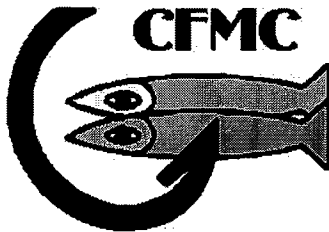


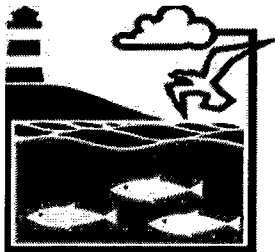
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**PUBLIC HEARING DRAFT  
AMENDMENT 4 TO THE  
FISHERY MANAGEMENT PLAN  
FOR THE SPINY LOBSTER FISHERY OF  
PUERTO RICO AND THE U.S. VIRGIN ISLANDS  
AND AMENDMENT 8 TO THE SPINY LOBSTER  
FISHERY MANAGEMENT PLAN OF THE  
GULF OF MEXICO AND SOUTH ATLANTIC  
(Including the Draft Environmental Impact Statement, Regulatory Impact Review,  
and Initial Regulatory Flexibility Analysis)**

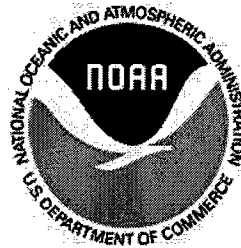
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## **ACRONYMS/ABBREVIATIONS**

ABC	acceptable biological catch
ACOE	Army Corps of Engineers
ADCNR, MRD	Alabama Department of Conservation and Natural Resources, Marine Resources Division
AFS	American Fisheries Society
ALK	Age Length Key
APA	Administrative Procedure Act
AP	advisory panel
ASA	American Soybean Association
ASAP	Age Structured Assessment Program
ASMFC	Atlantic States Marine Fisheries Commission
ASPIC	Stock Production Model
ATCA	Atlantic Tuna Convention Act
B	Biomass
B <sub>CURRENT</sub>	current biomass of stock
B <sub>MSY</sub>	Biomass at MSY
BOD	Biological Oxygen Demand
BRD	bycatch reduction device
CFMC	Caribbean Fishery Management Council
CFR	Code of Federal Regulations
COE	Corps of Engineers (Same as ACOE)
ComFIN Council	Commercial Fisheries Information Network Gulf of Mexico Fishery Management Council
CPUE	catch per unit effort
CL	Carapace Length
CSL	Caribbean Spiny Lobster
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DEIS	draft environmental impact statement
DO	dissolved oxygen
DOC	U. S. Department of Commerce
DOI	Department of Interior
DPS	distinct population segment
DQA	Data Quality Act
EA	environmental assessment
EEC	European Economic Community
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EFP	exempted fishing permit
EIS	Environmental Impact Statement
ELMR	Estuarine Living Marine Resources
E.O.	Executive Order
EPA	Environmental Protection Agency
EPIRB	Emergency Position Indication Radio Beacon
ESA	Endangered Species Act

F	instantaneous fishing mortality rate
FACA	Federal Advisory Committee Act
FAO	Food and Agriculture Organization (United Nations)
FCZ	fishery conservation zone (is now called EEZ)
FDACS	Florida Department of Agricultural and Consumer Services
FDEP	Florida Department of Environmental Protection
FDCA	Federal Drug and Cosmetic Act
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FKNMS	Florida Keys National Marine Sanctuary
FL	fork length
FMP	fishery management plan
FMRI	Florida Marine Research Institute
F <sub>MSY</sub>	Fishing Mortality Rate Yielding MSY
FMU	fishery management unit
FWC	Florida Fish and Wildlife Conservation Commission
FWRI	Fish and Wildlife Research Institute
GC	general counsel
GCSE	General Counsel Southeast Region
GLM	general linear model
HAPC	Habitat Areas of Particular Concern
HMS	Highly Migratory Species
HPUE	Harvest per unit effort
HSI	Habitat Suitability Index
ICCAT	International Commission on Conservation of Atlantic Tunas
IFQ	Individual Fishing Quotas
IPT	Inter-Disciplinary Project Team
IRFA	initial regulatory flexibility analysis
ITQ	individual transferable quota
LE	Law Enforcement
LEAP	Law Enforcement Advisory Panel
M	instantaneous natural mortality rate
MARFIN	Marine Fisheries Initiative
MDMR	Mississippi Department of Marine Resources
MFMT	Maximum Fishing Mortality Threshold
MMPA	Marine Mammal Protection Act
MMS	Minerals Management Service
MP	million pounds
MPA	Marine Protected Area
MRAG	Marine Resources Assessment Group Americas Corporation
MRFSS	Marine Recreational Fishery Statistics Survey
MSAP	Mackerel Stock Assessment Panel
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act)
MSST	Minimum Stock Size Threshold
MSY	maximum sustainable yield
MT	million metric tons



