS = $388 million
  - NMFS = $1.6 billion
- Impacts higher as well
  - ASA = $754 million (multiplier = 1.9)
  - NMFS = $960 million (multiplier = 0.6)
- What’s going on?
  - NMFS participation estimates higher
  - NMFS Accounts for imports and used purchases
- Please check our website for more http://www.st.nmfs.gov/st1/econ/pubs.html

Socioeconomic Characteristics of Recreational Commercial Fishing

License and Statistics Section, NCDMF

May 13, 2004

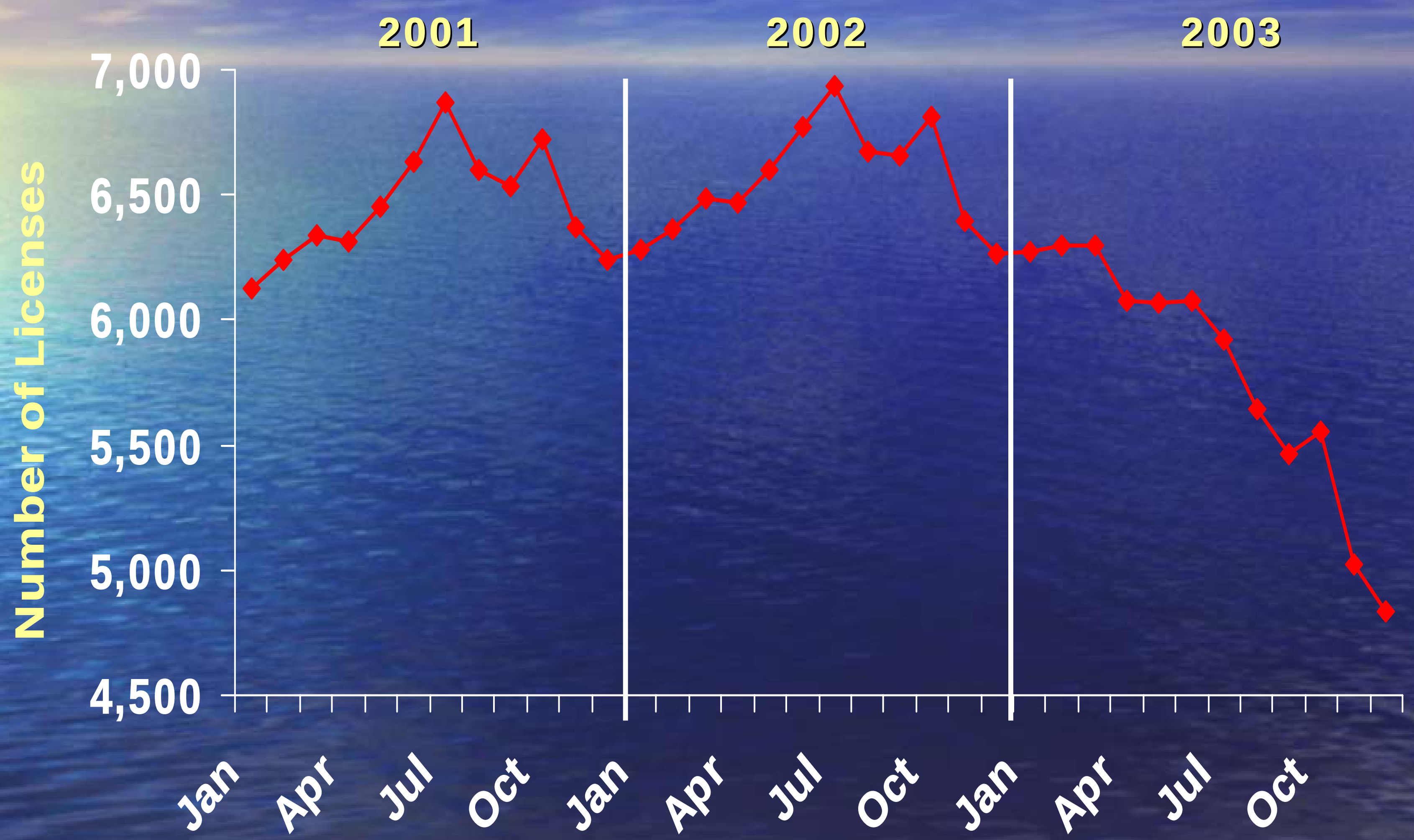
Introduction

- Recreational Commercial Gear License (RCGL) became effective on July 1, 1999
- Allows restricted use of “Commercial Type” gears
- Surveys of the RCGL Fishery began in March of 2002

