

**Snapper Grouper
Regulatory Amendment 5**

August 1992

SNAPPER GROUPER
REGULATORY AMENDMENT 5

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

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August 12, 1992

Dr. Andrew J. Kemmerer, Director
Southeast Region
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Dear Dr. *AJ* Kemmerer

At its April 1992 meeting, the snapper grouper committee recommended requesting that eight additional South Carolina Special Management Zones (SMZs) be established by regulatory amendment. Subsequently, the South Atlantic Council approved the request. The regulatory amendment package includes the background and rationale to support our request, as well as the RIR, IRFA and draft regulations.

We appreciate your assistance in this matter and if you require any additional information please do not hesitate to contact Bob Mahood or Gregg Waugh.

Sincerely,

Susan Shipman by *RKM*
Susan Shipman
Chairman

SS/mac

cc: SAFMC Members
✓SAFMC Staff
Snapper Grouper Advisory Panel
Mike McLemore
Pete Eldridge

SUPPLEMENTAL REGULATORY IMPACT REVIEW (SRIR) INITIAL REGULATORY FLEXIBILITY ANALYSIS

for the

Establishment of Special Management Zones Around Designated South Carolina Artificial Reefs

I. Introduction

The Fishery Management Plan for the Snapper-Grouper Fishery of the South Atlantic Region (FMP) was approved on July 28, 1983 and final regulations [48 FR 39466] implementing the FMP became effective September 28, 1983. A Regulatory Impact Review/Final Regulatory Flexibility Analysis was prepared as a part of the approved FMP. A final Environmental Impact Statement was filed with the Environmental Protection Agency and the Notice of Availability was published on August 19, 1983 [48 FR 37702].

The FMP contains a provision for establishing, by regulatory amendment, special management zones (SMZs) around permitted artificial reefs, fish attraction devices, or other modifications of habitat designed to enhance fishing opportunities. Within the SMZs the use of specific types of fishing gear may be restricted or prohibited, if necessary, to ensure that the intended uses of these enhanced habitats are not impaired.

The South Carolina Wildlife and Marine Resources Department requested that the South Atlantic Fishery Management Council (Council) establish SMZs around seven (7) artificial reefs (ARs) in federal waters off the South Carolina coast and that fishing methods utilized within these zones be restricted to hand-held, hook-and-line fishing and spearfishing. The original request was modified by South Carolina to include the recently permitted Comanche Artificial Reef. All of the artificial reefs are located in the exclusive economic zone (EEZ). In accordance with procedures outlined in the FMP, a public hearing was held on the request (April 28, 1992). The request was subsequently reviewed and approved by the Council.

II. Statement of Problem and Need

These offshore South Carolina artificial reefs were constructed primarily to promote recreational fishing and diving opportunities that otherwise would not have existed over the generally featureless sand shelf that dominates the area. In some cases sportfishing interests were directly involved in the promotion and construction of these reefs.

Construction and maintenance of artificial reefs require major expenditures. South Carolina alone estimates that nearly one million dollars was spent on construction of their 12 original artificial reefs, and an additional \$50,000 annually is needed to maintain the required buoy system to mark the reefs. Despite the relatively large investment, studies have indicated that revenues accruing to the state as a result of the increased recreational activities generated by the artificial reefs substantially exceeds the costs.

The principal problem addressed by this proposed regulatory amendment is that the intended use of these artificial reefs, subsequent benefits to the users, and return on investment to the states can be significantly impaired by incompatible uses of the reefs. The primary target species for recreational fishermen fishing the artificial reefs is the black sea bass (*Centropristis striata*). Because this species is highly gregarious, it is particularly vulnerable to exploitation by black sea bass pots and other efficient gear types. Even limited use of such gear can jeopardize the intended use of the artificial reefs and the associated benefits.

South Carolina Wildlife and Marine Resource Department divers directly observed substantial declines in black sea bass populations around artificial reefs following several days of black sea bass potting. This adverse impact persisted for several weeks after potting ceased. Other nearby

reefs that were not fished with black sea bass pots did not exhibit significant changes in abundance of fish.

Twelve other artificial reefs off the South Carolina coast have previously been granted SMZ status. SMZ status has proven to be an effective management means to ensure the long term success of these reefs for the purpose they were established, recreational fisheries enhancement. Each of the eight reefs currently being requested to receive SMZ status were established on non-productive sand bottom, away from any known fishing grounds such as shipwrecks or hard bottoms for enhancing recreational fishing opportunities off the South Carolina coast. Since their development, at least two of the seven sites (BP-25 and Vermilion) have received considerable fishing pressure from commercial fishermen. Evidence of commercial fishing activities with bang sticks and black sea bass pots has also been documented on several occasions by Artificial Reef Project divers on these two reefs. Restricting use to hand-held hook-and-line fishing and spearfishing will help ensure that the objectives and benefits anticipated by the reef builders will be realized on a continuing basis.

III. Objectives

1. Establish SMZs that prohibit or restrain the use of specific types of fishing gear in order to promote orderly utilization of the resource and reduce user group conflicts.
2. Create incentives to establish artificial reefs and fish attraction devices by maintaining the socioeconomic value consistent to the maximum extent practical with the intent of the permittee.
3. Optimize use of biological production and/or create fishing opportunities that would not otherwise exist thereby maintaining and promoting conservation.

IV. Criteria

1. Fairness and equity.
2. Promote conservation.
3. Excessive shares.
4. Ensure SMZs are consistent with the objectives of the FMP, the Magnuson Act and other applicable law.
5. Consider the natural bottom in and surrounding potential SMZs and impacts on historical uses.
6. Cumulative Impacts.

V. Alternatives Considered

Alternative 1. No Action.

This alternative would not address the problem of highly efficient gear fishing the artificial reef sites, which is detrimental to the intended long-term use of this easily accessible fishing opportunity by substantial numbers of participants. Establishment and maintenance of artificial reefs is expensive, and it is not worth maintaining these reefs only to have them depleted by highly efficient gear. Under the no action alternative, the socioeconomic benefits that were anticipated when construction was initiated could be diminished, thereby not meeting SMZ Objective 2 as established by the Council. Also, the no action alternative would not meet the Council's SMZ Objectives 1 and 3.

Alternative 2. Restrict specific gear types on weekends.

This would not accomplish the Council's objectives because the situation is less dealing with a spatial conflict of having two groups of fishermen competing for space, which does occur on occasion; rather, it deals with resource availability. If the reefs are fished with efficient gear Monday through Friday, it would be nonproductive to prohibit these gear types on weekends because the fish would already be depleted.

Alternative 3. Seasonal closures to specific gear types.

This alternative will not resolve the basic problem, i.e., that the use of highly efficient gear reduces the availability of fishery resources for other, less efficient gear.

Alternative 4. Approve the request for SMZ designation as received.

This alternative was accepted as the preferred alternative because it meets the intent of Objective 2. Recreational fishermen generally believe that unregulated black sea bass potting and spearfishing reduce fish stocks and can lead to overfishing.

Alternative 4 would include the clarification that hand-held, hook-and-line gear includes manual, electric, or hydraulic rod-and-reel gear and that spearfishing excludes powerheads. This alternative tracks the Council's intent and addresses problems that would prevent the realization of the socioeconomic benefits anticipated by the permittee. The monitoring team reviewed the request and concluded that it met the Council's criteria.

Based on the available information most reef fishes remain within a few hundred meters of a home reef for long periods of time (weeks to months) but many individuals periodically migrate much longer distances. Establishment of an SMZ should not totally exclude the affected fishermen from access to these stocks because at some point in their life history most target fishes probably migrate outside the special management zone where they presumably are available to all gear types.

In terms of spearfishing, Bohnsack (1982) compared natural reefs that had been protected from spearfishing with a reef that was heavily spearfished and found significantly reduced populations of larger predatory fishes on the speared reef. These larger predators were favored targets of spearfishermen as well as by commercial and recreational fishermen. Jim Tilmant (pers. comm.) found that spearfishermen only accounted for approximately 10 percent of the recreational harvest of reef fishes from Biscayne National Monument. It was concluded from these studies that spearfishing does not take an excessive share of a stock but that spearfishing may have an effect beyond the actual harvest. This most likely occurs from fishes frightened out of areas heavily spearfished. However, it does not necessarily follow that spearfishing should be excluded from all artificial reefs because spearfishing is a form of recreational fishing practiced by a number of recreational fishermen. If additional SMZs are established, spearfishing should be allowed to continue on some reefs to be fair and equitable to those fishermen. Larger reefs may be more suitable for spearfishing because they have more spatial potential for refugia from spearfishing by the fish stocks.

Black sea bass pots are an effective commercial harvesting method. Fish traps were prohibited in the South Atlantic EEZ effective January 1, 1992 with an allowance for black sea bass pots north of Cape Canaveral, Florida. Unregulated fish trapping has led to overfishing of reef fish stocks in Puerto Rico, Jamaica, and Bermuda (Bannerot, 1983; Munro, 1983; Caribbean Fishery Management Council, 1983). Georgia and South Carolina studies have shown that on these small artificial reefs even limited potting can adversely affect the availability of black sea bass which are highly gregarious and vulnerable to potting.

SMZs around these artificial reefs meet the criteria established by the Council. In terms of fairness and equity, SMZs would still permit black sea bass pot fishing outside the zones and even permit opportunities for black sea bass pot fishermen to fish the same stocks fished by recreational fishermen for reasons discussed above.

SMZs around artificial reefs and FADs may promote conservation of fish stocks by allowing

a refugia from black sea bass potting. These areas could promote growth and spawning of sea bass stocks assuming that hook and line fishing is not as effective for harvesting as black sea bass pots. SMZs should be beneficial by reducing user conflicts between recreational and commercial trap fishermen.

The Council has concluded that the granting of these requests does not result in one user group gaining excessive shares of the total harvest of snappers and groupers in the EEZ off South Carolina. The additional SMZs do not result in significant cumulative impacts to the affected fishermen. As discussed above, tother areas are available to the excluded user group and without the artificial reefs the areas in question would not be fishable in the first place. The Council has also concluded that this request is consistent with the objectives of the FMP, the Magnuson Act, and other applicable law. In discussing these requests, the Council considered the natural bottom in and surrounding the artificial reefs and the impacts on historical uses. As previously discussed, the area of placement of these artificial reefs is generally a featureless sand shelf that did not support a commercial or recreational fishery. As such, the granting of these requests does not impact a historical use.

VI. Discussion of Benefits and Costs

Introduction

The Regulatory Impact Review (RIR) is part of the process of developing and reviewing fishery management plans and amendments and is prepared by the Regional Fishery Management Councils with assistance from the National Marine Fisheries Service, as necessary. The RIR provides a comprehensive review of the level and incidence of economic impact associated with the proposed regulatory actions. The purpose of the analysis is to ensure that the regulatory agency or Council systematically considers all available alternatives so that public welfare can be enhanced in the most efficient and cost effective way.

The RIR also serves as the basis for determining if the proposed regulations are major under Executive Order 12291. If the proposed regulations are deemed to have a significant impact on a substantial number of small entities, then an Initial Regulatory Flexibility Analysis (IRFA) must be prepared and incorporated into a joint document that meets the requirements of the Regulatory Flexibility Act (RFA). The purpose of the Regulatory Flexibility Act is to relieve small businesses, small organizations, and small governmental entities from burdensome regulations and record-keeping requirements, to the extent possible. In as much as Executive Order 12291 encompasses the RFA requirements, the RIR usually meets the requirements of both.

Impacts of the Special Management Zone (SMZ) Designation for South Carolina's Artificial Reefs Sites in Federal Waters

In light of the recent determination by the Inspector General (IG) that analytical methods to assess economic impacts for the North Pacific Council's amendments 18 and 23 were inappropriate, some discussion of the methods used to analyze the economic impacts of South Carolina's SMZ request is presented. The IG's audit stresses the importance of assessing changes in net national benefit through cost/benefit analysis based on appropriate economic welfare measures (consumer and producer surpluses) arrived at through quantitative economic models. Without question, applying cost/benefit analysis to quantitatively estimated surplus values is the most appropriate methodology for determining the economic effects of proposed fishery management measures. It is worth noting, however, that the North Pacific Council's proposed amendments involve potential net national benefit changes measured in millions of dollars.

Large net benefit losses are not expected from granting SMZ status to South Carolina's offshore artificial reefs. According to the Monitoring Team's Report, the artificial reefs in question are not important to the livelihoods of commercial black sea bass pot or bangstick fishermen based on input from fishermen (council meetings and the public hearing). Hence consumer and producer benefit losses to commercial fishermen and consumers from designating South Carolina's federal water artificial reefs as SMZs are not expected to be significant in either relative or absolute terms.

The few commercial fishermen using gear subject to the prohibitions of the request may be impacted to some degree if they individually depend on these artificial reef sites. The exact number of commercial fishermen who would be impacted is not available. The Monitoring Team's report states, however, that public hearings at the state level confirmed that commercial fishermen do not depend heavily on artificial reef sites. A public hearing at the April 1992 South Atlantic Council meeting in Charleston, South Carolina did not bring to light any evidence to the contrary.

Conceptually, the commercial fishermen who would be affected would be forced to shoulder some costs for relocating their fishing effort if they are using bangsticks, black sea bass pots, mechanical or hydraulic reels that are not hand-held, or other prohibited gear. Should they choose not to relocate, they would face the efficiency loss of switching to rod-and-reel or handline gear in order to continue fishing legally at the artificial reef sites. Additional fishing costs resulting from SMZ designation would theoretically reduce aggregate producer surplus to the fishery slightly (extra-marginal rents in an open access fishery) in the short run at least. In reality, any additional costs that are incurred are expected to be small because commercial fishermen off South Carolina apparently depend more on natural live bottom areas than artificial reefs, and those areas will not be subject to the provisions of this proposed action.

To the degree that aggregate supply of fresh fish from commercial fishing in South Carolina would be reduced slightly in the short run or become more expensive in a unit price sense, consumer benefits can in theory be diminished. Again, these losses are expected to be very small due to the correspondingly small reliance on artificial reefs by commercial fishermen. The extent of losses of consumer surplus would also depend on the availability of substitutes and the price elasticity of demand (a measure of the responsiveness of the quantity demanded to price). Current estimates of the price elasticity of demand for species normally caught at artificial reef sites in South Carolina unfortunately are not available.

The only quantitative economic information available presently are expenditure impacts attributable to recreational fishing at artificial reefs reported in the Monitoring Team's report. Those impacts are derived from an input-output or "economic multiplier" model (Liao and Cupka, 1979), which is inappropriate for measuring net national benefit changes. In the case of South Carolina's SMZ request, it is entirely possible that the cost of obtaining the appropriate measures of net national benefit indices (data collection and quantitative modeling) would exceed the gains in terms of better economic information and precision in assessing net national benefit tradeoffs. This is presumably why NOAA fishery guidelines for preparing Regulatory Impact Reviews at 50 CFR 602.17(d) and Appendix A stipulate that:

"In determining the benefits and costs of management measures, each management strategy and its impacts on different user groups in the fishery should be evaluated. This requirement need not produce an elaborate, formalistic cost/benefit analysis. Rather, an evaluation of effects and costs, especially of differences among workable alternatives including the status quo, is adequate. If quantitative estimates are not possible, qualitative estimates will suffice."

The salient feature of the South Carolina SMZ request is to promote fairness and equity at the limited number of artificial reef sites as well to maintain the quality of fishing at the sites. The original intended use of the reef sites was to provide sites not previously available for recreational fishing that are reasonably easy to locate because they are either marked or have high profile bottom relief and latitude/longitude position numbers that are widely available. The quality of the fishing experience at reef sites can be reduced (in terms of catch per trip or the average size of fish in the catch) by highly efficient gears which remove fish from the sites faster than other gears and faster than the site can sustain through aggregation and production of new biomass. The quality of the fishing experience can also be reduced by conflict created when some fishermen (recreational or commercial) employ gears that catch fish much more effectively than other gears. This is the reasoning behind the excessive shares criterion that the Council addresses.

Reductions in the quality of the fishing experience will tend to reduce the number of recreational fishing trips demanded in a given year. Over the long run, changes in the quality of

fishing can shift the demand for recreational fishing inward, indicating that less consumer surplus (aggregate net benefits to recreational fishermen) is generated from recreational fishing than before, holding all other factors constant (see Edwards, 1990, for an explanation of the derivation of a demand function for recreational fishing and factors that shift demand rather than induce movement along a demand curve).

According to available evidence, roughly 20% of private boat fishermen surveyed who used an artificial reef site near Murrells Inlet, South Carolina in 1972 responded that they would not repeat the fishing trip if the artificial reef they fished was no longer there in the future (Buchanan, 1973). This implies that the quality of the fishing experience at an artificial reef site is significantly different from alternative fishing locations for some anglers, and changes in the quality of fishing at those sites might induce some anglers to refrain from fishing rather than fish in areas without artificial reefs. This implies that a significant decline in the quality of fishing at artificial reefs in South Carolina would translate into reductions in consumer surplus generated from the artificial reefs.

Available evidence also suggests that charter and headboat industries do not use artificial reef sites as extensively as private boat anglers, or at least did not do so in the 1970s (Buchanan et al., 1974). In theory, any consumer and producer surplus related to charter and headboat anglers and operators for charter and headboats that use the sites in question could be reduced or eliminated by deterioration of the quality of fishing at the sites attributable to highly efficient gears. The availability of alternative live bottom areas for charter and headboat operations is a determinant of the overall extent to which consumer and producer benefits to charter and headboat anglers and operators would diminish with reductions on the quality of fishing at the reef sites.

It is estimated that roughly 33,500 offshore fishing days were spent on the artificial reefs in South Carolina by private recreational fishing boats in 1977 (roughly 26% of total private boat offshore fishing days for that year) (Liao and Cupka, 1979). Almost 11,000 headboat anglers were estimated to have fished on South Carolina's artificial reefs in 1977 (roughly 10 % of the total number of headboat anglers for that year), while 315 charter boat anglers fished at artificial reefs (approximately 14% of total charter anglers for that year) (Liao and Cupka, 1979). It should be noted that the only statistical information estimating the number of trips to artificial reef sites in South Carolina per recreational mode applies to usage in the 1970s. Factors such as the wide availability of navigational aids such as Loran C and other equipment that extends the range of private boats, the apparent increase in the popularity of recreational fishing, and increases in coastal population suggest that recreational use of the artificial reef sites in question may be significantly greater than available studies describe. Use of the South Carolina artificial reefs by recreational fishermen may be extensive and benefits derived from these sites may be large and widespread. Up to date baseline studies of the number of recreational fishermen using reef sites as well as economic and sociological information describing the importance of reef sites to recreational fishermen are warranted. The collection of data on participation and socioeconomic information is expected to become more feasible in the near future with the requirement to purchase saltwater recreational fishing stamps in South Carolina beginning in July 1992.

Thus far, the discussion of impacts on different user groups has operated from the assumption that commercial fishermen would be the only group affected by the gear prohibitions associated with designating SMZ status to the artificial reef sites in question. Although no information is available at this time to indicate the extent to which recreational divers regularly use gear that would be prohibited, it is possible that at least a few recreational divers at artificial reefs use bang sticks instead of traditional speargun gear. It is not known whether the use of bang sticks for harvesting reef fish is thought to be an important part of the recreational spearfishing experience, but a very efficient gear such as bang sticks does not appear to be necessary for successful recreational spearfishing and the excessive shares criterion applies to all users of the artificial reefs, recreational or commercial.

The only potentially burdensome impact of the prohibition on bang sticks at artificial reefs would be if that gear were used principally for protection from sharks. It is not known whether large, aggressive sharks frequent the artificial reefs of South Carolina to a large enough degree to

make diving or spearfishing on the reef dangerous without carrying a bangstick. There are certainly times of year when spearfishing at the reefs could be conducted when large sharks are not likely to be abundant. In any case, the powerhead prohibition applies to harvesting fish with that gear and divers can still carry bangsticks for shark protection. The current regulation that makes the prohibition on bangsticks for harvesting fish enforceable is the requirement that fish be landed with heads and fins attached. Use of powerheads for harvesting fish can generally be detected if fish are required to be landed whole or in the round. Landing amberjacks as "cores" (head removed), however, is presently allowed as the single exception to the head and fins attached regulation. This represents an enforcement problem for the prohibition on powerheads for harvesting fish because amberjacks are targeted by divers.

In summary, the costs or negative impacts associated with SMZ designation for South Carolina's federal water SMZs appear to be insignificant compared to the benefits associated with SMZ status. Although the benefits will mostly accrue to recreational fishermen and the small costs associated with SMZ regulations apply mostly to commercial fishermen, the fact that the artificial reef system was set up to create opportunities for recreational fishing which did not exist beforehand seems to argue strongly for allowing disproportional impacts in this particular case. This action will not have a significant economic impact on a substantial number of small entities. Further, the proposed addition of these SMZs will not have any negative impact on the environment.

Impacts of Alternatives 2 & 3

Because it is not expected that the measures in alternatives 2 and 3 would resolve the problems identified with use of efficient gears at artificial reef sites, the impacts under no action (analyzed below) are essentially the same as for alternatives 2 and 3.

Impacts of No Action

No action would avoid the small cost increases on commercial fishermen associated with relocating fishing effort. No action would also forfeit some of the potentially large benefits in terms of consumer surplus generated from the artificial reef system in South Carolina. This is because allowing very efficient gear at artificial reefs threatens to denigrate the quality of recreational fishing at reef sites, which is one of the underpinnings of the consumer surplus benefits derived from the existence of the artificial reefs. Allowing very efficient gear also allows for potential excessive shares both for commercial users and possibly for recreational users, and this creates conflict among users which could also decrease benefits obtained from the artificial reefs. Although no action prevents some disproportional impacts on commercial fishermen who may use the artificial reefs and recreational fishermen who may use powerheads at reef sites to harvest reef fish, preventing those disproportional effects is not of great value in this case because the reefs were created ostensibly for enhancing recreational fishing for the benefit of recreational fishermen and society as a whole.

It is expected that additional federal enforcement costs resulting from this proposed action will be minimal. South Carolina, as permittee of these artificial reefs, will provide the primary enforcement effort. South Carolina has a cooperative enforcement agreement with the National Marine Fisheries Service and U.S. Coast Guard. "Self policing" by recreational fishermen (e.g., notifying enforcement officials of violations) will also aid enforcement.

The estimated cost to the government for the preparations, review, approval, and implementation of this regulatory amendment is \$3,500.

VII. References

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FINAL

**SNAPPER GROUPER MONITORING
TEAM**

REPORT #5:

**SOUTH CAROLINA
SPECIAL MANAGEMENT ZONES**

FEBRUARY 1992

Prepared by:

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MR. GREGG T. WAUGH, SAFMC STAFF**

I. INTRODUCTION

Artificial reefs and fish attraction devices (FADs) are expensive to construct and have limited advantages that can be rapidly dissipated by certain types of fishing gear (e.g. traps harvesting black sea bass from artificial reefs). Fishing gear that offers "exceptional advantages" over other gear to the point of eliminating the incentive for the development of artificial reefs prevents improved fishing opportunities. The intent of a SMZ is to create the incentive to establish artificial reefs and FADs that will increase biological production and/or create fishing opportunities that would not otherwise exist.

Management measure #17 of the Snapper-Grouper FMP (March 1983) is as follows:

"Prohibition or Restraint of Specific Fishing Gear From Artificial Reefs

Upon request to the Council from the permittee (possessor of a Corps of Engineers permit) for any artificial reef or fish attraction device (or other modification of habitat for the purpose of fishing) the modified area and an appropriate surrounding area may be designated as a Special Management Zone (SMZ) that prohibits or restrains the use of specific types of fishing gear that are not compatible with the intent of the permittee for the artificial reef or fish attraction device. This will be done by regulatory amendment similar to adding or changing minimum sizes (Section 10.2.3):

1. A monitoring team* will evaluate the request in the form of a written report considering the following criteria:
 - a. fairness and equity
 - b. promote conservation
 - c. excessive shares
2. At the request of the Steering Committee, the Council Chairman may schedule meetings of the Advisory Panel (AP) and/or Scientific and Statistical Committee (SSC) to review the report and associated documents and to advise the Council. The Council Chairman may also schedule public hearings.
3. The Council, following review of the Team's report, supporting data, public comments, and other relevant information, may recommend to the Southeast Regional Director of the National Marine Fisheries Service (RD) that a SMZ be approved. Such a recommendation would be accompanied by all relevant background data.
4. The RD will review the Council's recommendation, and if he concurs in the recommendation, will propose regulations in accordance with the recommendations. He may also reject the recommendation, providing written reasons for rejection.
5. If the RD concurs in the Council's recommendations, he shall publish proposed regulations in the Federal Register and shall afford a reasonable period for public comment which is consistent with the urgency of the need to implement the management measure(s)."

The opportunity to request the Council to designate a SMZ is open to all permit holders and could focus on gear restrictions applicable to any and/or all user groups. Thus far only requests in support of gear restrictions for fish traps, hydraulic/electric reels, longlines, and spearfishing have been received by the Council.

*Monitoring Team - The Team will be comprised of members of Council staff, Fishery Operations Branch (Southeast Region, NMFS), and the NMFS Southeast Fisheries Center.

II. OBJECTIVES

Objectives approved by the committee and Council are as follows:

1. Establish SMZs that prohibit or restrain the use of specific types of fishing gear in order to promote orderly utilization of the resource and reduce user group conflicts.
2. Create incentives to establish artificial reefs and fish attraction devices by maintaining the socioeconomic value consistent to the maximum extent practical with the intent of the permittee.
3. Optimize use of biological production and/or create fishing opportunities that would not otherwise exist thereby maintaining and promoting conservation.

III. CRITERIA

Criteria to be utilized are:

1. Fairness and Equity.
2. Promote Conservation.
3. Excessive Shares.
4. Ensure SMZs are consistent with the objectives of the FMP, the Magnuson Act and other applicable law.
5. Consider the natural bottom in and surrounding potential SMZs and impacts on historical uses.
6. Cumulative Impacts.

IV. REQUEST

South Carolina - "The South Carolina Wildlife and Marine Resources Department (SCWMRD) requests that the South Atlantic Fishery Management Council utilize its authority to establish Special Management Zones (SMZ) around seven artificial reefs in Federal waters off the South Carolina coast and that fishing methods utilized within these zones be restricted to hand-held hook-and-line fishing and spearfishing." The original request was modified by South Carolina to "include the recently permitted Comanche Artificial Reef." (See Attachment 1)

V. PERMITTEE'S RATIONALE AND JUSTIFICATION

Information from Original Request:

"During the past 18 years South Carolina has utilized nearly one million dollars for the construction of twelve offshore benthic reefs. These reefs are constructed from a variety of materials including discarded automobile tires (approximately 2,655,000) and various ship, barge and boat hulls (over 60). These artificial reefs have been shown by experience to be successful in furnishing sport fishermen excellent fishing opportunities.

The importance of artificial fishing reefs to South Carolina's sport fishery has been documented by several studies. Buchanan (1973) found that Paradise Artificial Reef, located three miles off Murrells Inlet, South Carolina, received 35 percent of the angler-hours expended in the ocean sport fishery of that area and yielded over 40 percent of the total catch. This reef was responsible for an increase of 16 percent in the number of private boat anglers in the area's ocean sport fishery and for an increase of nearly 10 percent in the gross economic impact of ocean sportfishing on the surrounding communities.

Another study, Buchanan, Stone and Parker (1974) found that offshore bottom fishermen in the Murrells Inlet area expended nearly 50 percent or more of their efforts on one of two artificial reefs in the area. Even though these reefs covered considerably less surface area than the surrounding live bottom area, they received a fishing intensity several thousand times greater than on the live bottom. A 1977 study of the economic impact and fishing success of offshore sportfishing over artificial reefs and natural habitats in South Carolina (Liao and Cupka, 1979) estimated a total economic impact of \$47.03 million to the State of South Carolina per year from offshore sportsfishing. Artificial reef fishing accounted for \$10.4 million, or 22.1 percent of the total. Of an estimated 131,504 fishing trips made offshore during 1977, approximately 25 percent occurred over South Carolina's artificial reefs. Thus, South Carolina's existing benthic artificial reefs currently provide a significant annual input (over ten times the total expenditures on all reef construction to date) to the State's economy from offshore sport fishermen.

There are indications that artificial reefs off South Carolina are currently receiving heavy recreational fishing pressure and are often subjected to possible overfishing. During 1977 catch rates on the reefs were found to decline for anglers as the season progressed (Liao and Cupka, 1979). The effect of overfishing is also supported by angler's comments and by direct observations made by SCWMRD SCUBA divers who have reported a general decline in catchable fish as the summer progresses. Increases are apparent in fish populations immediately following periods of inclement weather which prevent anglers from fishing on the reefs. Once the weather clears and anglers have access to the reefs again, the fish populations begin to decline in numbers and sizes available as they are again fished out. A study of two Murrells Inlet artificial reefs (Buchanan, Stone and Parker, 1974) indicated that an obvious decline in catch per unit of effort on the reefs was a result of the heavy fishing intensity placed on the small reefs. An equal amount of effort over a nearby live bottom area did not have the same impact on the fish

population due to the much broader expanse of this area.

The current frequency of utilization and harvest by fish traps from South Carolina's artificial reefs has not been documented. However, direct observations by SCWMRD employees, especially during winter months, has established that this activity is occurring at a rate which is having a severe impact on these reefs. Departmental SCUBA divers have reported a drastic decline in fish populations over artificial reefs following several days where fish traps were observed. Other reefs in the same general area but not trapped showed no significant change in numbers of fish available. In such cases it is usually several weeks following trapping before a typical population of fish again appears.

Since each of South Carolina's artificial reefs contain an average of less than 1,000 m³ of material, they are not designed to handle exploitation by fish traps. Thus the populations of fish supported by these small reefs are extremely susceptible to overfishing by even a small trapping effort.

All of South Carolina's offshore artificial reefs which have been constructed to date, are outside State waters and thus control over fishing methods has not been possible by State law. These reefs have been promoted since their original construction, which in several instances was by sportfishing clubs, as recreational fishing areas. It was hoped that a minimal amount of trapping would be conducted on and around the reefs. Peer pressure and the desire to avoid conflict has in many instances been insufficient to keep such exploitation to a minimum.

Should the utilization of fish traps be allowed to continue, it is doubtful that these reefs will remain economically valuable to the State. The market value of fish harvested from these reefs would not justify the \$40,000 to \$50,000 spent annually just to maintain the buoy system which marks the reefs for recreational fishermen. Many hook-and-line fishermen would not be willing to compete for the fewer number of fish that would remain available, meaning significant loss in the documented economic value of these reefs to the State. User conflicts between hook-and-line and trap fishermen will also increase as well the likelihood of overfishing such highly susceptible species as black sea bass.

Therefore, it is requested that South Carolina's artificial reefs be set aside as special management zones and that the taking of fish from these zones be restricted by the South Atlantic Fisheries Management Council to hand-held hook-and-line fishing and spearfishing by SCUBA divers." (SOURCE: Letter to David Gould from Paul Sandifer dated February 29, 1984)

In order to eliminate the difference between the South Carolina and Georgia requests the original South Carolina request was modified "to also eliminate the taking of jewfish (*Epinephelus itajara*) with power heads (bang sticks) from areas set aside as special management areas (artificial reefs) off the South Carolina coast." (SOURCE: Letter to David Gould from Paul Sandifer dated August 1, 1985)

Information from 1992 Request:

"Twelve artificial reefs off the South Carolina coast have previously been given SMZ status. SMZ status has proven to be an effective management means to ensure the long term success of these reefs for the purpose they were established, recreational fisheries enhancement.

Each of the seven reefs currently being requested to receive SMZ status were established on non-productive sand bottom, away from any known fishing grounds such as shipwrecks or hard bottoms for the expressed purpose of enhancing recreational fishing opportunities off the South Carolina coast. Since their development, at least two of the seven sites (BP-25 and Vermilion) have received considerable fishing pressure from commercial fishermen. Evidence of commercial fishing activities with bang sticks and fish traps has also been documented on several occasions by Artificial Reef Project divers on these two reefs." The Comanche Artificial Reef site was also established on non-productive sand bottom away from known fishing grounds.

Additional material was provided to the Council at the June 11, 1990 snapper grouper scoping meeting held in Key West (Attachment 2).

VI. MONITORING TEAM'S EVALUATION

The artificial reefs in South Carolina are located on an expansive shelf area with large areas devoid of any hard or live bottom. These areas have not supported any significant fisheries in the past. In fact, these large barren areas have limited the development of recreational fishing. By placing artificial reef material in these locations, fishing opportunities that did not previously exist were created. These locations are not important to the income of commercial trap or band-stick fishermen based on discussions with commercial fishermen and input at past public hearings. These factors indicate that there is general support for the creation of SMZs in South Carolina both among the recreational as well as the commercial sectors.

The monitoring team assumed that hand-held hook-and-line gear includes manual, electric, or hydraulic rod-and-reel gear. Also that spearfishing gear excludes powerheads as is the current case in SMZs off South Carolina for jewfish.

Fairness and Equity. The monitoring team concluded that the request is fair and equitable because the reefs were constructed on non-fished areas and were established to provide fishing opportunities for recreational fishermen that would not otherwise exist. Opportunities will exist for prohibited gear to harvest fish protected by SMZ status because most target fishes probably migrate outside the SMZ at some point in their life history.

Promote Conservation. SMZs around artificial reefs may promote conservation of fish stocks by allowing a refugia from black sea bass trap fishing and powerheads. These areas could promote growth and spawning of stocks assuming that hook-and-line and spearfishing gear are not as effective for harvesting as black sea bass traps and powerheads. However, care must be exerted because artificial reefs may increase exploitation if they substantially concentrate fish.

Excessive Shares. The definition of an excessive share must be decided by the Council. Allocation of shares is an economic and social problem. If it is determined by the Council that black sea bass traps and powerheads remove more than their fair share of the fish available around the artificial reef, then the SMZ may alleviate this inequity.

Ensure SMZs are consistent with the objectives of the FMP, the Magnuson Act, and other applicable law. This evaluation must be done by the Council based upon their evaluation of South Carolina's request.

Consider the natural bottom in and surrounding potential SMZs and impacts on historical uses. The artificial reefs have been located on non-productive (i.e., no existing fisheries) sand bottom away from any known fishing grounds such as shipwrecks or hard bottoms. There are no known impacts on historical uses.

Cumulative Impacts. SMZs were established around the following artificial reefs effective March 27, 1987: (1) Little River Reef, (2) Paradise Reef, (3) Ten Mile Reef, (4) Pawleys Island Reef, (5) Georgetown Reef, (6) Capers Reef, (7) Kiawah Reef, (8) Edisto Offshore Reef, (9) Hunting Island Reef, (10) Fripp Island Reef, (11) Betsy Ross Reef, and (12) Hilton Head Reef. The Little River SMZ was deleted effective January 1, 1992 because due to jetty construction, this site is no longer in federal waters (EEZ).

South Carolina is requesting SMZ status for an additional eight sites which would bring the total SMZs to 19. The monitoring team concluded that, given the expansive continental shelf off South Carolina, these additional eight sites would not cause significant cumulative impacts.

VII. REFERENCES

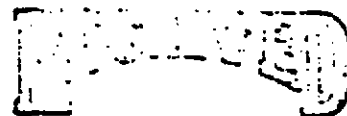
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*South Carolina
Wildlife & Marine
Resources Department*

EQUAL OPPORTUNITY AGENCY

James A. Timmerman, Jr., Ph.D.
Executive Director
Paul A. Sandifer, Ph.D.
Director of
Marine Resources Division



NOV 26 91

November 12, 1991

SOUTH ATLANTIC FISHERY
MANAGEMENT COUNCIL

Mr. Robert K. Mahood
Executive Director
South Atlantic Fishery Management Council
1 Southpark Circle, Suite 306
Charleston, South Carolina 29407-4699

Dear Bob:

The South Carolina Wildlife and Marine Resources Department (SCWMRD) requests that the South Atlantic Fishery Management Council utilize its authority to establish Special Management Zones (SMZ) around seven artificial reefs in Federal waters off the South Carolina coast and that fishing methods utilized within these zones be restricted to hand-held hook-and-line fishing and spearfishing. Attached is a list of the Department of the Army permit numbers and the exact location (latitude and longitude) of each of these reefs.

Twelve artificial reefs off the South Carolina coast have previously been given SMZ status. SMZ status has proven to be an effective management means to ensure the long term success of these reefs for the purpose they were established, recreational fisheries enhancement.

Each of the seven reefs currently being requested to receive SMZ status were established on non-productive sand bottom, away from any known fishing grounds such as shipwrecks or hard bottoms for the expressed purpose of enhancing recreational fishing opportunities off the South Carolina coast. Since their development, at least two of the seven sites (BP-25 and Vermillion) have received considerable fishing pressure from commercial fishermen, resulting in numerous complaints from recreational fishermen. Evidence of commercial fishing activities with bang sticks and fish traps has also been documented on several occasions by Artificial Reef Project divers on these two reefs.

Thank you in advance for your consideration of this matter and should you, your staff or the Council members have questions or require additional information please call on me at your earliest convenience.

Sincerely,



Paul A. Sandifer, Director
Division of Marine Resources

Enclosure: 1

cc: E. Joseph
C. Bearden
D. Cupka
C. Moore
M. Bell

<u>REEF</u>	<u>PERMIT NUMBER</u>	<u>LAT/LONG OF CORNERS</u>
LITTLE RIVER OFFSHORE	85-3Z-209	NW 33°42.1'N/78°27.1'W NE 33°42.1'N/78°26.4'W SW 33°41.1'N/78°27.1'W SE 33°41.1'N/78°26.4'W
BP-25	85-3Z-207	NW 33°21.7'N/78°25.6'W NE 33°21.7'N/78°24.8'W SW 33°20.7'N/78°25.6'W SE 33°20.7'N/78°24.8'W
Vermilion	87-3D-238	NW 32°57.8'N/78°40.1'W NE 32°57.8'N/78°39.3'W SW 32°57.3'N/78°40.1'W SE 32°57.3'N/78°39.3'W
Cape Romain	85-3Z-210	NW 33°00.00'N/79°02.62'W NE 33°00.00'N/79°02.01'W 32° SW 33°59.50'N/79°02.62'W 32° SE 33°59.50'N/79°02.01'W
Y-73	87-3T-267	NW 32°33.20'N/79°19.70'W NE 32°33.20'N/79°19.10'W SW 32°32.70'N/79°19.70'W SE 32°32.70'N/79°19.10'W
EAGLES NEST	91-3D-139	NW 32°01.48'N/80°30.65'W NE 32°01.48'N/80°30.00'W SW 32°00.98'N/80°30.65'W SE 32°00.98'N/80°30.00'W
BILL PERRY JR.	91-3D-138-C	NW 33°26.2'N/78°33.8'W NE 33°26.2'N/78°32.7'W SW 33°25.2'N/78°33.8'W SE 33°25.2'N/78°32.7'W



*South Carolina
Wildlife & Marine
Resources Department*

James A. Timmerman, Jr., Ph.D.
Executive Director
Paul A. Sandifer, Ph.D.
Director of
Marine Resources Division

EQUAL OPPORTUNITY AGENCY

MEMORANDUM

To: Dr. Ed Joseph, SAFMC
From: Mel Bell, SC Marine Artificial Reef Program *MB*
Date: February 26, 1992
Subject: SMZ Request for Comanche Artificial Reef

As per the discussion at yesterday afternoon's SAFMC Snapper Grouper Committee Meeting, the South Carolina Marine Resources Division wishes to modify its original request for SMZ status for new artificial reefs off South Carolina (12 Nov 91) to include the recently permitted Comanche Artificial Reef. Pertinent information concerning this reef is attached. Thank you.

cc: P. Sandifer
C. Bearden
D. Cupka
C. Moore
W. Hall

COMANCHE ARTIFICIAL REEF SITE

Permit Number: 91-3D-364

The permitted area consist of a 1/2 mile by 1/2 mile square located 32 NM southeast of Charleston in 107' of water. The reef will be constructed initially from a 165' steel hulled ship. Other similar steel hulled vessels and durable steel or concrete structures will be added as they become available.

Corner points of Comanche Reef:

NW 32° 27.40/79° 19.60

SW 32° 26.90/79° 19.60

NE 32° 27.40/79° 18.80

SE 32° 26.90/79° 18.80

**The Use of Bang-Sticks on South Carolina's
Artificial Reefs**

Background During the Fall of 1989, Marine Resources Division biologists notified Division administrative personnel of a potential problem involving the harvest of large quantities of fish on the State's offshore artificial reefs with bang sticks (see Attachment 1 - memo of 10/24/89 from Bell to Bearden and Cupka). Commercial quantities of fish (up to 4,000 pounds of amberjack during a 4 day trip) were reported by recreational fishermen to have been landed at docks and boat landings by divers. Subsequent investigations indicated that during 1988 and 1989 there were at least 4 boats fishing in this manner off South Carolina.

The harvest of large quantities of fish by a few individuals is inconsistent with the objectives of the State's Artificial Reef Program. Major objectives include maximizing fishing opportunities on the reefs for a large number of anglers and maximizing the economic benefits which these structures provide to the State's coastal communities. The practice of bang-sticking is not currently resulting in overfishing of reef fish species on a stockwide basis but it has created a condition of overfishing on a localized basis. It may be as long as a year before fish recruit and repopulate a reef which has been overfished by divers using bang-sticks. As other fish stocks are overfished and depleted, this practice could grow considerably and result in significant overharvesting of reef fish stocks and user conflicts.

This issue was brought up by Division staff at the November 9, 1989 meeting of the Marine Advisory Board for discussion. The Board recommended that Division staff investigate bang-sticking activities by divers on artificial reefs and pursue avenues to curtail or outlaw this activity, if appropriate.

Since the majority of the artificial reefs are located outside state waters, the only way to impose management restrictions is through the South Atlantic Fishery Management Council. Under the Council's snapper/grouper fishery management plan, about half the reefs off South Carolina have been declared "special management zones" and the Council has taken action to prohibit the use of fish traps, trawls, gill nets and bottom longlines in these zones, for the same reasons that we are concerned over the use of bang sticks.

It was felt by Division staff that the practice of bang-sticking to harvest large quantities of fish should be prohibited, at least on those reefs which have been declared to be "special management zones". The following recommendation was presented to the Marine Advisory Board for consideration at its

May 4, 1990 meeting.

"The Marine Resources Division recommends to the Marine Advisory Board approval of the following action:

The Marine Resources Division request that the South Atlantic Fishery Management Council amend its Snapper/Grouper Fishery Management Plan to prohibit the use of bang sticks to harvest fish species included in the snapper/grouper species complex (Attachment 2) on those areas off South Carolina which have been designated as special management zones.

Upon approval of this recommended action, and with the concurrence of the South Carolina Wildlife and Marine Resources Commission, the Division should be instructed to carry out this proposed action."

In order to provide an opportunity for those individuals which would be affected by such an action to provide input to the Marine Advisory Board, a notice was distributed outlining the problem and the recommended action (Attachment 3). This notice was distributed to a number of dive shops and dive charter boats (Attachment 4) and copies of the notice were distributed at commercial fishing docks by Division employees. In addition, a news release on this issue was distributed on April 23, 1990 (Attachment 5). Several individuals from the public sector attended the Advisory Board meeting to hear the proposal and none of the testimony was against the proposed action.

Following considerable discussion on the proposed action, the Marine Advisory Board passed three motions for the Commission to consider. These were based on concerns that it would take some time to get the necessary actions approved through the Council process and even then, the current snapper/grouper fishery management plan does not cover all artificial reefs off South Carolina nor does the snapper/grouper species complex cover spadefish, another species which could be considerably impacted by bang-sticking operations. The three motions passed by the Board are presented in the following section.

Marine Advisory Board Motions for Consideration by the South Carolina Wildlife and Marine Resources Commission

1). The Division should pursue the implementation of a State regulation or legislation which would prohibit the possession and sale of fish taken in State waters with bang-sticks.

2). The Division should work with the South Atlantic Fishery Management Council to amend the Council's snapper/grouper fishery management plan to prohibit the use of bang sticks to harvest fish species included in the snapper/grouper complex in those areas off South Carolina which have been declared "special management zones."

3). The Division should work with the South Atlantic Fishery

Management Council to have the other artificial reefs off South Carolina declared as "special management zones" and to include spadefish as a species in the snapper/grouper complex.

MEMORANDUM

TO: Charles Bearden and David Cupka
FROM: Mel Bell
DATE: October 24, 1989
SUBJECT: Commercial Bang-Sticking on Artificial Reefs

I wanted to make you aware of what will probably become the next potentially heated area of user conflict between recreational and commercial fishermen in association with the State's offshore artificial reefs.

Since earlier this year, I have received a number of calls from recreational anglers, primarily from Georgetown and north, who are concerned with the practice of SCUBA divers bang-sticking commercial quantities of amberjack on well known artificial reefs and shipwrecks.

This practice involves several divers working together to shoot and land as many fish as possible in the bottom time available over a given piece of structure around which the fish are easily accessible. Bang-sticking is much more effective than the use of conventional spearguns in this type of activity due to the fact that immediate death of the fish and rapid reloading of the pole spear allow large numbers of big fish to be harvested in a short period of time. Amberjack are particularly vulnerable to this type of operation due to their tendency to swim in large but loosely organized schools close to structure, as well as their habit of approaching divers to within a very close range.

The recreational fishermen who called had all observed the actual fishing activity taking place or had been at the dock or boat landing when the fish were being off-loaded. All of them were disturbed by the large number of amberjack that were removed from artificial reefs in this manner. Direct communication with the commercial fishermen themselves has confirmed that during 1988 and 1989 there were at least four boats fishing in this manner along the northern coast of the state.

One commercial fisherman reported that during one four day trip he was able to land 4,000 pounds of amberjack by bang-sticking. Another had indicated that in one visit to a wreck off Georgetown he was able to shoot 5 boxes of amberjack. As other popular established fisheries such as snapper, grouper and mackerel decline from increasing commercial and recreational pressure, and as the price of amberjack and demand for it increase, it is very likely that other fishermen who are able may move into this type of commercial endeavor.

On September 13th, during a routine examination of several offshore artificial reefs and wrecks, Division divers collected direct evidence and witnessed the immediate impact of this type of fishing activity on the BP-25 Artificial Reef off Little River Inlet. This reef, which has been closely monitored during summer months for the past three years, has always had large numbers of amberjack around it. On the initial dive during this trip only one amberjack was observed over the entire reef, and divers recovered a number of spent 38 special shell casings. During a second 30 minute dive, divers counted only four amberjack and were able to collect about 50 spent casings (many more were seen on all parts of the reef). The lack of amberjack in combination with the extraordinary number of relatively fresh casings would indicate that a large scale bang-sticking effort had recently taken place.

A visit to a near-by wreck which has also been monitored for three years revealed normal quantities (hundreds) of amberjack and no direct evidence of any bang-sticking. The observations at both of these sites would seem to indicate that this type of fishing activity can have a rather dramatic effect on resident amberjack populations on artificial reefs. The duration of this impact can only be speculated on at the moment, but it is very likely that since amberjack appear to be long-term seasonal residents of the reefs the impact could last for at least as long as it takes for next years seasonal recruitment to take place (until next April or May).

At this point it would be very hard to imagine that this activity is having a detrimental effect on the amberjack stocks off the State (as a whole amberjack are probably relatively under-utilized). The main concern we should have for now is; "are the amberjack found on the artificial reefs being most effectively exploited by allowing a few individuals to harvest large quantities of them for commercial purposes (at \$.85/lb.), or would they be better utilized by allowing recreational fishermen the opportunity to catch them over the course of an entire fishing season?" Also, since the State's 23 artificial reefs were clearly built with the intention of enhancing recreational fishing activities and not larger scale commercial efforts, it is very hard to justify to the citizens of this State the use of these reefs for the direct commercial benefit of a few individuals (several of which are from out-of-state).

Since most of the reefs in question are outside State waters, our only method of regulating the type of fishing that takes place on the reefs is probably through modification of existing special management zone (SMZ) regulations such as those that apply to fish traps, long-lines and trawling on certain permitted reefs. A ban on the use of bang-sticks on these sites

Page 3
Memo Cont.

would be one logical method of addressing the problem. Initial contact with segments of the recreational diving community suggest that this would not receive a tremendous amount of opposition, since bang-sticking is not wide-spread among this group of South Carolina.

I will continue to gather as much information on this subject as I can through various sources. At this point I do not feel the activity has received enough attention to make it a burning issue among recreational fishermen, but as word spreads and as the activity becomes more extensive I am sure that it will generate the same type of user conflict as we saw over the issue of fish traps on reefs. We will address this and other management related issues in our State Artificial Reef Plan in the near future, but it might be an area of interest now to bring before the Fisheries Management Council for some consideration and to see if it appears to be a regional problem.

cc: P. Sandifer
E. Joseph
C. Moore
G. Ulrich
D. Theiling
W. Hall
D. Stubbs
B. Low

Table 5-1. Common and scientific names of species in the complex.

Common Name ^{1/}	Scientific Name ^{1/}	Additional Common Names in Current or Recent Use in the Region ^{2/}
<u>LUTJANIDAE - Snappers</u>		
Black snapper	<u>Apsilus dentatus</u>	
Queen snapper	<u>Etelis oculatus</u>	
Mutton snapper	<u>Lutjanus analis</u>	Muttonfish, Pargo cebadal
Schoolmaster	<u>Lutjanus apodus</u>	School snapper, Pargo colorro
Blackfin snapper	<u>Lutjanus buccanella</u>	Hambone snapper
Red snapper	<u>Lutjanus campechanus</u>	American red snapper, Pargo colorado
Cubera snapper	<u>Lutjanus cyanopterus</u>	Cuban snapper
Gray snapper	<u>Lutjanus griseus</u>	Mangrove snapper, Mango snapper
		Caballerote, Pargo prieto
Mahogany snapper	<u>Lutjanus mahogoni</u>	
Dog snapper	<u>Lutjanus jocu</u>	
Lane snapper	<u>Lutjanus synagris</u>	Spot snapper, Pargo guanapo
Silk snapper	<u>Lutjanus vivanus</u>	Yelloweye snapper, Goldeneye
Yellowtail snapper	<u>Ocyurus chrysurus</u>	Rabirrubia
Vermilion snapper	<u>Rhomboplites aurorubens</u>	Be liner, B snapper, Mingo snapper
<u>SERRANIDAE - Sea Basses, Groupers</u>		
Bank sea bass	<u>Centropristis ocyurus</u>	Sea bass
Rock sea bass	<u>Centropristis philadelphia</u>	Rock bass
Black sea bass	<u>Centropristis striata</u>	Blackfish
Rock hind	<u>Epinephelus adscensionis</u>	Mero cabrilla
Graysby	<u>Epinephelus cruentatus</u>	
Speckled hind	<u>Epinephelus drummondhayi</u>	Kitty Mitchell, Strawberry grouper
Yellowedge grouper	<u>Epinephelus flavolimbatus</u>	
Coney	<u>Epinephelus fulva</u>	Corruncha
Red hind	<u>Epinephelus guttatus</u>	Strawberry grouper, Tofia
Jewfish	<u>Epinephelus itajara</u>	Giant sea bass, Junefish, Guasa
Red grouper	<u>Epinephelus morio</u>	Deer hamlet, Mero paracamo
Misty grouper	<u>Epinephelus mystacinus</u>	
Warsaw grouper	<u>Epinephelus nigritus</u>	Giant sea bass
Snowy grouper	<u>Epinephelus niveatus</u>	Cherna pintada

Table 5-1 (continued)

Common Name ^{1/}	Scientific Name ^{1/}	Additional Common Names in Current or Recent Use in the Region ^{2/}
Nassau grouper Black grouper Yellowmouth grouper Gag Scamp Tiger grouper Yellowfin grouper	<u>Epinephelus striatus</u> <u>Mycteroperca bonaci</u> <u>Mycteroperca interstitialis</u> <u>Mycteroperca milerolepis</u> <u>Mycteroperca phenax</u> <u>Mycteroperca tigris</u> <u>Mycteroperca venenosa</u>	Nassau Rockfish, Hamlet, Mero Rockfish, Cuna quaref Black grouper, Grey grouper Cuna garopa
<u>SPARIDAE - Porgies</u>		
Sheepshead Grass porgy Jolthead porgy Saucereye porgy Whitebone porgy Knobbed porgy Red porgy Longspine porgy Scup	<u>Archosargus probatocephalus</u> <u>Calamus arctifrons</u> <u>Calamus bajonado</u> <u>Calamus calamus</u> <u>Calamus leucosteus</u> <u>Calamus nodosus</u> <u>Pagrus pagrus</u> <u>Stenotomus caprinus</u> <u>Stenotomus chrysops</u>	Convict fish Key West porgy Silver snapper, Pink snapper, Guerito
<u>POMADASYIDAE - Grunts</u>		
Black margate Porkfish Margate Tomtate Smallmouth grunt French grunt Spanish grunt Cottonwick Sailors choice White grunt	<u>Anisotremus surinamensis</u> <u>Anisotremus virginicus</u> <u>Haemulon album</u> <u>Haemulon aurolineatum</u> <u>Haemulon chrysargyreum</u> <u>Haemulon flavolineatum</u> <u>Haemulon macrostomum</u> <u>Haemulon melanurum</u> <u>Haemulon parrai</u> <u>Haemulon plumieri</u>	Cuji Key West snapper, Key West grunt Corocoro margariteno
Blue striped grunt	<u>Haemulon sciurus</u>	

Table 5-1 (continued)

Common Name ^{1/}	Scientific Name ^{1/}	Additional Common Names in Current or Recent Use in the Region ^{2/}
<u>MALACANTHIDAE - Tilefishes</u>		
Blueline tilefish Tilefish	<u>Caulolatilus microps</u> <u>Lopholatilus chamaeleonticeps</u>	Paleta, Gray tilefish Golden tilefish, Rainbow tilefish Golden snapper
Sand tilefish	<u>Malacanthus plumieri</u>	
<u>BALISTIDAE - Triggerfishes</u>		
Gray triggerfish Queen triggerfish Ocean triggerfish	<u>Balistes capriscus</u> <u>Balistes vetula</u> <u>Canthidermis sufflamen</u>	Triggerfish, Leatherjacket, Cachua
<u>LABRIDAE - Wrasses</u>		
Hogfish Puddingwife	<u>Lachnolaimus maximus</u> <u>Hallchoeres radiatus</u>	Hog snapper, Pargo gallo
<u>CARANGIDAE - Jacks</u>		
Yellow jack Blue runner Crevalle jack Bar jack Greater amberjack Almaco jack	<u>Caranx bartholomaei</u> <u>Caranx crysos</u> <u>Caranx hippos</u> <u>Caranx ruber</u> <u>Seriola dumerill</u> <u>Seriola rivoliana</u>	

^{1/} Source: Robins et al. (1980)

^{2/} Source: Cervigon (1966)

BANG STICK PROHIBITION TO BE CONSIDERED AT MAY MEETING OF MARINE ADVISORY BOARD

A proposal to restrict the use of bang sticks on certain artificial fishing reefs off South Carolina will be presented to the Marine Advisory Board at its May meeting in Charleston.

Within the past two years, SCUBA divers have begun using bang sticks to harvest large quantities of fish at artificial reefs along the South Carolina coast. There is growing concern that this practice could result in localized overharvesting of certain fish species. In addition, these artificial reefs were built to provide enhanced recreational fishing opportunities and the recent bang sticking activities are not consistent with this intended usage.

Under the Snapper/Grouper Fishery Management Plan, developed by the South Atlantic Fisheries Management Council and implemented by the Secretary of Commerce, certain artificial fishing reefs have been designated as "special management zones". The use of certain gear types, such as fish traps, are prohibited in these zones. The Marine Advisory Board will consider a recommendation from Marine Resources Division staff to include bang sticks as a prohibited gear type in these "special management zones". If approved by the Board, the Division will request that the South Atlantic Fisheries Management Council take the necessary actions to implement the recommendation.

Those reefs which have been designated as "special management zones" are:

Little River Reef
Paradise Reef
Ten Mile Reef
Pawleys Island Reef
Georgetown Reef
Capers Reef

Kiawah Reef
Edisto Offshore Reef
Hunting Island Reef
Fripp Island Reef
Betsy Ross Reef
Hilton Head Reef

The Marine Advisory Board will meet on Friday, May 4, 1990 in the Conference Room of the National Marine Fisheries Center Laboratory which is located at the Marine Resources Center on James Island, Charleston. The meeting begins at 10:00 A.M. Individuals wishing to speak in favor of or in opposition to the proposed action are urged to attend this meeting. For further information, contact David Cupka, Assistant Director, Office of Fisheries Management at (803) 762-5010.

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Star Route 1, Box 10-A
Beaufort, SC 29902
525-9344/525-0409

Downunder Dive Center
426 North Poinsett Hwy
Travelers Rest, SC 29690
834-4119

Underwater Works
7243 Woodrow Street
Irmo, SC 29063
732-3723

Archie Durland
Trident Charters
1404 Linevar Drive West
Charleston, SC 29407
766-0202/763-5465

Diving Ventures
3 Park Circle
Kingstree, SC 29566
354-7760

Palmetto Scuba
220 Triangle Square
Hilton Head, SC 29928
681-3483

The Scuba Shop
1274-A Asheville Hwy
Spartanburg, SC 29303
585-5694

Waterce Dive Center
1767 Burning Tree Rd
Columbia, SC 29210
731-9344

Aquaventures
426 Coleman Blvd
Mt. Pleasant, SC 29464

Charleston Scuba
35 Lockwood Drive
Charleston, SC 29401
722-1120

Divers World
3303 1/2 Augusta Road
Greenville, SC 29607
277-8659

Neptune Dive & Ski Shop
133 Georgia Avenue
N. Augusta, SC 29841
297-2797

Scuba Center
2 Prospect
Inman, SC 29349

The Wet Shop
5121 Rivers Avenue
Charleston, SC 29407

Hurricane Scuba Charters
P.O. Box 255
North Myrtle Beach, SC 29597

Mr. Dave Williams
South Carolina Scuba Center
1514 Highway 501
Myrtle Beach, SC 29577

Mr. Warren Gibson
Myrtle Beach Scuba Center
2718 Highway 501
Myrtle Beach, SC 29577

Jeff Seel
84 Pitt St.
Charleston, SC 29403

Jim Palmer
P.O. Box 39651
Charleston, SC 29407
795-7893

Mr. Mark Newell
SCIAA
1321 Pendleton St
Columbia, SC 29208

Pet Emporium
1551 Hwy 17 Bypass
Mt. Pleasant, SC 29464
881-8401

Ms. Anne Walpole
Roper Hospital
316 Calhoun Street
Charleston, SC 29401
724-2014

Mr. Paul C. McCue
St. Rt. Box 172A
Bluffton, SC 29910
757-2441

April 23, 1990
For Immediate Release

**MARINE ADVISORY BOARD CONSIDERS
REGULATING USE OF BANG STICKS**

CHARLESTON -- Regulations to restrict the use of bang sticks to harvest fish on artificial reefs will be considered at the May 4 meeting here of the Marine Resources Advisory Board to the S.C. Wildlife and Marine Resources Commission.

The Marine Resources Advisory Board will meet at 10 a.m. on Friday, May 4 at the Marine Resources Center at on James Island in Charleston. The meeting is open to the public. Anyone with business for the advisory board should contact Charles Farmer at (803) 762-5016 in Charleston.

In the past year or two, SCUBA divers have begun using "bang sticks" to harvest large amberjack at artificial reefs along the South Carolina coast. "The practice is legal, but it could result in the overharvest of certain fish species and constitutes a commercialization of the reefs which were established to enhance recreational fishing," said Dr. Paul A. Sandifer, director of the Marine Resources Division of the S.C. Wildlife and Marine Resources Department.

A "bang stick" consists of a pistol or shotgun shell mounted on the end of a stick. When a large fish swims close to a diver the device is detonated, killing the fish instantly. Because some fish species are not wary of divers and often approach within easy striking distance, they are very susceptible to this type of gear.

"Bang sticks are much more effective for taking fish than conventional spear guns due to the immediate death of the fish and the

ability to rapidly reload the device," Sandifer said. "Thousands of pounds of fish can be harvested in a day's time by a team of several divers using bang sticks."

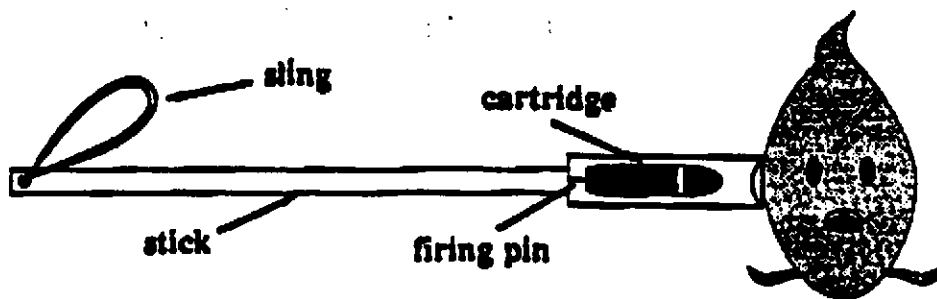
One fisherman reported landing 4,000 pounds of amberjack on one four-day trip using bang sticks. Another fisherman shot 500 pounds in one visit to a wreck off Georgetown.

In several trips to artificial reefs and wrecks during the past year, Marine Resources Division divers have noted large numbers of spent shell casings on the bottom and a near absence of large amberjack in areas where they normally would be abundant.

"There is a growing concern that the use of bang sticks could result in localized overharvesting of certain fish species," Sandifer said. "These artificial reefs were built to enhance recreational fishing, and recent bang stick practices are not consistent with this intended usage."

Since most of the reefs where bang sticks are used are outside state waters, regulating fishing activity on these reefs comes under the jurisdiction of the South Atlantic Fishery Management Council. The Council has established Special Management Zones around certain reefs to regulate the use of fish traps, long-lines, gill nets and trawling. "A ban on the use of bang sticks in the vicinity of reefs would be a logical extension of these existing regulations," Sandifer said.

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Bang Stick

BANG STICKS -- Regulations restricting the use of bang sticks to harvest fish on artificial reefs will be considered in Charleston at the May 4 meeting of the Marine Resources Advisory Board to the S.C. Wildlife and Marine Resources Commission.

A "bang stick" consists of a pistol or shotgun shell mounted on the end of a stick. When a large fish swims close to a diver the device is detonated, killing the fish instantly. Although legal, the use of the bang stick could result in the overharvesting of many fish species. (Illustration by SCWMRD)

BILLING CODE 3510-22

DEPARTMENT OF COMMERCE

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

50 CFR Part 646

[Docket No.]

Snapper-Grouper Fishery of the South Atlantic

AGENCY: National Marine Fisheries Service (NMFS), NOAA,
Commerce.

ACTION: Proposed rule.

SUMMARY: The Fishery Management Plan for the Snapper-Grouper Fishery of the South Atlantic contains a management measure that provides for designating modified habitats or artificial reefs as special management zones (SMZs). This proposed rule would designate eight (8) artificial reefs (ARs) off the South Carolina coast as SMZs and restrict fishing gear in these areas to the use of hand-held, hook-and-line gear (including manual, electric, or hydraulic rod and reel) and spearfishing (excluding powerheads). The intended effect is to promote orderly use of the fishery resources on the AR, to reduce potential user-group conflicts, and to maintain the socioeconomic benefits of the AR to the maximum extent practical.

DATES: Comments on the proposed rule must be received on or before (insert date 30 days after date of publication in the FEDERAL REGISTER).

ADDRESSES: Copies of documents supporting this action may be obtained from the South Atlantic Fishery Management Council, Southpark Building, Suite 306, Charleston, SC 29407-4699.

Comments on the proposed rule should be sent to Peter J. Eldridge, Southeast Region, National Marine Fisheries Service (NMFS), 9450 Koger Boulevard, St. Petersburg, Florida 33702.

FOR FURTHER INFORMATION CONTACT: Peter J. Eldridge,
813-893-3161.

SUPPLEMENTAL INFORMATION: Artificial reefs and fish attraction devices (FADs) are expensive to construct and have limited advantages that can be rapidly dissipated by certain types of fishing gear (e.g. traps harvesting black sea bass from artificial reefs). Fishing gear that offers "exceptional advantages" over other gear to the point of eliminating the incentive for the development of artificial reefs prevents improved fishing opportunities. The intent of a SMZ is to create the incentive to establish artificial reefs and FADs that will increase biological production and/or create fishing opportunities that would not otherwise exist.

Management measure #17 of the Snapper-Grouper FMP (March 1983) is as follows:

"Prohibition or Restraint of Specific Fishing Gear From Artificial Reefs Upon request to the Council from the permittee (possessor of a Corps of Engineers permit) for any artificial reef or fish attraction device (or other modification of habitat for the purpose of fishing) the modified area and an appropriate surrounding area may be designated as a Special Management Zone (SMZ) that prohibits or restrains the use of specific types of fishing gear that are not compatible with the intent of the permittee for the artificial reef or fish attraction device. This will be done by regulatory amendment similar to adding or changing minimum sizes (Section 10.2.3):

1. A monitoring team* will evaluate the request in the form of a written report considering the following criteria:
 - a. fairness and equity
 - b. promote conservation
 - c. excessive shares

*Monitoring Team - The Team will be comprised of members of Council staff, Fishery Operations Branch (Southeast Region, NMFS), and the NMFS Southeast Fisheries Center.

2. At the request of the Steering Committee, the Council Chairman may schedule meetings of the Advisory Panel (AP) and/or Scientific and Statistical Committee (SSC) to review the report and associated documents and to advise the Council. The Council Chairman may also schedule public hearings.

3. The Council, following review of the Team's report, supporting data, public comments, and other relevant information, may recommend to the Southeast Regional Director of the National Marine Fisheries Service (RD) that a SMZ be approved. Such a recommendation would be accompanied by all relevant background data.

4. The RD will review the Council's recommendation, and if he concurs in the recommendation, will propose regulations in accordance with the recommendations. He may also reject the recommendation, providing written reasons for rejection.

5. If the RD concurs in the Council's recommendations, he shall publish proposed regulations in the Federal Register and shall afford a reasonable period for public comment which is consistent with the urgency of the need to implement the management measure(s)."

Objectives are as follows: (1) establish SMZs that prohibit or restrain the use of specific types of fishing gear in order to promote orderly utilization of the resource and reduce user group conflicts, (2) create incentives to establish artificial reefs and fish attraction devices by maintaining the socioeconomic value consistent to the maximum extent practical with the intent of the permittee, and (3) optimize use of biological production and/or create fishing opportunities that would not otherwise exist thereby maintaining and promoting conservation.

Criteria used were: (1) fairness and equity, (2) promote conservation, (3) excessive shares, (4) ensure SMZs are consistent with the objectives of the FMP, the Magnuson Act and other applicable law, (5) consider the natural bottom in and surrounding potential SMZs and impacts on historical uses, and (6) cumulative impacts.

The opportunity to request the Council to designate a SMZ is open to all permit holders and could focus on gear restrictions applicable to any and/or all user groups. This proposed rule concerns a request from South Carolina to restrict fishing on eight (8) ARs to use of hand-held, hook-and-line gear and spearfishing (excluding powerheads or bangsticks).

The artificial reefs in South Carolina are located on an expansive shelf area with large areas devoid of any hard or live bottom. These areas have not supported any significant fisheries in the past. In fact, these large barren areas have limited the development of recreational fishing. By placing artificial reef material in these locations, fishing opportunities that did not previously exist were created.

These locations are not important to the income of commercial black sea bass pot fishermen based on discussions with commercial fishermen and input at the public hearing. These factors indicate that there is general support for the creation of SMZs in South Carolina both among the recreational as well as the commercial sectors. The council approved South Carolina's request

Classification:

The Assistant Administrator for Fisheries, NOAA [Assistant Administrator], has determined that this proposed rule is necessary for the conservation and management of the snapper-grouper fishery and that it is consistent with the Magnuson Act and other applicable Federal law.

The Assistant Administrator determined that this proposed rule is not a "major rule" requiring a regulatory impact analysis under E.O. 12291. This proposed rule, if adopted, is not likely to result in an annual effect on the economy of \$100 million or more; a major increase in costs or prices for consumers, individual industries, Federal, state, or local government agencies, or geographic regions; or a significant adverse effect on competition, employment, investment, productivity, innovation, or the ability of U.S.-based enterprises to compete with foreign-based enterprises in domestic or export markets.

The General Counsel of the Department of Commerce has certified to the Small Business Administration that this proposed rule, if adopted, will not have a significant economic impact on a substantial number of small entities.

This proposed rule does not change any of the factors considered in the environmental impact statement prepared for the FMP or in the environmental assessments prepared for its amendments; accordingly, this action is categorically excluded from the requirement to prepare an environmental assessment, as

specified in NOAA Administrative Order 216-6.

In the final rules implementing the FMP and its amendments, NMFS concluded that, to the maximum extent practicable, the FMP and amendments are consistent with the approved coastal zone management programs of all the affected states. Since this proposed rule, if adopted, does not directly affect the coastal zone in a manner not already fully evaluated in the FMP and amendments and their consistency determinations, a new consistency determination under the Coastal Zone Management Act is not required.

This proposed rule does not contain a collection-of-information requirement subject to the Paperwork Reduction Act.

This proposed rule does not contain policies with federalism implications sufficient to warrant preparation of a federalism assessment under E.O. 12612.

List of Subjects in 50 CFR Part 646

Fisheries, Fishing, Reporting and recordkeeping requirements.

Dated:

For reasons set forth in the preamble, 50 CFR Part 646 is proposed to be amended as follows:

PART 646 - SNAPPER-GROUPER FISHERY OF THE SOUTH ATLANTIC

1. The authority citation for Part 646 continues to read as follows:

Authority: 16 U.S.C. 1801 et seq.

* * * * *

§646.26 Area limitations.

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2. Section 646.26 is amended by adding new paragraphs (a) (22) through (29) to read as follows:

* * * * *

(22) Little River Offshore Reef: The area is bounded on the north by 33°42.10' N latitude; on the south by 33°41.10' N latitude; on the east by 78°26.40' W longitude; and on the west by 78°27.10' W longitude.

(23) BP-25 Reef: The area is bounded on the north by 33°21.70' N latitude; on the south by 33°20.70' N latitude; on the east by 78°24.80' W longitude; and on the west by 78°25.60' W longitude.

(24) Vermilion Reef: The area is bounded on the north by 32°57.80' N latitude; on the south by 32°57.30' N latitude; on the east by 78°39.30' W longitude; and on the west by 78°40.10' W

longitude.

(25) Cape Romaine Reef: The area is bounded on the north by 33°00.00' N latitude; on the south by 32°59.50' N latitude; on the east by 79°02.01' W longitude; and on the west by 79°02.62' W longitude.

(26) Y-73 Reef: The area is bounded on the north by 32°33.20' N latitude; on the south by 32°32.70' N latitude; on the east by 79°19.10' W longitude; and on the west by 79°19.70' W longitude.

(27) Eagles Nest Reef: The area is bounded on the north by 32°01.48' N latitude; on the south by 32°00.98' N latitude; on the east by 80°30.00' W longitude; and on the west by 80°30.65' W longitude.

(28) Bill Perry Jr. Reef: The area is bounded on the north by 33°26.20' N latitude; on the south by 33°25.20' N latitude; on the east by 78°32.70' W longitude; and on the west by 78°33.80' W longitude.

(29) Comanche Reef: The area is bounded on the north by 32°27.40' N latitude; on the south by 32°26.90' N latitude; on the east by 79°18.80' W longitude; and on the west by 79°19.60' W longitude.

* * * * *

3. Section 646.26 (c) (1) is amended by adding new paragraphs (a) (22) through (29).

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4. Section 646.26 (c) (4) is amended by adding new paragraphs (a) (22) through (29).

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