MYPR	maximum yield per recruit
NEPA	National Environmental Policy Act
NGO	non-governmental organization
NMFS	National Marine Fisheries Service
NMSA	National Marine Sanctuaries Act
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	Same as NMFS
NOS	National Ocean Service
NPDES	National Pollutant Discharge Elimination System
OIE	Office of International Epizootics
OMB	Office of Management and Budget
OCSLA	Outer Continental Shelf Lands Act
OSP	Optimum Sustainable Population Level
OY	optimum yield
PBR	potential biological removal level
PEIS	Programmatic Environmental Impact Statement
ppm	parts per million (e.g., oxygen)
ppt	parts per thousand (salinity)
RA	Regional Administrator of NMFS
RDSAP	Red Drum Stock Assessment Panel
RecFIN	Recreational Fisheries Information Network
RFA	Regulatory Flexibility Act
RFSAP	Reef Fish Stock Assessment Panel
RIR	regulatory impact review
RSW	running sea water system
SAFMC	South Atlantic Fishery Management Council
SAP	stock assessment panel
SARP	Southeast Aquatic Resources Partnership
SAV	Submerged Aquatic Vegetation
SBA	Small Business Administration
SEAMAP	Southeast Area Monitoring and Assessment Program
SEDAR	Southeast Data Assessment Review (stock assessment)
SEFSC	Southeast Fisheries Science Center of NMFS
SEIS	supplemental environmental impact statement
SEP	Socioeconomic Panel
SERO	Southeast Regional Office (NMFS)
SFA	Sustainable Fisheries Act
SMZ	special management zone
SOPPs	Statement of Organization Practices and Procedures
SPL	saltwater products license (FL)
SPR	spawning potential ratio
SSB and SS	spawning stock biomass
SSB/R	spawning stock biomass per recruit
SSC	Scientific and Statistical Committee
TAC	total allowable catch
TED	turtle excluder device

TEWG	turtle expert working group
TL	Tail Length
TOC	total organic carbon
TSV	Taura Syndrome Virus
TW	Tail Weight
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VPA	virtual population analysis
WSSV	white spot syndrome virus
YPR	yield per recruit
Z	instantaneous total mortality rate

## **DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS) COVER SHEET**

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#### **Name of Action**

Amendment 4 to the Spiny Lobster Fishery Management Plan of Puerto Rico and the U.S. Virgin Islands and Amendment 8 to the Spiny Lobster Fishery Management Plan of the Gulf of Mexico and South Atlantic.

#### **Type of Action**

Administrative  
 Draft

Legislative  
 Final

#### **Abstract**

The United States is a major importer of spiny lobster, importing over 88,000 tons (over 194 million lbs) over the past 10 years, worth an estimated \$2.27 billion dollars. The United States imports over 90% of the spiny lobster harvested in South and Central America and the Caribbean countries. The major exporters to the United States are the Bahamas, Brazil, Honduras and Nicaragua. All of these exporting countries have some form of minimum size requirement, but they are not standardized and enforcement is severely lacking. Therefore, NOAA Fisheries Service in coordination with the Caribbean, South Atlantic, and Gulf of Mexico Fishery Management Councils considering minimum conservation standards on imports to curtail the flow of undersized lobster harvested in foreign countries. Eliminating the primary market for undersized lobster is expected reduce the harvest of undersized animals and increase the spawning stock biomass and long-term potential yield within the pan-Caribbean spiny lobster fishery.

## **FISHERY IMPACT STATEMENT – SOCIAL IMPACT ANALYSIS**

This integrated document contains all elements of the Plan Amendment, Draft Supplemental Environmental Impact Statement (DSEIS), Initial Regulatory Flexibility Analysis (IRFA), Regulatory Impact Review (RIR), and Social Impact Assessment (SIA)/Fishery Impact Statement (FIS). A table of contents for the SIA/FIS is provided separately to aid reviewers in referencing corresponding sections of the Amendment.