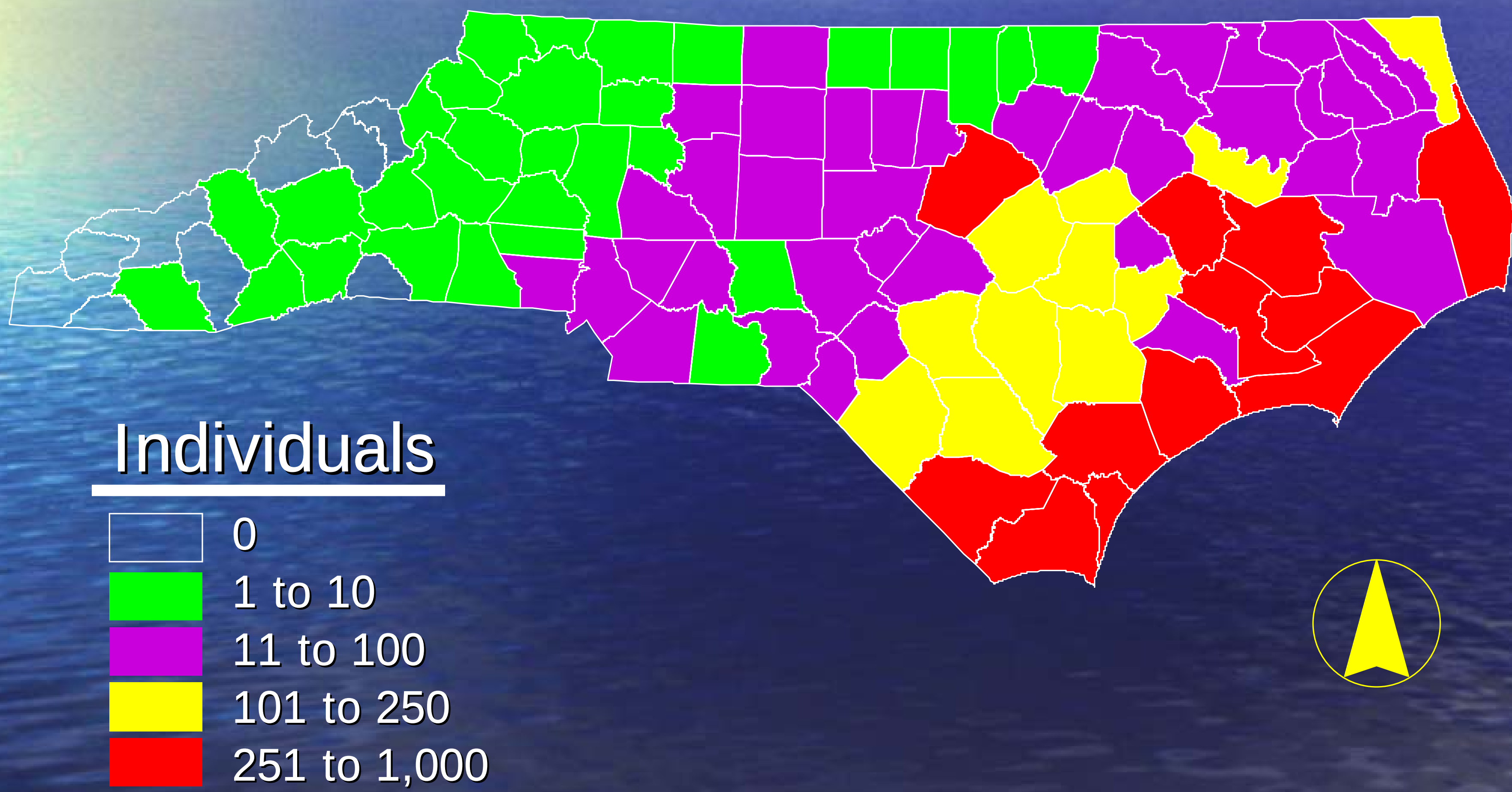
Types of Surveys

- Annual and Monthly Mail Surveys
- Annual Survey for gathering data on socioeconomic aspects
  - Sample Frame (100% of License holders)
- Monthly surveys for estimation of effort and harvest
  - Sample Frame (30% of License holders)

