

**AN INDUSTRY WORKSHOP
ADDRESSING BYCATCH ISSUES
IN SOUTHEASTERN
U.S. FISHERIES**

A Report to the National Marine Fisheries Service

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**Gulf & South
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SOUTHEAST U.S. INDUSTRY BYCATCH WORKSHOP

Reducing the current level of bycatch in the nation's fisheries is one of the NMFS's highest research and management priorities as described in the NOAA Rebuild Fisheries portfolio, the 1995-1997 NMFS budget initiatives, and the NMFS Strategic Plan. Bycatch of a species or several species in a fishery is often considered a nuisance, but also can lead to early closures or reduced availability for directed fisheries that target those species. Thus, bycatch has a direct effect on one fishery and an indirect effect on others. This results in an ineffective fishery effort and may lead to economic loss. Additionally, as a result of intensive media attention, there is a growing discontent on the part of the general public and environmental groups with the issue of bycatch; in part this stems from certain misunderstandings of the issue.

This priority has been addressed in recent years in the form of several regional and national workshops and meetings which brought together leaders of industry, non-governmental organizations, academia, and government. In 1992 alone, there was a national industry bycatch workshop in Newport OR, a Center for Marine Conservation sponsored shrimp trawl bycatch workshop in St. Petersburg, FL, and an international conference on shrimp bycatch in Lake Buena Vista, FL, sponsored by Southeastern Fisheries Association. In 1993, a symposium held in New Orleans, LA focused, in part, on bycatch and resulted in the document *"Conserving America's Fisheries: Proceedings of a national symposium on the Magnuson Act. New Orleans, LA March 8-10 1993"*. These efforts were followed up with an industry-based conference in Seattle entitled "Win-Win Bycatch Solutions" in 1994. Also in 1994, as the culmination of the 1992 Portland OR meeting, a benchmark document *"A global assessment of fisheries bycatch and discards"* FAO Fisheries Technical Paper 339 by D.L. Alverson, et. al. became available. During 1995, continued interest and effort focused on bycatch with an "East Coast Bycatch Conference" sponsored by the University of Rhode Island, April 7-8, 1995, and a cooperative industry-government effort "Solving Bycatch Workshop: Considerations for Today and Tomorrow", held in Seattle, WA on Sept. 25-27 1995.

Efforts in the southeast to address a major bycatch issue predate the material above. The shrimp fishing industry of the southeast has developed and used numerous devices over the years to reduce the incidental take of bycatch. The southeast formally began addressing the issue of bycatch in the shrimp trawl fishery in 1990. A Bycatch Steering Committee composed of representatives from commercial and recreational fishing interests, NMFS, universities, state fisheries management agencies, regional marine fisheries commissions, federal fishery management councils, and public environmental organizations cooperatively developed a strategic document - *"A Research Plan Addressing Finfish Bycatch in the Gulf of Mexico and South Atlantic Shrimp Fisheries"*. This document, produced by the Gulf and South Atlantic Fisheries Development Foundation, Inc., was generated with the ultimate goal of providing reliable information which will contribute to adequate management of the fishery resources of the southeastern United States.

This goal is to be achieved through a series of specific objectives designed to reduce finfish bycatch in the shrimp trawl fishery of the southeastern U.S., including:

- 1) development of good characterization database using a standardized protocol
- 2) identification of sources and magnitude of other mortality
- 3) improvement for assessments on fish stocks impacted by fishery
- 4) identification of gear and non-gear options to reduce bycatch
- 5) examination of socio-economic impacts of bycatch and its reduction
- 6) provisions for continued cooperative multi-organizational oversight

This plan, and the subsequent years of research and development that have addressed the issue, exemplifies the growing consensus that although a national strategy is needed, actual approaches to addressing the issues must be performed on a regional level if it is to be successful. Therefore, NMFS asked industry to provide some regional insight and input to a national strategy addressing bycatch. Accordingly, the Alaska Fisheries Development Foundation and the Gulf and South Atlantic Fisheries Development Foundation were asked to convene workshops for this purpose.