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### **INTRODUCTION**

Mandates to conduct Social Impact Assessments come from both the National Environmental Policy Act (NEPA) and the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). NEPA requires federal agencies to consider the interactions of natural and human environments by using a “...systematic, interdisciplinary approach which will ensure the integrated use of the natural and social sciences...in planning and decision-making” [NEPA section 102 (2) (a)]. Under the Council on Environmental Quality’s (CEQ, 1986) Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act, a clarification of the terms “human environment” expanded the interpretation to include the relationship of people with their natural and physical environment (40 CFR 1508.14). Moreover, agencies need to address the aesthetic, historic, cultural, economic, social, or health effects which may be direct, indirect or cumulative (Interorganizational Committee on Guidelines and Principles for Social Impact Assessment, 1994).

Recent amendments to the Magnuson-Stevens Act require FMPs address the impacts of any management measures on the participants in the affected fishery and those participants in other fisheries that may be affected directly or indirectly through the inclusion of a fishery impact statement [Magnuson-Stevens Act section 303 (a) (9)]. Most recently, with the addition of National Standard 8, FMPs must now consider the impacts upon fishing communities to the extent practicable to assure their sustained participation and minimize adverse economic impacts upon those communities [Magnuson-Stevens Act section 301 (a) (8)]. Consideration of social impacts is a growing concern as fisheries experience increased participation and/or declines in stocks. With an increasing need for management action, the consequences of such changes need to be examined to minimize the negative impacts experienced by the populations concerned to the extent practicable.

### **DATA LIMITATIONS AND METHODS**

Social impacts are generally the consequences to human populations that follow from some type of public or private action. Those consequences may include alterations to “...the ways in which people live, work or play, relate to one another, organize to

meet their needs and generally cope as members of a society...” (Interorganizational Committee on Guidelines and Principles for Social Impact Assessment, 1994:1). In addition, included under this interpretation are cultural impacts that may involve changes in values and beliefs, which affect the way people identify themselves within their occupation, communities and society in general. Social impacts analyses help determine the consequences of policy action in advance by comparing the status quo with the projected impacts. Therefore, it is important that as much information as possible concerning a fishery and its participants be gathered for an assessment.

It is important to identify any foreseeable adverse effects on the human environment. With quantitative data often lacking, qualitative data can be used to provide a rough estimate of some of the impacts based on the best available science. In addition, when there is a body of empirical findings available from the social science literature, it needs to be summarized and referenced in the analyses.

### **SUMMARY OF SOCIAL IMPACT ASSESSMENT**

This section will be completed when preferred alternatives are selected.

## 1.0 EXECUTIVE SUMMARY

Fisheries for spiny lobster (*Panulirus argus*) exist throughout its range in the Caribbean and tropical western Atlantic. Foreign and U.S. scientists and fisheries managers all concur the Caribbean spiny lobster is fully exploited or over-exploited in much of its range (Cochrane and Chakalall 2001). Spiny lobsters are being harvested below the respective Continental and Caribbean U.S. minimum size limits; this is adversely impacting recruitment throughout Florida and the Caribbean because of the distribution and dispersal of larvae during their long larval phase. A reduction of effort on undersized lobster and a more comprehensive enforcement tool would increase spawning stock biomass and increase potential yield. The lobster seafood industry has even recognized this fact and has asked respective governments to address the illegal harvest and exportation of undersized lobster tails to the United States.

This Amendment/EIS will examine two actions with various alternatives to restrict imports of spiny lobster into the United States to minimum conservation standards to achieve an increase in the spawning biomass of the spiny lobster stock and increase long-term yields from the fishery. Limiting Caribbean spiny lobster imports to a uniform minimum size that protects juvenile spiny lobsters would help stabilize the reproductive potential of the Caribbean spiny lobster by reducing the amount of juvenile spiny lobster mortality in foreign fisheries. Such action would result in the harvest of larger lobsters in exporting countries and approximately 50 percent of these larger lobsters will be capable of spawning, thus increasing the probability of dispersal of Caribbean spiny lobster larvae throughout the species' range. Scientists state that the harvest of juvenile tails in other Caribbean countries impacts the sustainability of U.S. lobster stocks because these harvesting countries produce the parental stocks and larvae for the U.S. stocks. In other words, if you destroy brood stock off the coast of Latin America, you effectively destroy the fisheries of other countries, regardless of the management schemes in those countries. This animal is an example of a shared resource in that it has no national boundaries because of its dependency on the ocean currents for its larval distribution.