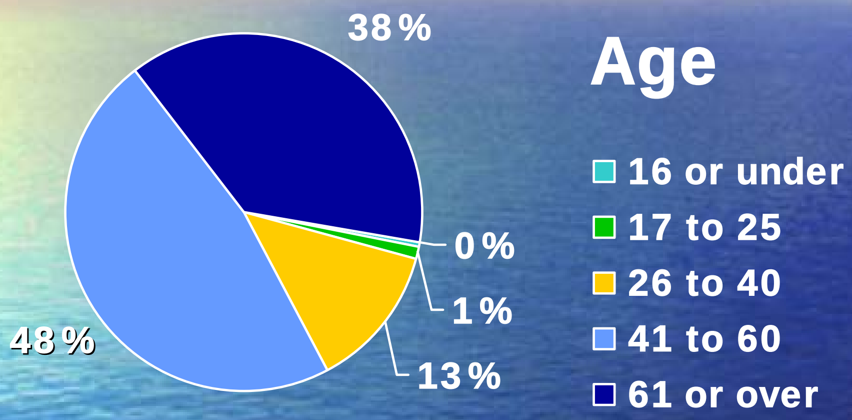
Monthly Number of Licenses

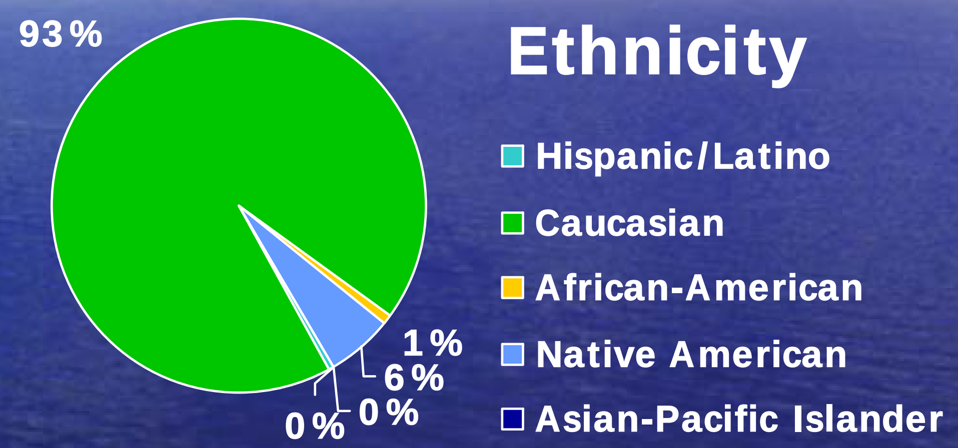


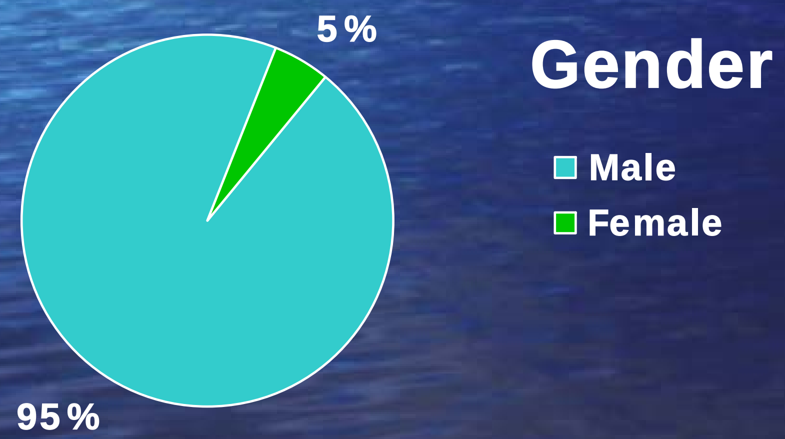
Typical Distribution of RCGLs

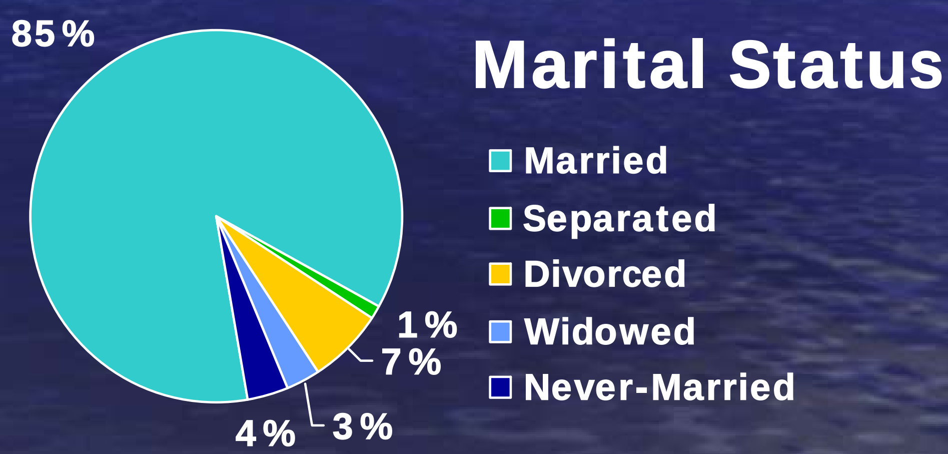


Age, Gender, Ethnicity, and Marital Status



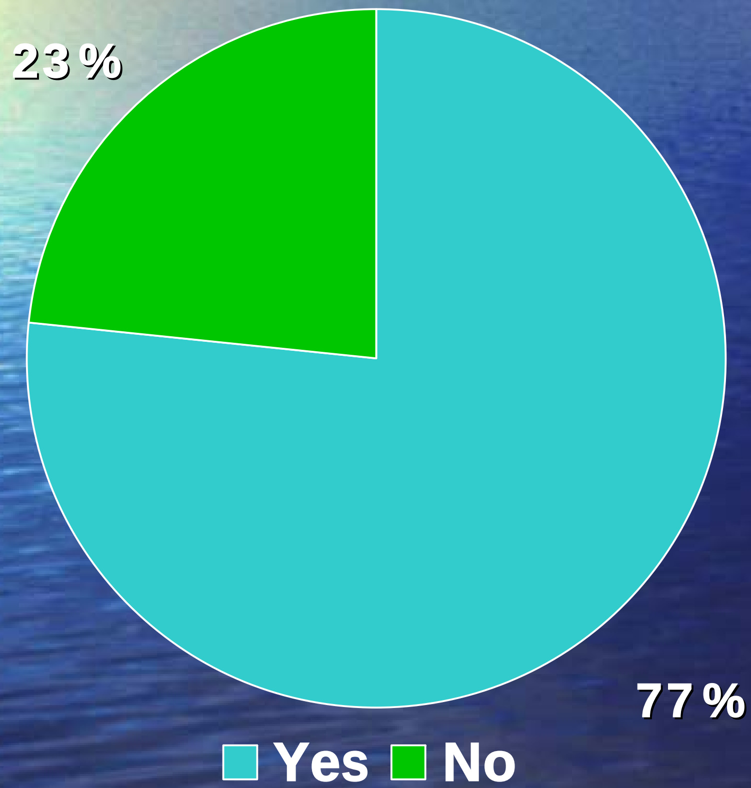






North Carolina Residency

NC Native



Years of NC Residency