In response to this NMFS request, the Gulf and South Atlantic Fisheries Development Foundation, Inc. (Foundation) organized a workshop designed to provide input, perspective, and information from the southeast U.S. industry leadership on regional bycatch issues and how the issues may be addressed in various fisheries. The 1-day workshop, held in Atlanta on 10 October, included participants from various fisheries throughout the southeast U.S. from North Carolina to Texas. Participants and fisheries or regions represented included (* did not attend but provided written statements concerning topic):

Wilma Anderson	Gulf offshore shrimp trawls	Bob Jones*	inshore, nearshore fisheries
Nikki Bane	NMFS Washington	Joe Kimmel	NMFS SE Region
George Barisich	Gulf inshore shrimp trawls	Karl Lessard	lobster traps
Steve Branstetter	shark longlines, shrimp trawls	Corky Perret	LA fisheries
Julius Collins	Gulf offshore shrimp trawls	Robin Peuser	ASMFC
Richard Condrey	purse seines	Jerry Sansom	nets, reefish, fish traps
Jack Dunnigan	ASMFC	Jerry Schill	NC fisheries
Gary Graham	Gulf Sea Grant	Wally Shaffer	S. Atlantic shrimp trawls
Dave Harrington	S. Atl. Mar. Ext. Serv.	Larry Simpson	GSMFC
Marty Harris	fish traps	Bob Spaeth	reeffish longlines, fish traps
John Hoey*	pelagic longlines	Brad Warren	Fisheries Mgmt. Fndn.
Judy Jamison	coordinator	Kay Williams	bandit and longline

Topics were focused according to gear types including shrimp trawls, longlines (reeffish, shark, oceanic pelagics), hook-and-line or bandit reels, traps (lobster, crab, fish), and entanglement or encirclement nets. In order to expedite the proceedings, prior to the meeting, participants were asked to contact the fishers and other concerned parties related to the geographic region or fishery they represented to accurately relay

industry concerns and information. Additionally, participants were to provide reference to available studies and databases (or management plans) concerning bycatch in their respective fisheries. Specific objectives for consideration were to:

- 1) provide an identification of bycatch and the magnitude of bycatch in various fisheries
- 2) identify past and current efforts to reduce the level of bycatch, or attempts to utilize such bycatch;
- 3) note the effectiveness and acceptability of current alternatives to solve bycatch problems;
- 4) identify potential new methodologies to reduce bycatch;
- 5) identify methods to transfer information concerning the need and efficiency of bycatch reduction efforts; and
- 6) identify barriers that prohibit industry from addressing these issues without outside assistance.

To work from common perspectives, participants were asked to define bycatch in specific fisheries from the following list of categories. There have been several lists produced in the past as to categories and types of bycatch, and this list was not intended to replace them, but to serve as a focal point for discussion. For all of these, there is a *perceived* and/or *biological* impetus to address the issue.

I. Discards (environmental or fishery concerns)

a. Regulatory discard

- i. under/over-size target species
- ii. protected or illegal retention species

b. Voluntary discard

- i. unmarketable, non-target
 1. no economic value, but ecological value for biodiversity
 2. value to other fisheries either immediately or later
- ii. low value, target (highgrade)

II. Incidental Catch and Retain (economic or allocation concerns)

a. non-competitive/no allocation conflict

b. competitive/allocation conflict

- i. commercial vs. recreational
- ii. commercial vs. commercial {vs. recreational}

In addition, participants were provided with a brief overview of the general concepts outlined in a draft National Bycatch Strategy document, authored by B. Warren and D. Alverson. This document notes four concepts to framing a national bycatch strategy:

- 1) cultivate leadership and expand problem-solving capacity
- 2) coordinate and expand investment in bycatch problem-solving efforts, both nationally and internationally
- 3) increase technical and policy talent pool
- 4) develop outreach and communication strategies to improve public awareness of industry and government efforts

and outlines 10 possible steps to address these concepts:

- 1) **Scientific priority setting** -- prioritize by biological urgency
- 2) **Management priority setting** -- prioritize by management capacity
- 3) **Complete data base** -- lack of data hinders true understanding and leads to misunderstandings
- 4) **Individual responsibility** -- reliable catch accounting
- 5) **Home-grown solutions** -- reward and stimulate initiatives from within industry
- 6) **Long-term work** -- develop a national secretariat (steering committee)
- 7) **Global clearinghouse** -- develop a library of information for dissemination
- 8) **Waste reduction** -- better utilize underutilized spp.
- 9) **Reclaim S-K** -- national effort can refocus S-K efforts and distributions
- 10) **Regulatory roadblocks** -- reform laws that impede progress of bycatch reduction

RESULTS

Overview - In most instances, participants felt that there was a database that accurately reflected the characterization of their fishery. Common needs or concerns often centered on the accuracy of stock assessment parameters currently being used or parameters not being used, especially concerning sources and magnitudes of mortality associated with activities other than commercial fishing, both for the targeted species and bycatch species. Questions raised at the workshop often focused on the conflicting indications of stock health, based on the variability in stock assessments, and thus the appropriateness of current management strategies versus rejected alternatives. Participants noted that in many fisheries bycatch is negligible, released alive, or is a requirement from regulatory discard. There was a concern that non-biological issues often drive the system; even if there is no known or suspected negative impact on the bycatch stock, user group conflicts (perceived or real) often elevate the priority of addressing the issue. Relatedly, common concerns among all participants were the misunderstandings, mis-information, and misuse of information in portrayals of the various fisheries as related to bycatch. As such, there was a recognized need to provide better transfer of accurate information by scientists, management, and industry to the general public concerning bycatch. For example questions such as what is bycatch, what has been accomplished to reduce bycatch, and the actual biological effects on the bycatch stock(s) need to be answered. Highlights of the meeting are presented below by fishery application:

SHRIMP TRAWLS - The shrimp industry representatives acknowledged that shrimp trawls may at times take a large percentage of bycatch, but that the impact of this take on the various bycatch stocks is poorly documented. Representatives also pointed out that following a comprehensive study performed cooperatively between the NMFS, industry, and other organizations (refer to NOAA/NMFS document - *Cooperative Research Program Addressing Finfish Bycatch in the Gulf of Mexico and South Atlantic Shrimp Fisheries: A Report to Congress, April 1995*) that the often-quoted historical characterization of the fishery was inaccurate for current fishing efforts. The bycatch to shrimp ratios currently documented for the fishery are about 5:1 in the Gulf of Mexico and 4:1 in the South Atlantic. Finfish comprise about

68% of the catch in the Gulf of Mexico (4:1 finfish to shrimp ratio), and finfish only comprise about 47% of the catch in the South Atlantic (2:1 finfish to shrimp ratio). These values are in stark contrast to the often-quoted values of 10:1 ratios derived from historical fishery-independent surveys.

Industry representatives pointed out that shifts in the bycatch ratios over time are most likely attributable to changes in fishing practices and technology. Of especial note here is the contribution of TEDs to bycatch reduction in addition to their efficiency at excluding turtles. Other factors that limit the overall impact of bycatch on the various finfish stocks include a reduction in the number of vessels in the fleet and a reduction in trawlable area throughout the southeast. Even though there is a bycatch associated with each vessel's efforts, the cumulative impact on fish stocks is reduced.

Relatedly, industry representatives were extremely concerned about the current values used to estimate effort in the shrimp fishery. Accurate effort values are critical in assessing the impact of recreational and commercial bycatch mortality on finfish species such as red snapper, king mackerel, Spanish mackerel, and weakfish. This is especially true considering that all of these species are very rarely taken in shrimp trawls on a unit-of-effort basis. However, extrapolations derived from multiplying effort by catch rates result in impressively large numbers of individuals taken. Errors in these effort calculations, especially within certain cells of the matrix, could have substantial impacts on the stock assessments for these species.