Action 1 is intended to improve the status of the spiny lobster stock pan-Caribbean by providing an incentive for foreign nations to implement conservation standards designed to protect the spawning stock and therefore the reproductive ability of the spiny lobster population. The most effective means for creating this incentive is to improve NOAA law enforcement's (LE) capabilities in preventing undersized lobster from being imported to the United States and eliminating the market for undersized lobster tails. By implementing an import restriction on size, LE will be more capable of tracking undersized lobster shipments and developing criminal cases against suspected importers of undersized lobster, thus eliminating the market for undersize lobster tails.

Action 2 is designed to: 1) provide further protections to undersized lobsters, and 2) protect berried (egg-bearing) females. If any importation conservation standards are to have the desired effect, then the trade in "lobster meat" must be stopped to close the potential loophole of harvesting undersize lobster, processing it into meat, and then making it available in the market. Unshelled lobster tail meat shipped in its bulk raw

form cannot be accurately measured and this practice has been performed by unscrupulous lobster exporters / importers to thwart law enforcement's efforts to regulate a minimum size. The protection of berried females (or those that were, prior to being stripped) is imperative if the minimum conservation sizes are implemented in order to protect the spawning stock biomass; if no protections are afforded to the females as they are actively reproducing, then all benefits from increasing the spawning stock biomass have been lost. Both of these actions will aid in increasing the spawning stock biomass and protecting the spiny lobster resource.

## **2.0 INTRODUCTION**

### **2.1 Background**

The Caribbean spiny lobster (*Panulirus argus*) has a relatively long planktonic larval phase, which is referred to as the puerulus stage. Planktonic larvae are widely dispersed by ocean currents before they settle and recruit to a specific habitat. The long larval duration for spiny lobsters accounts for connectivity from their source areas to their settlement areas. Recruitment is dependent on environmental conditions, such as temperature and salinity, and on the availability of spawning adults, which is influenced by fishery factors, such as fishing pressure and minimum size limit compliance. These fishery factors can be affected by having an adequate regulatory program to protect spiny lobster (e.g., size limits and protections for berried females) and having adequate enforcement of the program. Studies also have shown local gyres or loop currents in certain locations could influence the retention of locally spawned larvae. In addition, benthic structures such as coral reefs may disturb the flow of water and lead to the settlement of larvae in a particular location (Lee et. al. 1994).

Most of the Caribbean spiny lobster research has been conducted on the Florida population, but the interconnectivity issue also has been studied in the Caribbean region and is recognized and discussed in the Caribbean Council's Spiny Lobster Fishery Management Plan. Caribbean spiny lobster ranges throughout the western Atlantic Ocean from North Carolina to Brazil, including Bermuda, the Bahamas, and all of the Caribbean and Central American areas in between (Hernkind 1980). DNA analysis indicates a single stock structure for the Caribbean spiny lobster (Lipcius and Cobb, 1994; Silberman and Walsh 1994) throughout its range.

Some Caribbean spiny lobster fisheries managed by other countries (i.e., Brazil, Nicaragua, and Ecuador) are reportedly heavily exploited. These countries export millions of pounds of lobsters to the United States that are at or below their mean size at reproduction. Overexploiting spiny lobster stocks in foreign fisheries could jeopardize the abundance and structure of U.S. stocks because the larval recruitment of U.S. stocks is dependent on the reproductive potential of stocks managed by other countries. The potential for overfishing the Caribbean spiny lobster is relatively high because a lucrative market exists for all sizes of this species. Approximately 90 percent of the Caribbean spiny lobster marketed in the United States is harvested by foreign fisheries managed by Central and South America countries.