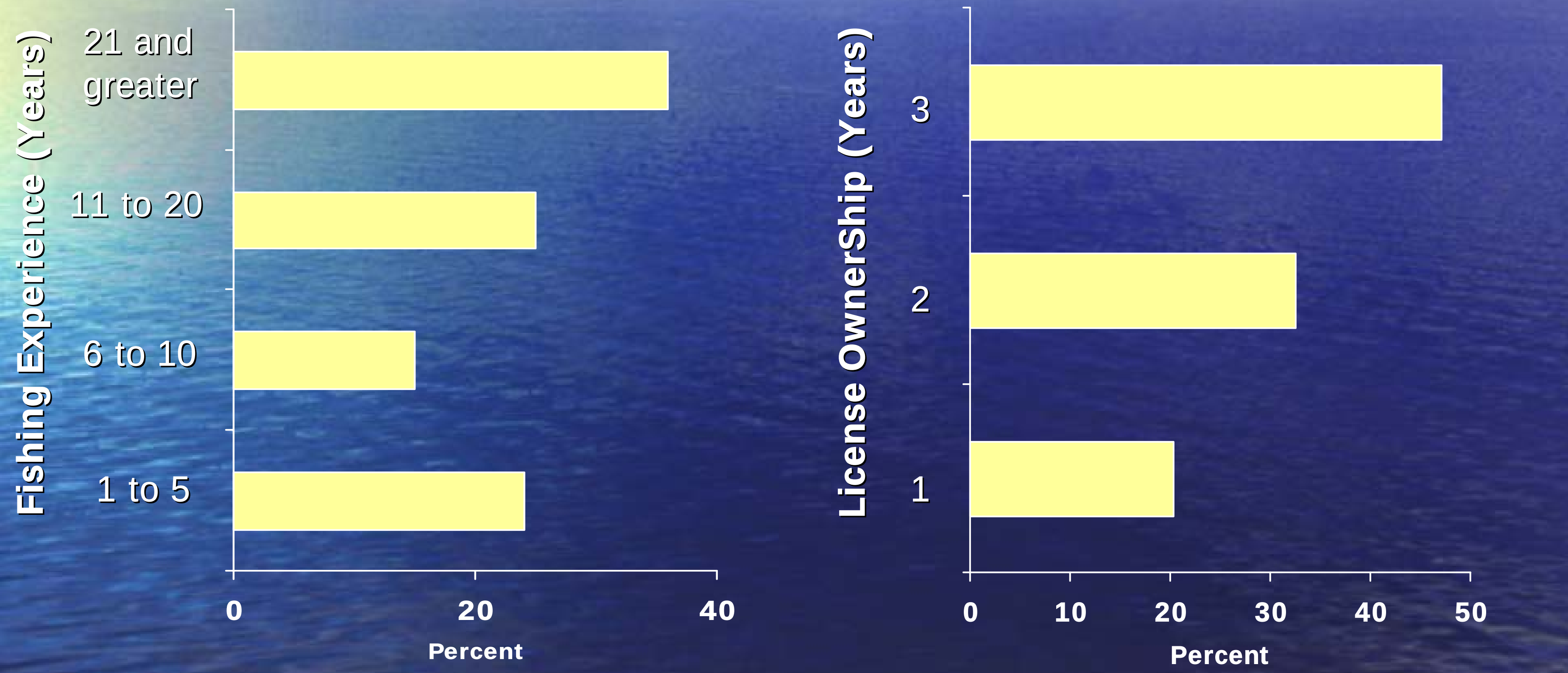
Less than 20	11%
21 to 40	24%
41 to 60	41%
More than 60	24%

Income and Education

Education	
less than high school diploma	12%
high school diploma	29%
Some college/ technical shool	33%
College Degree	26%

Income	
Less than $15,000	5%
$15,001 to $30,000	17%
$30,001 to $50,000	27%
$50,001 to $75,000	24%
$75,001 to $100,000	14%
More than $100,000	13%