Industry representatives were quick to note that reductions in bycatch over time have not been appropriately recognized. Additionally, they felt that certain information concerning bycatch was being misused, especially concerning the percent contribution or actual numbers of individuals of finfish taken relative to other sources of mortality. As is pointed out in the NMFS Report to Congress (p.27-8) "*While knowing the total shrimp trawl bycatch for a given species is important, that estimate becomes meaningful only (underline emphasis occurs here only) when considered in the context of the species' overall stock size, its bycatch by age class, and the magnitude of shrimp bycatch relative to other sources of directed or non-directed fishing mortality.*"

Relatedly, in example, there is a high level of effort in the inshore waters of Louisiana; very productive estuarine nursery ground for many species. However, a 24-year ongoing study by the state's resource management agency indicates that there has been no decline in abundance indices for juveniles of many common fish species.

It was generally agreed that there needs to be a better effort at disseminating factual, pertinent, and relevant information to interested parties concerning bycatch in this fishery and the impacts on bycatch stocks. This dissemination should include discussion of the impetus behind the bycatch concerns: whether it is a documented biological problem, an allocation concern, or a general environmental concern where no

real biological or fishery impact is detectable. This effort needs to be provided by an impartial source that would not be perceived to have a conflict of interest.

It is pertinent here to note that the Foundation recently submitted a proposal for consideration of Saltonstall-Kennedy monies to perform a wide-scale information transfer program concerning the bycatch issue in the shrimp fishery. This was done in anticipation of the completion of the 4-year multi-organizational cooperative regional bycatch reduction program for this fishery. The proposal did not receive high review scores, nor was it funded. This appears to be extremely counter-productive; after spending nearly \$10 million on a region-wide program, no funds have been made available to provide this information to the public, user groups, or other interested parties.

LONGLINES (reeffish, sharks, oceanic pelagics) - All participants noted that an extensive historical and/or recent observer program database exists to document the catch in these fisheries. In general, all fisheries have been documented to have a relatively low bycatch rate; the major "bycatch" is undersized target species which, in some cases, are regulatory discards. Much of the unwanted "bycatch", whether a regulatory discard or unmarketable species, is brought to the boat alive, and is released. Bycatch mortality for all of these fisheries would be considered minimal compared to other sources of mortality on the various stocks in question.

Reeffish: Approximately 56% of the catch is retained for sale; 28% is discarded alive, 9% is used for bait, 5% is discarded dead, and 2% are discarded alive with an "unknown fate". The dead discard represents a minimal mortality compared to other sources of mortality on these various fishes. The alive discard consists primarily of undersized red grouper (the primary target species) of which 93% are released alive; there is a maximum of 20% subsequent cryptic mortality on these released fish. Because fishing is allowable in only a very restricted area, it is impossible under current management strategies to shift effort to other depths or areas to reduce this "bycatch" further. Thus, industry representatives asserted that to better address the bycatch issue, a re-examination of alternative management strategies was needed.

Shark: Approximately 75% of the total catch is comprised of targeted large-coastal species, and 21% are small-coastal species; the remaining catch is a diverse group of fishes. This catch is either retained for sale, released alive, or used for bait. There is a very minimal discard of dead animals, and this mortality would be negligible as a percent of total mortality from all sources (natural and fishing). Of the large-coastal category of sharks caught, 75% are retained, about 15% are released alive, and the remainder are used for bait. There are some potential alternatives to reducing the catch of unwanted large coastal species (including juveniles of the desired target species), although current practices of releasing the vast majority of these individuals alive should have little impact on stock.

Oceanic Pelagics: This multi-species fishery keeps about 50% of the catch; another 5-20% of the targeted catch is discarded dead because of damage (from whales and sharks), and thus is unmarketable; the remainder are untargeted species, of which about half are released alive. Four fish species account for 82% of this portion of the catch (excludes swordfish, tuna, marlin). Of particular concern is the catch of marlins; a highly prized recreational fish. Marlins comprise 5% or less of the catch by number, and as much as 50% of these are released alive. The remainder contribute to a mortality that would be a very minor component of total fishing mortality on these stocks. Additionally, pending regulations should markedly alter fishing practices and catches, with a reduction in the amount of bycatch taken.

HOOK-&-LINE or BANDIT REELS - Bandit fishing discussions focused on 2 species in 2 regions: red grouper off of west Florida, and red snapper in the northwest Gulf of Mexico. In a recent observer survey, in the red grouper fishery, 51% of the fishes caught were kept for sale, 35% were released alive, 9% were used for bait, and 5% were discarded dead. In the snapper fishery, 46% were kept, 47% were released alive, and 6% were dead. Given that regulatory discard has an associated mortality with it, as with other reef fish stocks which are managed by size limits, a major concern of industry representatives was the need to re-examine alternative management strategies.

Industry representatives pointed out that there are substantial recreational fisheries, especially for red snapper, and that in recent years, the recreational fishery has exceeded its allowable take by substantial amounts. In addition, the mortality associated with catch-and-release snapper in the recreational sector is poorly documented. Also, there is still a need to better document the function of artificial reefs: do they actually increase productivity by providing additional space for these space-limited species, or do they simply increase accessibility to fishery efforts? If the latter, there is a potential for long-term negative impacts on the stock, instead of benefits. Also, industry representatives were concerned about the continuing demolition of oil platforms with explosives; this may be providing a substantial impact on reef-associated finfish species. In comparison to the combined impact of these other mortality sources, bycatch mortality from commercial fishery sources are minimal.

TRAPS (lobster, crab, fish) - For both spiny lobster and stone crab trap fisheries of Florida, there has been considerable characterization work completed on the fisheries. In both instances, bycatch is low, comprised often of regulatory discards. Other bycatch, such as finfish, are usually released alive. For example, in a recent survey of the lobster fishery only 22 dead individuals of various fish and invertebrates species were found in 22,100 traps. Both fisheries have recently undergone reductions in effort through limitations on numbers of traps that can be fished, available licenses, and the fishing methodologies allowed (constant tending, etc.).

Representatives noted that there is a negative perception of these fisheries because of the problem with "ghost" (lost) traps. Recent regulations, such as tending traps, have reduced this problem, and all traps have some kind of escape panels (biodegradable, etc.) incorporated into the designs.

As with most other fisheries, it was generally agreed that there was a need for image enhancement and better understanding by the public concerning these fisheries.

ENTANGLEMENT OR ENCIRCLEMENT NETS - This is perhaps the most controversial of all fishing gears discussed during the workshop. Primarily operated in state waters, this kind of fishing gear has been targeted for elimination or severe reduction in several southeastern states; several successfully. Industry leaders were unanimous in their assertions that these net bans have been driven by user allocation conflicts and perception problems. Even where characterization data were available and appropriate management groups had indicated no biological benefit to the stocks would be achieved through total net bans, the proponents of such bans, through often questionable tactics, achieved their goals of convincing the public of the need for these bans. This further demonstrates the inadequacies of the current information transfer system.

It was recognized that entanglement netting is now nearly extinct as a form of commercial fishing, but all representatives noted that a better information transfer system was needed.

Gulf menhaden purse seines - This is the largest fishery, by volume, in the southeast; bycatch, as a percent of number or weight, is low. In a 1992 study, 47% of the sets observed had no bycatch in the samples, and in a follow-up 1994 study 29.5% of the sets sampled contained no bycatch. Using several methods to characterize the bycatch, the highest value for any stratification cell was about 5%; most were 1% or less. These discards in the samples ranged from single individuals to tens of individuals; rarely did large numbers of any bycatch occur. The authors of this study did note however, that due to size of the fishery, large numbers of individuals may be taken, and the impacts on these stocks need additional consideration. The industry is currently evaluating the effectiveness of its bycatch reduction devices and is considering modifications which would further reduce bycatch retention and mortality.