Limiting Caribbean spiny lobster imports to a uniform minimum size that protects juvenile spiny lobsters would help stabilize the reproductive potential of the Caribbean spiny lobster by reducing the amount of juvenile spiny lobster mortality in foreign fisheries. Such action is expected to result in the harvest of larger lobsters in exporting countries and approximately 50 percent of these larger lobsters will be capable of spawning, thus increasing the probability of dispersal of Caribbean spiny lobster larvae throughout the species' range. Scientists state that the harvest of juvenile tails in other Caribbean countries impacts the sustainability of U.S. lobster stocks because these harvesting countries produce the parental stocks and larvae for the U.S. stocks. In other words, if you destroy brood stock off the coast of Latin America, you effectively destroy the fisheries of other countries, regardless of the management schemes in those countries. This animal is an example of a shared resource in that it has no national boundaries because of its dependency on the ocean currents for its larval distribution.

There are two main issues associated with addressing the importation of undersize lobsters. First is the importation of lobsters which are below the domestic size limits, and concurrently the mean size at sexual maturity, which were legally harvested in another nation's waters. Second is the importation of lobsters below the domestic size limit, which were illegally harvested in violation of harvest restrictions in other nations. This second activity is already illegal, as the Lacey Act prohibits the importation of lobster harvested in violation of the laws of another nation.

Establishing a minimum size for imports would address both of these issues. By restructuring the importation of lobsters smaller than the domestic size limit, it will severely limit, if not eliminate, the market for legally and illegally harvested undersized lobster. This is expected to serve as an incentive for countries that do not currently have such measures to implement consistent size limits in order to protect juvenile lobster.

Establishment of a uniform minimum size for spiny lobsters imported to the U.S. would assist law enforcement officers in restricting illegal product in the market. The "big four" exporters to the United States are the Bahamas, Brazil, Honduras, and Nicaragua. All these countries have some form of minimal size limit for the Caribbean spiny lobster, but unfortunately this size limit is not standardized. Furthermore, exporting countries do not have the law enforcement resources to effectively monitor shipments to the United States.

The United States imports millions of dollars of undersized lobster each year. Most of these imports go undetected because of the enforcement loopholes that exist for international poachers. These loopholes include: (a) the lack of a U.S. minimal size limit that is applicable for all imports; (b) the use of secretive codes to disguise the undersized lobster tail shipments; (c) the increased use of "trans-shipments through countries of convenience" (i.e. shipping illegal product thru countries that have weaker lobster laws and changing the country of origin to avoid investigators); and (d) shipping the illegal tails to U.S. ports, where inspectors are not as savvy to the lobster smuggling issues.

Minimum size limits are typically used to protect the breeding stock in a fishery, and are often defined at a size that will allow individuals in a population the opportunity to breed



at least once before being subject to harvest. The 3 inch (7.6 cm) carapace length (CL) minimum size limit restriction on imports that is currently being considered by the three regional Fishery Management Councils and NOAA Fisheries Service would provide about 50 percent of spiny lobsters the opportunity to spawn at least once before they can be landed by a fishery (Lyons et al. 1981). As an indication of the importance of establishing a minimum import size close to the size at maturity for spiny lobster, each Caribbean spiny lobster measuring 3" CL typically produces about 300,000 eggs per clutch. However, a more recent study demonstrates the potential difficulty in determining the size at maturity for spiny lobster. Bertelsen and Matthews (2001) compared spiny lobster fecundity between adjoining populations of spiny lobster in Florida. The authors found those lobsters in the heavily fished Florida Keys fishery reproduced at a smaller size than those in the sanctuary of the Dry Tortugas National Park. Lobsters from the fishery less than 70 mm (2.75 inches) were found to produce eggs, whereas very few lobsters less than 80 mm (3.15 inches) CL and none less than 70 mm CL produce eggs in the sanctuary population.

Current regulations, established in 1983, prohibit the possession of egg-bearing females, and established a minimum size limit (3.5 inches) in terms of carapace length. The Caribbean Fishery Management Council rejected a minimum weight limit because of difficulty of weighing spiny lobsters at sea.

NOAA's Office of Law Enforcement strongly recommends an import restriction include a minimum size limit that utilizes a tail weight measured in ounces (using carapace and tail length conversions). All spiny lobsters will be required to be landed with the shell attached. The landing limit will be converted to a minimum weight limit range (in ounces and grams), noting that Florida Fish and Wildlife Commission scientists have published conversion tables that could be used to determine the most applicable length and weight requirements. The implementation of a minimum weight in ounces is critical for NOAA law enforcement as the seafood industry, processes, packs, ships, exports, imports, and sells lobster tails by weight. In addition, U.S. Customs' entry documents and the seafood industry's sales, storage and bills of lading documents typically include the tail weights (in ounces), making this measurement an effective enforcement tool to track undersized lobster, even after it enters the U.S. port.