Experience & RCGL Ownership

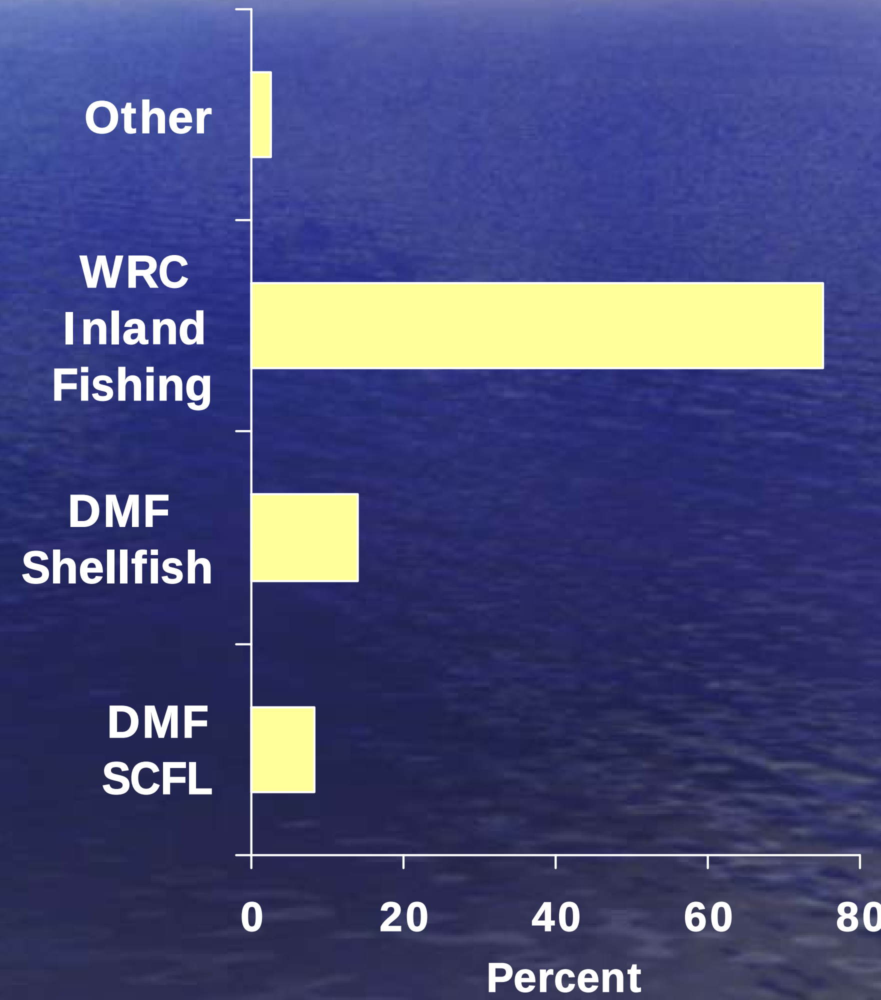


License Information

Plan to Renew RCGL

Yes	85.6%
Not Sure	8.9%
No	5.5%

Other Types of Licenses

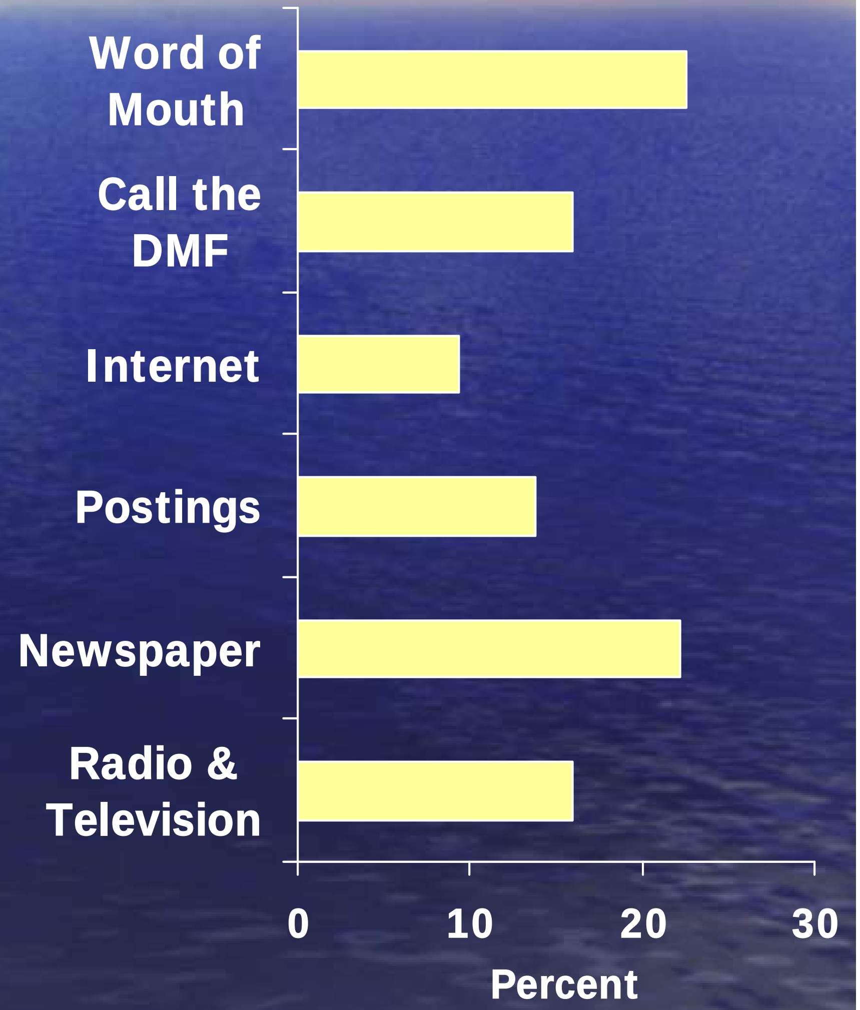


Fisheries Rules

I am familiar with fisheries rules and regulations:

Yes	81.2%
Not Sure	12.8%
No	6.0%

Sources of Information



Point of Access

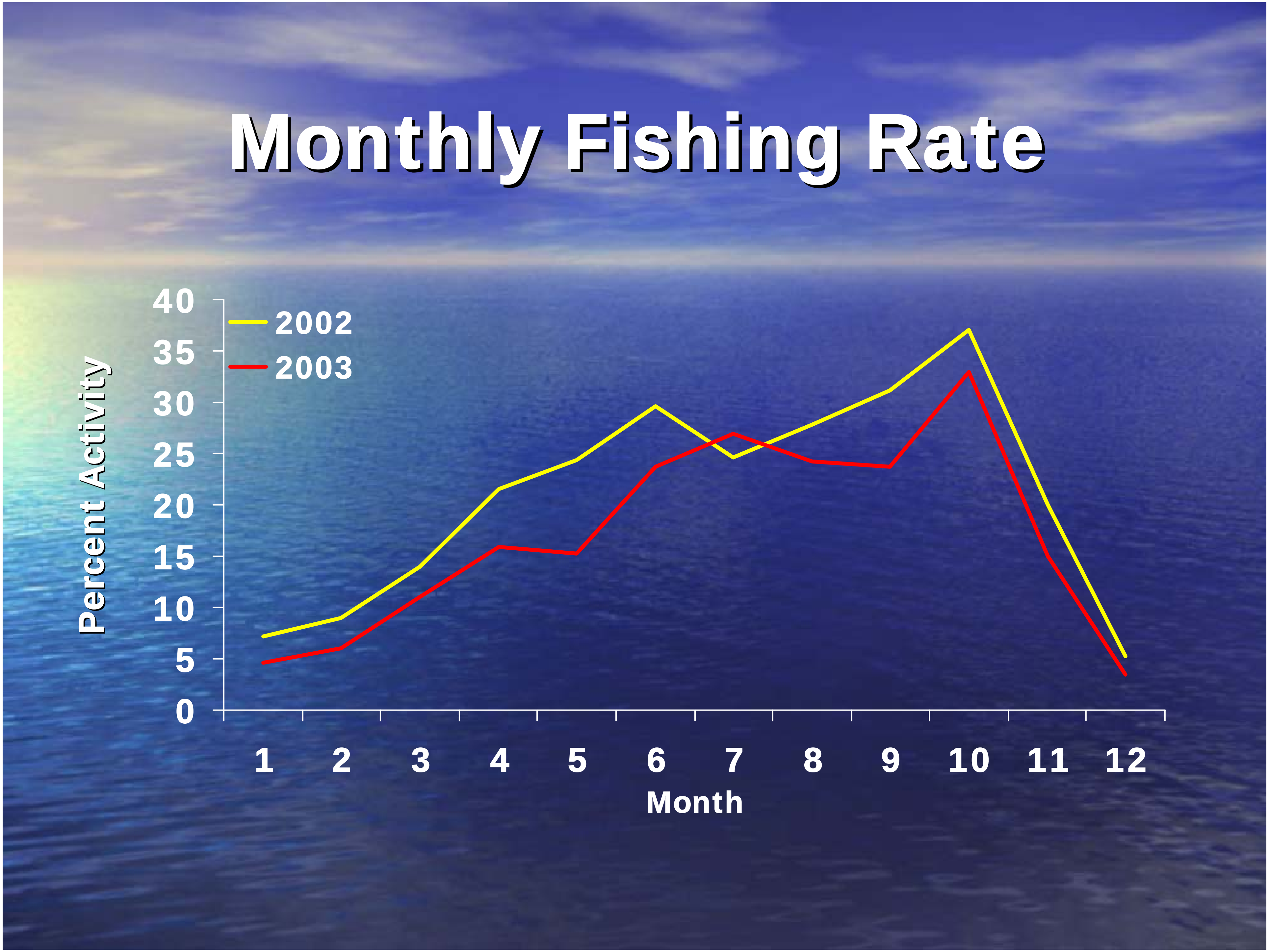
Access Method	Percent
WRC Public Boat Ramp	33
Private Boat Ramp	26
Beach/Bank Areas	5
Water Access at Residence	21
Marina/Ramp	15

Issues and Perceptions

Level of Agreement (%)	No	Unsure	Yes
No conflicts with commercial	19	7	74
No conflicts with recreational	5	3	92
Too much gear in areas fished	52	18	30
Would like more gear allowed	15	21	64
Satisfied with current limits	31	13	56

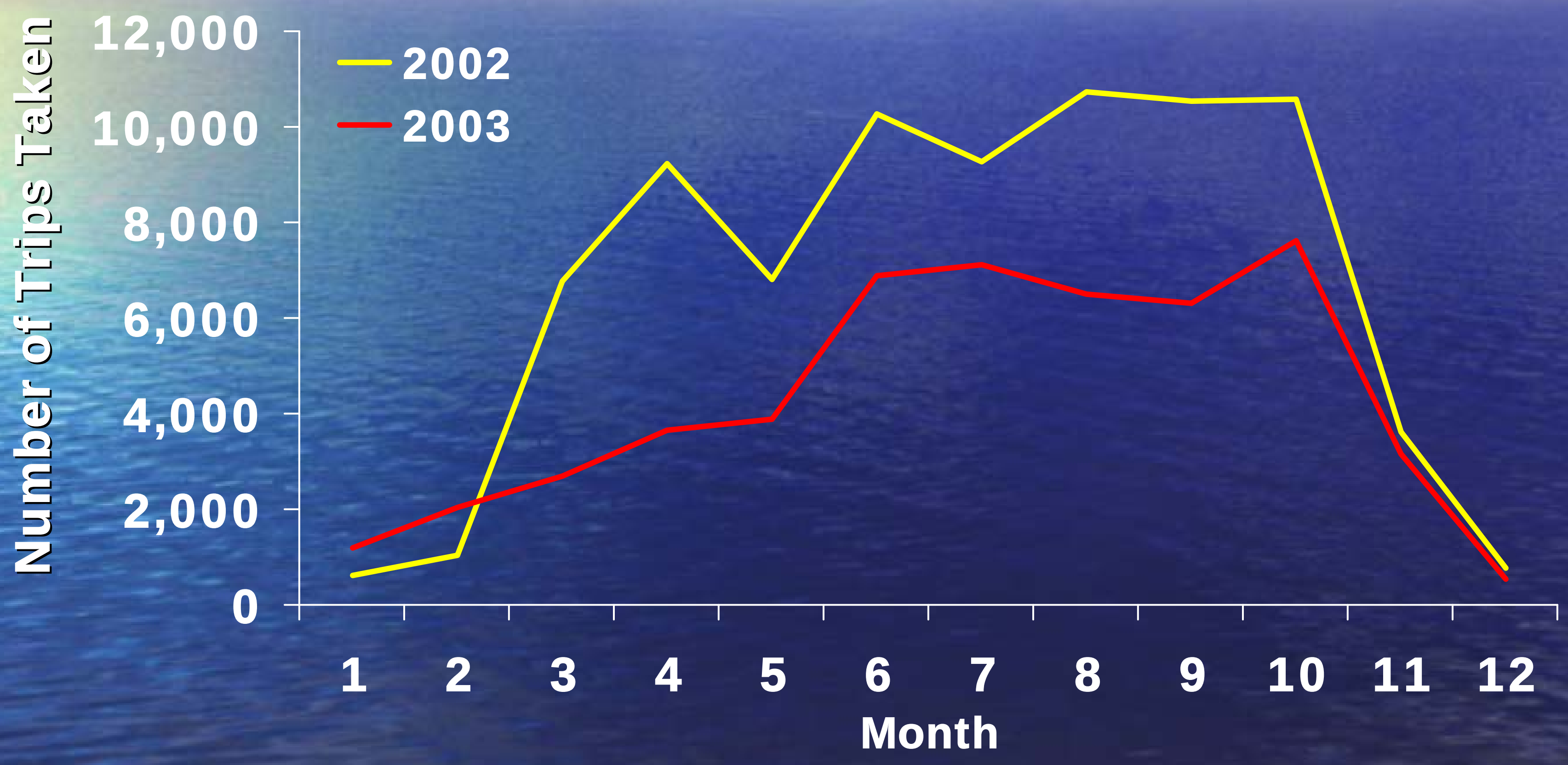
Trip Expenditures

Expenditure	Type of Trip	
Category	Day	Overnight
Lodging		$ 80
Food	$ 24	$ 78
Ice	$ 6	$ 14
Bait	$ 11	$ 22
Fuel	$ 33	$ 66
Total	$ 74	$ 260

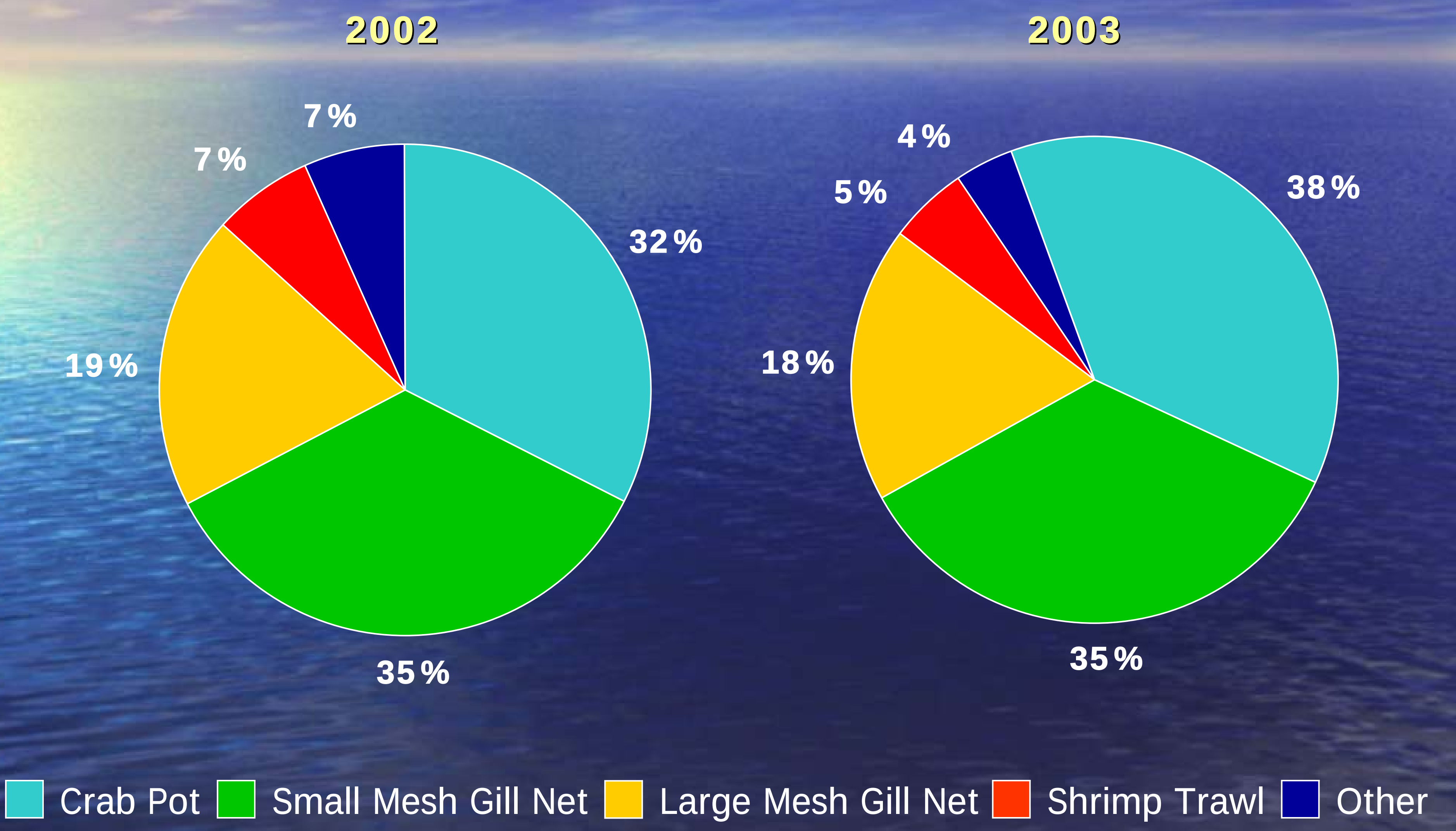


Monthly Fishing Rate
Percent Activity
40
35
30
25
20
15
10
5
0
2002
2003
1
2
3
4
5
6
7
8
9
10
11
12
Month

Number of Trips



Number of Trips by Gear Type



Relative Contribution of RCGL

2003 Harvest Estimates by Fishery

Fishery	Landings (pounds)
Commercial Fishing (TTP)	139,424,122
Recreational Angling (MRFSS)	21,752,173
Recreational Commercial Gear Use	683,488
Total Recorded Harvest	**161,859,783**

Ending Remarks

- The number of RCGLs declined in 2003
- Monthly fishing rate rarely exceeds 30%
- Crab Pots, Small Mesh and Large Mesh gill nets major gear used
- One year snapshot of socioeconomics
- Two years of RCGL harvest data
- Overall contribution of RCGL in 2003 was less than 1% of total recorded harvest.

Workshop Summary

How can socio-economic information be used in fisheries management?

Mission Statement of the Division of Marine Fisheries

- To ensure sustainable marine and estuarine fisheries for the benefit of the people of North Carolina.

Why do fisheries become "unsustainable"

- Overfishing
- Poor Water Quality
- Habitat Loss
- Environmental Conditions

Can socio-economics be considered and still accomplish the goals of the DMF and MFC?

- The goal of any Fishery Management Plan is to prevent overfishing and/or rebuild overfished stocks.
- Socio-economic data are often an afterthought and given little attention as far as management decisions are concerned.
- Yes, socio-economic data can be used to help influence management decisions and still accomplish the goals of the DMF and MFC.

What are the socio-economic impacts?

- The socio-economic effects of management actions:
  - Diversity/Flexibility
  - Expansion of Economic Opportunities
  - Disruptions to fishing related businesses
  - Communities and Tradition
  - Personal Income
  - Personal Enjoyment

Difficult, but can’t ignore!

- Important to develop suites of management options
- Analyze impacts from technical **AND** socio-economic perspectives
- Must end overfishing and accomplish mission of sustainable resource
- But…

What will fishermen do in the event of a closed season or closed area?

- Examine all effects to avoid unintended impacts to sectors of the fishery and fishing dependent communities, businesses **OR** ecosystems.
- May have choices that accomplish the same or similar results with less human impact.
- Choose management options that minimize impacts to fishing communities and fishing related businesses.

Cumulative Impacts

- Often overlooked because of single-species FMPs
- Managers may not recognize the positive or negative consequences of actions across various fisheries, but could
- Reach a point when the cumulative impacts result in socio-economic extinction

Conclusions

- Must end overfishing and rebuild overfished stocks by law.
- Many, if not most management actions will have significant social and economic consequences.
- Must assess the socio-economic consequences of various management alternatives to choose those that limit impacts to the extent practicable and still achieve our mission.

Open Panel Discussion