CONCLUSIONS

It was the general consensus among the participants that, except for shrimp trawls, the other fisheries examined had a very minimal bycatch as a percentage of total catch, and mortality associated with this bycatch (or regulatory discard) was minimal compared to other sources of mortality. In the shrimp fishery, although bycatch may be a substantial percent of the catch, there has been a substantial reduction in actual

quantities of bycatch taken because of major modifications in gear technology and fishing practices in the last 10 years.

One overriding concern among all participants was the current negative perception of the US fishing industry among the general public. This negative perception is confounded by the limited access and ability of industry to successfully transfer positive information concerning the positive aspects of fisheries to the general public or other interested groups. Industry needs greater access to the general public and special interest groups to provide accurate information concerning the fisheries. Currently, even when opportunities exist to reach the public, most statements arising from industry are received with skepticism.

Perhaps the largest issue surrounds the shrimp trawl fishery. Quoting from material provided by Mr. William "Corky" Perret, which will be included in the proceedings of the Seattle workshop:

"While some previous studies suggest that trawl bycatch has had little effect on fish populations and the CPUE data from LDWF's inshore trawl monitoring program shows no long term detrimental biological effects on estuarine species, it does present serious problems due to the sociological and political consequences, perceived or real. Today, there is much criticism of the commercial fishing industry due to the bycatch issue. The industry must view itself as others see it, and must provide facts to help document its cause and combat misleading information."

It has become apparent that, in many cases, the bycatch issue is being driven by perception, and because of this negative perception, ample opportunity exists for those with opposing agendas to exploit the issue. To be able to reduce bycatch is a desirable goal, and should be a goal of a truly environmentally-aware commercial industry; if for no other reason, such efforts may contribute to sustainability of future harvests. However, according to sources available to industry it appears that except in the unusual case of a few finfish species, there are no documented negative impacts on fish stocks because of bycatch, and this point needs to be made clear. The bycatch issue in most cases is a perception issue, *not* a biological issue. This issue has spawned a flood of negative press and anti-commercial sentiment; that does not mean that it shouldn't be addressed, but it should be prioritized accordingly.

To accomplish this, the draft national strategy document makes several very valid points concerning data and the ability to counteract false claims. The document notes that in the absence of reasonable data, public debate goes awry and allocative concerns contaminate the issue. Thus, some perceived problems receive inordinate attention and priority while genuine problems go ignored. To avoid this, issues need to be prioritized. This serves two purposes (1) guide public and private investment in research, and (2) inform all parties as to which areas merit serious attention and which may be addressed at a later date.

Once priorities are established, and a firm database exists to document the prioritization and identification of the issue, it will be possible to confront false or misleading allegations and claims by anti-commercial groups. Misinformation causes problems for industry, management and conservation communities alike.

Using such tactics, the management system is being bypassed in order to completely transfer fishing opportunity from one user group to another. Only through the cooperative efforts of all concerned - industry, other user groups, non-governmental organizations and special interest groups, researchers, and management agencies, can such flagrant misuse of public resources be eliminated.

These concerns amply exemplify the need to establish and proceed with the 10 steps outlined in the draft national strategy to address this issue, both on a regional and national basis.

In summary, there appears to be several major points for consideration:

- 1) there is a desperate need to separate fact from fiction concerning bycatch in southeastern fisheries especially concerning ecological ramifications**
- 2) there is a need to prioritize bycatch issues as to "perceived need" vs "real need"**
- 3) to reduce bycatch in many fisheries caused by regulatory discard, there will be a need to re-examine alternative management strategies, and**
- 4) to best provide adequate information transfer will require cooperation among all interest and user groups, and that transfer will be best achieved when performed by an independent source**

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