Preliminary discussions with all three regional Fishery Management Councils and the state of Florida indicate broad support for a minimum size landing limit restriction on Caribbean spiny lobster imports. The intent is to maintain an open line of dialogue with all parties throughout the fishery management plan amendment process to ensure any problems or issues that surface as the proposed action is developed are satisfactorily addressed.

Since 2003, an effort has been underway to establish a U.S. minimal size limit that would be applicable to spiny lobster imports. This effort has been supported by the U.S. Department of Justice, NOAA's Office of Law Enforcement, Southeast Region, three regional Fishery Management Councils and, recently, by some leading seafood industry corporations, which realize the spiny lobster fishery is being decimated throughout the

Caribbean basin. The United States has other existing restrictions on seafood imports involving American lobster, imported swordfish and imported tuna.

There are about 45 species of spiny lobsters species (commonly called rock lobster) in the family Palinuridae throughout the world with several occurring in the Caribbean basin. The Caribbean spiny lobster (*P. argus*; aka red lobster tail and Florida spiny lobster) is the predominant species making up approximately 95 percent of the lobster harvested and marketed in the Caribbean basin countries (i.e., Florida, Central America (Atlantic side), Bahamas, and Brazil). Symmetrical spots on the tail segments and unique markings on the tail fins of this species make it morphologically distinguishable from other species.

Spiny lobsters that originate from the Caribbean basin are tailed, sorted by weight, packed in 10-pound boxes, and shipped to the United States for consumption. Based on law enforcement officer's experiences in inspecting these boxes, the contents are exclusively one species (Caribbean spiny lobster). This is true for the Central American countries (Atlantic side), the Caribbean Island countries and Florida. Brazil poses a slight problem because it mixes Caribbean spiny lobster with *P. laurivicauda* in some shipments that are exported to the United States. However, Brazilian authorities have identified the problem and are attempting to implement a rule that would change this practice and would require species to be isolated before packing.

NOAA's Office of Law Enforcement, Southeast Region, has made several significant Lacey Act cases involving undersized lobster (w/ Honduras, Nicaragua, Bahamas, and an ongoing one with Brazil). These cases typically are criminal and are rather complex in nature due to the need for cooperation with foreign governments, poorly written foreign laws, and the millions of dollars of illegal proceeds. A U.S. minimum restriction applicable to spiny lobster imports would greatly assist law enforcement and federal prosecutors to stem the illegal and profitable flow of undersized imports into the U.S. markets.

### International

In an international fishery like that of spiny lobster, "consensus" on addressing concerns is important, as are U.S. efforts to engage other countries in negotiations/agreements. FAO/WECAFC has organized five workshops on spiny lobster in cooperation with most regional agencies and institutions, dealing with various projects: Belize City, Belize (1997); Merida, Mexico (1998, 2000, and 2006); and Havana, Cuba (2002). A representative from the Caribbean Council attended all the workshops. A staff member of NOAA Fisheries Service's Southeast Region attended the 2006 workshop in Merida.

The 2006 Merida workshop was divided into two parts. The first part occurred September 19- 27, and was attended by senior scientists from lobster producing nations. The second part occurred September 28-29, and was attended by senior fishery managers, senior scientists, representatives from the fishing and processing industry, and selected lobster importers. The objectives of the workshop were: (1) to review and update the assessments of the status of Caribbean spiny lobster at national and regional levels and to

consider the current levels of exploitation and recent trends in the fishery; and (2) to evaluate the nature and severity of current problems in the fishery, including the number of undersized lobster being caught and exported.

The workshop sought regional agreement by senior fishery managers on strategies to address problems and to ensure optimal and sustainable use of the resource. Senior scientists and senior decision makers of the following lobster producing nations participated in the workshop: Antigua and Barbuda, Bahamas, Belize, Brazil, Colombia, Costa Rica, Cuba, Dominican Republic, France on behalf of Guadeloupe and Martinique, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Turks and Caicos, United States, and Venezuela. The senior fishery managers carefully considered and adopted the report of the senior scientists. In keeping with the recommendation to allow about 50 percent of the stock to reach maturity, the national representatives agreed to a minimum harvest size of 74 mm (2.91 inches) cephalothorax length. Nations with minimum size limits greater than 76 mm were encouraged to retain the larger minimum size limits because of the additional conservation and economic benefits they provide. In addition to the minimum size limit, it was agreed that managing fishing mortality also is necessary to achieve sustainable use of the resource. It was further agreed that countries that already have minimum size limits in place should take action to implement and enforce them effectively to reduce the currently high catches of juveniles in order to protect and allow the species to rebuild throughout its range.

More recently, at a Regional workshop on the lobster fisheries in Central America held in Managua, Nicaragua, December 10-11, 2007, sponsored by OSPESCA, the delegates representing Central American fishery management agencies, artisanal fishers, industry, and other institutions developed an 18 point workshop accord, which addressed, among other things, a minimum harvest size for lobster tails of 140 mm (5.5 inches). The accord also recognized industry practices and determined for commercial purposes, each box must have an average tail weight of five ounces with a range of 4.5 to 5.5 ounces. A 5.5 inch tail length and 4.5 oz weight equate to a 3.0 inch carapace length.

## **2.2 Management History**

### *Gulf of Mexico and South Atlantic*

The original Fishery Management Plan (FMP) from the Gulf of Mexico and South Atlantic Fishery Management Councils was written in 1982. It states "The Fishery Conservation and Management Act (FCMA) requires that stocks be managed throughout their range to the extent practicable" and "There may be a relationship between spiny lobster stocks in the Caribbean, South Atlantic and Gulf of Mexico regions" (pg. 7-1). A definition of the fishery is also provided:

"The spiny lobster fishery consists of the spiny lobster, *Panulirus argus*, and other incidental species of spiny lobster (spotted spiny lobster, *P. guttatus*; smooth tail lobster *P. laevicauda*; Spanish lobster, *Scyllarides aequinoctialis* and *S. nodifer*), which inhabit or migrate through the coastal waters of and the Fishery

Conservation Zone (now known as the exclusive economic zone (EEZ)) of the Gulf of Mexico and South Atlantic Fishery Management Council areas and which are pursued by commercial and recreational fishermen” (pg. 12-1).

The original FMP analyzed several different potential minimum sizes, ranging from 2.75 to greater than 3 inches CL. Ultimately, the smaller minimum sizes were not used for biological reasons as they would not protect the spawning stock. The larger sizes were deemed to cost the fishery too much economically and socially, therefore, the 3 inch CL was chosen.

In multiple places within the FMP, the importation of undersized lobster was noted as a concern. Under the description of alternative optimum yields it was noted:

“The characteristics of demand for lobster indicate preferences for the smaller-sized animals; in fact, market forces would endanger spiny lobster stocks because the greatest preference in the New York wholesale market (Exhibit 9-3) is for animals less than 3.0 inches CL, sizes at which reproduction has not yet occurred. (All of these smaller-sized lobsters are imported)” (pg. 12-4).

Further, under the possible alternatives that were not preferred, a prohibition on the import of undersized spiny lobster is listed. The rationale for not proposing the ban was two-fold. First, there was concern that changes in the import market, which supplies approximately 90% of the lobsters consumed in the United States, could have significant affects on the price-size relationship, though the magnitude of the change on the retail market could not be estimated. Second, the nations harvesting Caribbean spiny lobster were uncomfortable about the impact of import restrictions on international relationships (pg. 12-35).

Since the 1980's the FMP has been amended consistent with new requirements of the Magnuson-Stevens Act, but those amendments have not affected the Caribbean nations regarding the minimum import size for spiny lobster.

#### Caribbean:

The original FMP for the Caribbean was written in 1981. It acknowledges the need to manage spiny lobster throughout its range and interrelated stocks could be managed as a unit or in close coordination. The plan further acknowledges that “conclusive data regarding genetics between various geographic areas...not available...establishment of an international coalition will eventually be necessary to effectively manage this migratory species throughout its range” (pg. 5). The plan addresses only the species *P. argus* where it is limited to the geological platforms of Puerto Rico and the Virgin Islands essentially inside the 100-fathom isobath. It continues “these shelf areas include not only the Commonwealth of Puerto Rico and the territory of the Virgin Islands, but also the entire chain of the British Virgin Islands. The lobster population recognizes none of these political entities nor the limits of territorial seas” (pg. 6).

The stock unit is defined as:

