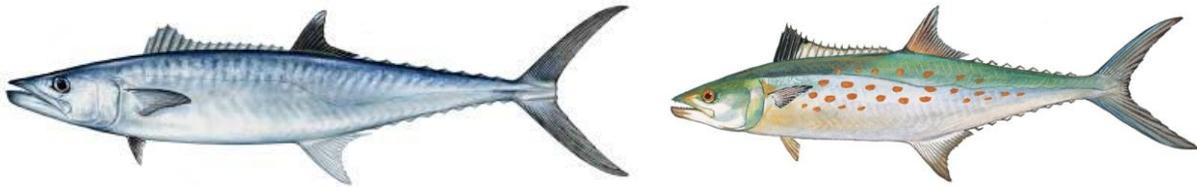


6/27/16

# Modifications to Commercial Permit Restrictions for King and Spanish Mackerel



## Options Paper Framework Amendment 5 to the Fishery Management Plan for Coastal Migratory Pelagic Resources in the Gulf of Mexico and Atlantic

June 2016



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# ENVIRONMENTAL ASSESSMENT COVER SHEET

## Framework Amendment 5 to Modify Commercial Permit Restrictions for King and Spanish Mackerel

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### Type of Action

Administrative  
 Draft

Legislative  
 Final

### Responsible Agencies:

National Marine Fisheries Service  
Southeast Regional Office  
263 13<sup>th</sup> Avenue South  
St. Petersburg, Florida 33701  
727-824-5305  
727-824-5308 (fax)  
<http://sero.nmfs.noaa.gov>  
Contact: Susan Gerhart  
[susan.gerhart@noaa.gov](mailto:susan.gerhart@noaa.gov)

Gulf of Mexico Fishery Management  
Council  
2203 North Lois Avenue, Suite 1100  
Tampa, Florida 33607  
813-348-1630  
813-348-1711 (fax)  
<http://www.gulfcouncil.org>  
Contact: Ryan Rindone  
[ryan.rindone@gulfcouncil.org](mailto:ryan.rindone@gulfcouncil.org)

South Atlantic Fishery Management Council  
4055 Faber Place Dr., Suite 201  
North Charleston, SC 29405  
843-571-4366  
[www.safmc.net](http://www.safmc.net)  
Contact: Kari Maclauchlin  
[kari.maclauchlin@safmc.net](mailto:kari.maclauchlin@safmc.net)

## ABBREVIATIONS USED IN THIS DOCUMENT

ABC	acceptable biological catch
ACL	annual catch limit
CMP	coastal migratory pelagics
Councils	Gulf of Mexico and South Atlantic Fishery Management Councils
EA	environmental assessment
EEZ	exclusive economic zone
FMP	fishery management plan
GMFMC	Gulf of Mexico Fishery Management Council
Gulf	Gulf of Mexico
Gulf Council	Gulf of Mexico Fishery Management Council
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Agency
SAFMC	South Atlantic Fishery Management Council
Secretary	Secretary of Commerce
SEDAR	Southeast Data, Assessment, and Review
SEFSC	NMFS Southeast Fishery Science Center
SERO	NMFS Southeast Regional Office
South Atlantic Council	South Atlantic Fishery Management Council

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# CHAPTER 1. INTRODUCTION

- *Gulf of Mexico and South Atlantic Fishery Management Councils* – Develop the range of actions and alternatives and select preferred alternatives that are submitted to the National Marine Fisheries Service.
- *National Marine Fisheries Service* and *Council staff* – Assist in the development of alternatives based on guidance from the Council, and analyze the environmental impacts of those alternatives.
- *Secretary of Commerce* – Approves, disapproves, or partially approves the amendment as recommended by the Council.

## 1.1 Background

Current regulations (50 CFR 622.384(e)(1)) stipulate that the recreational bag limit may not be retained aboard a vessel with a federal pelagic commercial permit for king or Spanish mackerel when the applicable commercial mackerel season is closed in the zone in which that commercial vessel is fishing. This regulation prevents commercial fishermen with a federal pelagic commercial permit from recreationally fishing on their commercial vessel outside of the commercial season. However, in the case of a vessel with both a valid charter vessel/headboat pelagic permit and a valid pelagic commercial vessel permit, the recreational bag limit of king or Spanish mackerel may be retained on these for-hire vessels when the respective commercial season is closed as long as the vessel is operating as a for-hire vessel (50 CFR 622.384(e)(2)). This regulation does not currently affect harvest of Spanish mackerel in the Gulf of Mexico (Gulf), which are managed under a stock annual catch limit (ACL). These regulations were originally deemed as necessary when the Gulf migratory group of king mackerel (Gulf king mackerel) was thought to be overfished in the early 1990s, as a means of controlling fishing effort. The most recent stock assessment of Gulf and Atlantic groups of king mackerel (SEDAR 38 2014), however, has indicated that both migratory groups are not overfished or experiencing overfishing.

At its November 2015 meeting, the Gulf of Mexico Fishery Management Council's (Gulf Council) CMP Advisory Panel (Gulf AP) recommended that the Gulf Council eliminate this permit restriction on commercial king mackerel vessels. The Gulf AP noted that such a restriction does not exist under any other vessel or permit condition for other species in the Gulf Council's FMPs, and that the current restriction prevents fishermen from recreationally targeting king mackerel on their commercially permitted vessels. At its meeting in January 2016, the Gulf Council initiated this framework amendment to evaluate the change recommended by the Gulf AP. The South Atlantic Fishery Management Council voted to pursue the same management measures as outlined in this document at their June 2016 meeting. Spanish mackerel was included for the Councils' consideration since this permit restriction also applies to Spanish

mackerel, although it does not currently affect the harvest of Spanish mackerel in the Gulf, as noted above.

## 1.2 Purpose and Need

The purpose of this action is to eliminate permit restrictions unique to commercial king and Spanish mackerel permit holders. The need for this proposed action is to standardize vessel permit restrictions applicable after a commercial quota closure, remove restrictions on recreational fishing, and reduce the potential for regulatory discards in the king mackerel component of the CMP fishery.

## 1.3 History of Management

The CMP FMP, with Environmental Impact Statement (EIS), was approved in 1982 and implemented by regulations effective in February 1983 (GMFMC and SAFMC 1982). The management unit includes king mackerel, Spanish mackerel, and cobia. The FMP treated king and Spanish mackerel as unit stocks in the Atlantic and Gulf. The following is a list of management changes relevant to this amendment. A full history of CMP management can be found in Amendment 18 to the CMP FMP (GMFMC and SAFMC 2011), and is incorporated here by reference.

**Amendment 1**, with EIS, implemented in September 1985, recognized separate Atlantic and Gulf migratory groups of king mackerel. The Gulf commercial allocation for king mackerel was divided into Eastern and Western Zones for the purpose of regional allocation, with 69% of the allocation provided to the Eastern Zone and 31% to the Western Zone.

**Amendment 5**, with environmental assessment (EA), implemented in August 1990, extended the management area for Atlantic migratory groups of mackerels through the Mid-Atlantic Council's area of jurisdiction; provided that the South Atlantic Council will be responsible for pre-season adjustments of total allowable catch and bag limits for the Atlantic migratory groups of mackerels while the Gulf of Mexico Fishery Management Council will be responsible for Gulf migratory groups; and continued to manage the two recognized Gulf migratory groups of king mackerel as one until management measures appropriate to the eastern and western migratory groups could be determined.

**Amendment 6**, with EA, implemented in November 1992, allowed for Gulf migratory group king mackerel stock identification and allocation when appropriate.

**Amendment 7**, with EA, implemented in November 1994, equally divided the Gulf commercial allocation in the Eastern Zone at the Dade-Monroe County line in Florida. The sub-allocation for the area from Monroe County through Western Florida was equally divided between commercial hook-and-line and net gear users.

**Amendment 8**, with EA, implemented in March 1998, provided the South Atlantic Council with authority to set vessel trip limits, closed seasons or areas, and gear restrictions for Gulf migratory

group king mackerel in the North Area of the Eastern Zone (Dade/Monroe to Volusia/Flagler County lines); and modified the seasonal framework adjustment measures.

**Amendment 9**, with EA, implemented in April 2000, created north and south subzones on the Florida west coast and reallocated the commercial portion of the total allowable catch among the Gulf zones.

**Amendment 18**, with EA, implemented in January 2012, established ACLs and accountability measures for Gulf and Atlantic migratory groups of king and Spanish mackerel. The ACLs for the Gulf and South Atlantic migratory groups of king mackerel were 10.8 million pounds in 2013 and 10.46 million pounds, respectively. The ACLs for the Gulf and South Atlantic migratory groups of Spanish mackerel were 5.15 million pounds and 5.69 million pounds, respectively.

**Amendment 20A**, with EA, implemented in July 2014, prohibited sale of recreationally caught king and Spanish mackerel, with an exception for sale of fish caught on for-hire trips on dually permitted vessels in the Gulf region, and an exception for sale of fish caught in state-permitted tournaments in both the Gulf and Atlantic regions and donated to a state or federally-permitted dealer, as long as the proceeds from the dealer sale are donated to charity.

**Amendment 20B**, with EA, implemented in March 2015, revised Gulf king mackerel hook-and-line trip limits in the Florida West Coast zone Northern and Southern subzones and modified the Northern subzone fishing year; created a transit provision for areas closed to king mackerel; established Northern and Southern zones with separate commercial quotas for Atlantic king and Spanish mackerel.

**Amendment 23**, with EA, implemented in August 2014, was part of the joint Gulf/ South Atlantic Dealer Reporting Amendment, and required CMP fishermen to sell to a federally permitted dealer.

**South Atlantic CMP Framework Action 2013** with EA, implemented in December 2014, modified king mackerel trip limits in the Gulf Florida East Coast subzone.

**Amendment 26**, with EA, approved by the Councils in March and April of 2016, modified the stock boundary between the Gulf and Atlantic migratory groups of king mackerel to be at the Dade/Monroe County Line in southeastern Florida, with the Gulf Council managing king mackerel to that line year-round. For the 2016/17 fishing year, the ABC for Gulf king mackerel was set at 9.21 mp. Commercial zone allocations of the commercial king mackerel ACL in the Gulf were changed as follows: Western Zone: 40%; Northern Zone: 18%; Southern Zone Handline: 21%; and Southern Zone Gillnet: 21%. Lastly, the recreational bag limit was increased from two fish per person per day to three fish per person per day. This amendment is in the process of being transmitted for Secretarial review.

## CHAPTER 2. MANAGEMENT ALTERNATIVES

### 2.1 Action 1: Modify Restrictions Applicable to Federal Commercial Permits for King and Spanish Mackerel

**Alternative 1:** No Action – Do not modify restrictions applicable to federal pelagic commercial permits for king or Spanish mackerel. King or Spanish mackerel may not be retained aboard a vessel with an applicable federal commercial permit when the commercial season is closed and, for king mackerel, in the zone in which that commercially permitted vessel is fishing, except when that vessel also holds a charter vessel/headboat permit and is operating in a for-hire capacity.

**Gulf Preferred Alternative 2:** Remove the restriction on retaining the recreational bag limit of king mackerel on a vessel with a federal commercial permit for king mackerel that is fishing recreationally when the commercial zone in which the vessel is fishing is closed.

**Gulf Preferred Alternative 3:** Remove the restriction on retaining the recreational bag limit of Spanish mackerel on a vessel with a federal commercial permit for Spanish mackerel when the commercial Spanish mackerel fishing season is closed.

#### **Discussion:**

Current regulations (50 CFR 622.384(e)(1)) stipulate that the recreational bag limit may not be retained aboard a vessel with a federal pelagic commercial permit for king or Spanish mackerel when the commercial season is closed (in the zone in which that commercial vessel is fishing, for king mackerel) (**Alternative 1**). This means commercial fishermen with a federal pelagic commercial permit on their vessel may not land a bag limit of king or Spanish mackerel while recreationally fishing when the same commercial mackerel season is closed. Dual-permitted vessels having both a pelagic charter/headboat permit and a federal pelagic commercial permit are allowed to retain the species bag limit when the commercial season is closed if they are operating as for-hire vessels (as specified in 50 CFR 622.384(e)(2)). This permit restriction is unique to king and Spanish mackerel; no other fishery management plan (FMP) administered by the Gulf of Mexico (Gulf) or South Atlantic Fishery Management Council (Councils) has a similar restriction. **Alternative 1** would retain this permit restriction.

**Gulf Preferred Alternative 2** would remove the restriction on retaining the recreational bag limit of king mackerel on a vessel with a federal pelagic commercial permit for king mackerel when the fishing season for the commercial zone in which the vessel is recreationally fishing is closed. Commercial fishermen would be able to treat their vessels as private recreational vessels when recreationally harvesting king mackerel. King mackerel harvested in this manner could not be sold, thereby preventing out-of-season sale of king mackerel.

As of May 2, 2016, there were 1,448 valid or renewable federal commercial pelagic permits for king mackerel. It is not possible to predict the manner in which recreational landings of king

mackerel would be affected by selecting **Gulf Preferred Alternative 2** as preferred. In the Gulf, however, since the recreational sector has not landed its annual catch limit (ACL) in 15 years (Table 2.1.1), any effect would likely be negligible.

**Table 2.1.1.** Proportion of sector ACLs landed and proportion of total ACL landed for Gulf king mackerel, including those landings attributed to the Florida East Coast Zone (FLEC). The FLEC landings are included since there is not a recreational allocation specifically for the FLEC Zone. This zone was designated as part of the Atlantic migratory group of king mackerel in Amendment 26 to the CMP FMP, which is pending submittal by the Councils for Secretarial review.

Fishing Year	Total TAC/ACL	Comm Sector ACL	Comm Landings	Rec Sector ACL	Rec Landings	% of Sector ACL Landed		% of Total ACL Landed
						Comm <sup>1</sup>	Rec <sup>2</sup>	
2001/02	10.2 mp	3.264 mp	2.902 mp	6.936 mp	3.669 mp	88.9%	52.9%	64.7%
2002/03	10.2 mp	3.264 mp	3.186 mp	6.936 mp	2.816 mp	97.6%	40.6%	59.3%
2003/04	10.2 mp	3.264 mp	3.094 mp	6.936 mp	3.211 mp	94.8%	46.3%	62.7%
2004/05	10.2 mp	3.264 mp	3.215 mp	6.936 mp	2.532 mp	98.5%	36.5%	56.4%
2005/06	10.2 mp	3.264 mp	2.983 mp	6.936 mp	2.996 mp	91.4%	43.2%	58.9%
2006/07	10.8 mp	3.456 mp	3.231 mp	7.344 mp	3.305 mp	93.5%	45.0%	60.5%
2007/08	10.8 mp	3.456 mp	3.459 mp	7.344 mp	2.629 mp	100.1%	35.8%	56.3%
2008/09	10.8 mp	3.456 mp	3.833 mp	7.344 mp	2.350 mp	110.9%	32.0%	57.6%
2009/10	10.8 mp	3.456 mp	3.674 mp	7.344 mp	3.525 mp	106.3%	48.0%	68.0%
2010/11	10.8 mp	3.456 mp	3.522 mp	7.344 mp	2.181 mp	101.9%	29.7%	53.0%
2011/12	10.8 mp	3.456 mp	3.428 mp	7.344 mp	2.438 mp	99.2%	33.2%	54.3%
2012/13	10.8 mp	3.456 mp	3.539 mp	7.344 mp	2.710 mp	102.4%	36.9%	57.9%
2013/14	10.8 mp	3.456 mp	3.055 mp	7.344 mp	2.916 mp	88.4%	39.7%	55.3%
2014/15 <sup>3</sup>	10.8 mp	3.456 mp	3.591 mp <sup>3</sup>	7.344 mp	4.576 mp	103.9%	62.3%	75.6%

<sup>1</sup>Commercial allocation = 32%      <sup>2</sup>Recreational allocation = 68%

<sup>3</sup> Commercial landings are preliminary for 2014/15

Mp = million pounds

Source: SERO

**Gulf Preferred Alternative 3** would remove the restriction on retaining the recreational bag limit of Spanish mackerel on a vessel with a federal pelagic commercial permit for Spanish mackerel when the fishing season is closed. Although the permit restriction described in **Alternative 1** would prevent commercial fishermen from using their vessels recreationally to harvest Spanish mackerel when the commercial season is closed, given current management of Spanish mackerel, the restriction does not apply in practice in the Gulf. Spanish mackerel in the Gulf are currently managed under a stock ACL, meaning that sector allocations are not used to divide the stock ACL between fishing sectors (e.g., recreational and commercial) (50 CFR 622.388(c)(3)). When the stock ACL is met or projected to be met, all fishing (recreational and commercial) stops (50 CFR 622.388(c)(1)). This effectively makes the regulations in **Alternative 1** inapplicable to Gulf Spanish mackerel, since it would not currently be possible to fish as a participant in one sector while the other sector is closed. However, removing the current permit restriction as described in **Gulf Preferred Alternative 3** would bring the

regulations for the harvest of Spanish mackerel in line with those of other species managed by the Councils. If, in the future, the Councils determine that sector allocations are necessary for the management of Gulf Spanish mackerel, then, if **Gulf Preferred Alternative 3** is selected as preferred, the Councils would not need to take further action to remove the permit restriction as described in **Alternative 1**. Spanish mackerel in the South Atlantic are managed using sector allocations, meaning that **Gulf Preferred Alternative 3** would affect Atlantic group Spanish mackerel in a manner consistent with how **Gulf Preferred Alternative 2** would affect management of both migratory groups of king mackerel.

Federal pelagic commercial permits for Spanish mackerel are currently open access, meaning that anyone can apply for a permit. Since Gulf Spanish mackerel are managed under a stock ACL, no change in fishing behavior or effort is currently expected as a result of selecting **Gulf Preferred Alternative 3** as preferred. The stock ACL for Gulf group Spanish mackerel has not been exceeded in the last 15 years (an exception was in the 2013-2014 fishing season; however, the stock ACL for the following fishing year was increased by 246% in the following fishing year as a result of the SEDAR 28 (2013) stock assessment report, and a closure of the fishery was not implemented). Table 2.1.2 characterizes the recent history of Gulf group Spanish mackerel landings.

**Table 2.1.2.** Gulf migratory group Spanish mackerel landings for the 2000-2001 to 2015-2016 fishing seasons. Landings are in pounds. The current fishing year for Gulf group Spanish mackerel is from April 1 – March 31.

Fishing Year	Recreational Landings	Commercial Landings	Total Landings	Stock ACL	% of ACL Landed
2000-2001	2,787,773	1,054,259	3,842,032	9,100,000	42.22%
2001-2002	3,452,981	810,099	4,263,080	9,100,000	46.85%
2002-2003	3,171,235	1,745,064	4,916,299	9,100,000	54.03%
2003-2004	2,742,270	941,702	3,683,972	9,100,000	40.48%
2004-2005	2,665,269	1,986,512	4,651,781	9,100,000	51.12%
2005-2006	1,595,375	1,221,294	2,816,669	9,100,000	30.95%
2006-2007	2,845,347	1,534,040	4,379,387	9,100,000	48.13%
2007-2008	2,724,757	902,827	3,627,584	9,100,000	39.86%
2008-2009	2,525,443	2,360,038	4,885,481	9,100,000	53.69%
2009-2010	1,890,143	942,501	2,832,644	9,100,000	31.13%
2010-2011	2,964,339	1,248,711	4,213,050	9,100,000	46.30%
2011-2012	2,677,725	1,347,945	4,025,670	9,100,000	44.24%
2012-2013	3,096,836	1,412,591	4,509,427	5,150,000	87.56%
2013-2014 <sup>1</sup>	5,232,533	1,450,265	6,682,798	5,150,000	129.76%
2014-2015	1,604,138	920,035	2,524,173	12,700,000	19.88%
2015-2016	2,140,222	1,213,742	3,353,964	11,800,000	28.42%

<sup>1</sup> The stock ACL for the 2013-2014 fishing year was increased by 246% in the following fishing year as a result of the SEDAR 28 (2013) stock assessment report, and a closure of the fishery was not implemented  
Source: SERO

Cobia are also managed by the Gulf and South Atlantic Councils as part of the CMP FMP. Cobia are currently managed using a possession limit of two fish per person per day for both the recreational and commercial sectors in the Gulf and the South Atlantic. Because the regulations for cobia are identical for both sectors, and because a federal commercial permit is not required to commercially harvest cobia, no similar permit restrictions exist for cobia as are being addressed herein for king and Spanish mackerel.

## CHAPTER 3. REFERENCES

- Armitage et al. 2009. Adaptive co-management for social-ecological complexity frontiers in ecology and the environment, Vol. 7, No. 2, pp. 95-102.
- Barnette, M. C. 2001. A review of the fishing gear utilized within the Southeast Region and their potential impacts on essential fish habitat. NOAA Technical Memorandum NMFS-SEFSC-449, 62 pp.
- Brooks, E. N. and M. Ortiz. 2004. Estimated von Bertalanffy growth curves for king mackerel stocks in the Atlantic and Gulf of Mexico. Sustainable Fisheries Division Contribution SFD-2004-05. SEDAR5 AW-10. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Fisheries Science Center. Miami, Florida.
- Camilli, R., C. M. Reddy, D. R. Yoerger, B. A. S. Van Mooy, M. V. Jakuba, J. C. Kinsey, C. P. McIntyre, S. P. Sylva, and J. V. Maloney. 2010. Tracking hydrocarbon plume transport and biodegradation at Deepwater Horizon. *Science* 330(6001): 201-204.
- GMFMC. 2000. Final amendment 9 to the fishery management plan for coastal migratory pelagic resources (mackerels) in the Gulf of Mexico and South Atlantic. Gulf of Mexico Fishery Management Council, Tampa, Florida; and South Atlantic Fishery Management Council, North Charleston, South Carolina.  
<http://www.gulfcouncil.org/Beta/GMFMCWeb/downloads/MAC%20Amend-09%20Final%201998-11.pdf>
- GMFMC. 2001. Final Generic Amendment Addressing the Establishment of Tortugas Marine Reserves in the following Fishery Management Plans of the Gulf of Mexico: Coastal migratory pelagics of the Gulf of Mexico and South Atlantic, Coral and Coral Reefs, Red Drum, Reef Fish, Shrimp, Spiny Lobster, Stone Crab. Gulf of Mexico Fishery Management Council Plan including Regulatory Impact Review, Regulatory Flexibility Analysis, and Environmental Impact Statement. Gulf of Mexico Fishery Management Council, 3018 North U.S. Highway 301, Suite 1000. Tampa, Florida. 194 p.  
<http://www.gulfcouncil.org/Beta/GMFMCWeb/downloads/TORTAMENwp.pdf>
- GMFMC. 2005. Generic amendment number 3 for addressing essential fish habitat requirements, habitat areas of particular concern, and adverse effects of fishing in the following fishery management plans of the Gulf of Mexico: shrimp fishery of the Gulf of Mexico, United States waters, red drum fishery of the Gulf of Mexico, reef fish fishery of the Gulf of Mexico, coastal migratory pelagic resources (mackerels) in the Gulf of Mexico and South Atlantic, stone crab fishery of the Gulf of Mexico, spiny lobster fishery of the Gulf of Mexico and South Atlantic, coral and coral reefs of the Gulf of Mexico. Gulf of Mexico Fishery Management Council. Tampa, Florida.  
[http://www.gulfcouncil.org/Beta/GMFMCWeb/downloads/FINAL3\\_EFH\\_Amendment.pdf](http://www.gulfcouncil.org/Beta/GMFMCWeb/downloads/FINAL3_EFH_Amendment.pdf)

GMFMC. 2011. Final generic annual catch limits/accountability measures amendment for the Gulf of Mexico Fishery Management Council's red drum, reef fish, shrimp, coral and coral reefs fishery management plans, including environmental impact statement, regulatory impact review, regulatory flexibility analysis, and fishery impact statement. Gulf of Mexico Fishery Management Council. Tampa, Florida.

[http://www.gulfcouncil.org/docs/amendments/Final%20Generic%20ACL\\_AM\\_Amendment-September%209%202011%20v.pdf](http://www.gulfcouncil.org/docs/amendments/Final%20Generic%20ACL_AM_Amendment-September%209%202011%20v.pdf)

GMFMC and SAFMC. 1982. Fishery Management Plan for Coral and Coral Reefs in the Gulf of Mexico and South Atlantic Fishery Management Councils. Gulf of Mexico Fishery Management Council, Lincoln Center, Suite 881, 5401 W. Kennedy Boulevard, Tampa, Florida; South Atlantic Fishery Management Council, Southpark Building, Suite 306, 1 Southpark Circle, Charleston, South Carolina, 29407. 332 p.

<http://www.gulfcouncil.org/Beta/GMFMCWeb/downloads/Coral%20FMP.pdf>

GMFMC and SAFMC. 1985. Final amendment 1 to the fishery management plan, environmental impact statement, for coastal migratory pelagic resources (mackerels). Gulf of Mexico Fishery Management Council. Tampa, Florida, and South Atlantic Fishery Management Council.

Charleston, South Carolina. [ftp://ftp.gulfcouncil.org/Web\\_Archive/Mackerel/MAC%20Amend-01%20Final%20Apr85.pdf](ftp://ftp.gulfcouncil.org/Web_Archive/Mackerel/MAC%20Amend-01%20Final%20Apr85.pdf)

GMFMC and SAFMC. 2011. Final amendment 18 to the fishery management plan for coastal migratory pelagic resources in the Gulf of Mexico and Atlantic regions including environmental assessment, regulatory impact review, and regulatory flexibility act analysis. Gulf of Mexico Fishery Management Council. Tampa, Florida, and South Atlantic Fishery Management Council. Charleston, South Carolina.

<http://www.gulfcouncil.org/docs/amendments/Final%20CMP%20Amendment%2018%20092311%20w-o%20appendices.pdf>

GMFMC and SAFMC. 2013. Final Amendment 20A to the fishery management plan for coastal migratory pelagic resources (mackerels) in the Gulf of Mexico and South Atlantic. Coastal Migratory Pelagics Sale and Permit Provisions. Gulf of Mexico Fishery Management Council, Tampa, Florida; and South Atlantic Fishery Management Council, North Charleston, South Carolina. <http://www.gulfcouncil.org/docs/amendments/CMP%20Amendment%2020A.pdf>

GMFMC and SAFMC. 2014. Final generic amendment to the fishery management plans in the Gulf of Mexico and South Atlantic Regions: Modifications to federally permitted seafood dealer reporting requirements. Gulf of Mexico Fishery Management Council, Tampa, Florida; and South Atlantic Fishery Management Council, North Charleston, South Carolina.

[http://www.gulfcouncil.org/docs/amendments/Dealer\\_Reporting\\_Amendment.pdf](http://www.gulfcouncil.org/docs/amendments/Dealer_Reporting_Amendment.pdf)

Goodman, R., 2003. Tar balls: The end state. Spill Science & Technology Bulletin 8(2): 117-121.

Gore, R. H. 1992. The Gulf of Mexico: a treasury of resources in the American Mediterranean. Pineapple Press. Sarasota, Florida.

Harper, J. 2003. Exxon Valdez oil spill Trustee Council Gulf of Alaska ecosystem monitoring project final report. ShoreZone Mapping of the Outer Kenai Coast, Alaska. Gulf of Alaska Ecosystem Monitoring Project 02613, 74 pp.

<http://library.alaska.gov/asp/edocs/2006/01/ocm63671143.pdf>

Hazen, T. C., E. B. Dubinsky, T. Z. DeSantis, G. L. Andersen, Y. M. Piceno, N. Singh, J. K. Jansson, A. Probst, S. E. Borglin, J. L. Fortney, W. T. Stringfellow, M. Bill, M. E. Conrad, L. M. Tom, K. L. Chavarria, T. R. Alusi, R. Lamendella, D. C. Joyner, C. Spier, J. Baelum, M. Auer, M. L. Zemla, R. Chakraborty, E. L. Sonnenthal, P. D'haeseleer, H. N. Holman, S. Osman, Z. Lu, J. D. Van Nostrand, Y. Deng, J. Zhou, O. U. Mason. 2010. Deep-sea oil plume enriches indigenous oil-degrading bacteria. *Science* 330: 204-208.

Incardona, J.P., L. D. Gardnerb, T. L. Linbo, T. L. Brown, A. J. Esbaugh, E. M. Mager, J. D. Stieglitz, B. L. French, J. S. Labenia, C. A. Laetz, M. Tagal, C. A. Sloan, A. Elizur, D. D. Benetti, M. Grosell, B. A. Block, and N. L. Scholz. 2014. Deepwater Horizon crude oil impacts the developing hearts of large predatory pelagic fish. *Proceedings of the National Academy of Sciences of the United States of America* 111(15): 1510-1518.z

IPCC. 2014. Climate Change 2014: impacts, adaptation, and vulnerability. Part A: global and sectoral aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 1-32.

Jacob, S., P. Weeks, B. Blount, and M. Jepson. 2012. Development and evaluation of social indicators of vulnerability and resiliency for fishing communities in the Gulf of Mexico. *Marine Policy* 26(10): 16-22.

Jepson, M. and L. L. Colburn. 2013. Development of social indicators of fishing community vulnerability and resilience in the U.S. Southeast and Northeast Regions. U.S. Dept. of Commerce, NOAA Technical Memorandum NMFS-F/SPO-129, 64 p.

Kennedy, V. S., R. R. Twilley, J. A. Kleypas, J. H. Cowan, and S. R. Hare. 2002. Coastal and marine ecosystems & global climate change. Report prepared for the Pew Center on Global Climate Change. 52p. Available at: [http://www.c2es.org/docUploads/marine\\_ecosystems.pdf](http://www.c2es.org/docUploads/marine_ecosystems.pdf).

Kujawinski, E. B., M. C. Kido Soule, D. L. Valentine, A. K. Boysen, K. Longnecker, and M. C. Redmond. 2011. Fate of dispersants associated with the Deepwater Horizon Oil Spill. *Environmental Science and Technology* 45: 1298-1306.

MSAP (Mackerel Stock Assessment Panel). 1996. Report of the Mackerel Stock Assessment Panel. Prepared by the Mackerel Stock Assessment Panel. Gulf of Mexico Fishery Management Council. Tampa, Florida.

Mayo, C. A. 1973. Rearing, growth, and development of the eggs and larvae of seven scombrid fishes from the Straits of Florida. Doctoral dissertation. University of Miami, Miami, Florida.

McEachran, J. D. and J. D. Fechhelm. 2005. Fishes of the Gulf of Mexico. Volume 2 University of Texas Press, Austin.

McEachran, J. D., and J. H. Finucane. 1979. Distribution, seasonality and abundance of larval king and Spanish mackerel in the northwestern Gulf of Mexico. (Abstract). Gulf States Marine Fisheries Commission. Publication Number 4. Ocean Springs, Mississippi.

Needham, H., D. Brown, and L. Carter. 2012. Impacts and adaptation options in the Gulf coast. Report prepared for the Center for Climate and Energy Solutions. 38 p. Available at:

<http://www.c2es.org/docUploads/gulf-coast-impacts-adaptation.pdf>.

Needham, H., D. Brown, and L. Carter. 2012. Impacts and adaptation options in the Gulf coast. Report prepared for the Center for Climate and Energy Solutions. 38 p. Available at:

<http://www.c2es.org/docUploads/gulf-coast-impacts-adaptation.pdf>.

NMFS. 2011. Fisheries Economics of the United States, 2009. U.S. Department of Commerce, NOAA Technical Memorandum. National Marine Fisheries Service-F/SPO-118.

[http://www.st.nmfs.noaa.gov/st5/publication/fisheries\\_economics\\_2009.html](http://www.st.nmfs.noaa.gov/st5/publication/fisheries_economics_2009.html)

NMFS. 2015. Endangered Species Act– Section 7 Consultation on the continued authorization of fishing under the fishery management plan (FMP) for coastal migratory pelagic resources in the Atlantic and Gulf of Mexico. Biological Opinion, June 18.

NOAA. 2010. Deepwater Horizon oil: Characteristics and concerns. NOAA Office of Response and Restoration, Emergency Response Division, 2 pp.

[http://www.noaa.gov/deepwaterhorizon/publications\\_factsheets/documents/OilCharacteristics.pdf](http://www.noaa.gov/deepwaterhorizon/publications_factsheets/documents/OilCharacteristics.pdf)

SEDAR 38. 2014. Gulf of Mexico King Mackerel Stock Assessment Report. Southeast Data, Assessment, and Review. North Charleston, South Carolina. 465 pp.

[http://sedarweb.org/docs/sar/SEDAR\\_38\\_Gulf\\_SAR.pdf](http://sedarweb.org/docs/sar/SEDAR_38_Gulf_SAR.pdf)

Schekter, R. C. 1971. Food habits of some larval and juvenile fishes from the Florida current near Miami, Florida. MS Thesis, University of Miami, Coral Gables.

Stjernholm, M., D. Boertmann, A. Mosbech, J. Nymand, F. Merkel, M. Myrup, H. Siegstad, S. Potter. 2011. Environmental oil spill sensitivity atlas for the northern West Greenland (72°-75° N) coastal zone. NERI Technical Report no. 828. National Environmental Research Institute, Aarhus University, Denmark, 210 pp. <http://www.dmu.dk/Pub/FR828.pdf>

Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K. B. Averyt, M. Tignor, and H. L. Miller. Intergovernmental Panel on Climate Change 2007. Climate Change 2007: The physical science basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change Cambridge University Press, Cambridge, United Kingdom and New York, New York. Available at:  
[http://www.ipcc.ch/publications\\_and\\_data/publications\\_ipcc\\_fourth\\_assessment\\_report\\_wg1\\_report\\_the\\_physical\\_science\\_basis.htm](http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_wg1_report_the_physical_science_basis.htm).

Vondruska, J. 2010. Fishery analysis of the commercial fisheries for eleven coastal migratory pelagic species. SERO-FSSB-2010-01. National Marine Fisheries Service, Southeast Regional Office. St. Petersburg, Florida.

Wollam, M. B. 1970. Description and distribution of larvae and early juveniles of king mackerel, *Scomberomorus cavalla* (Cuvier), and Spanish mackerel, *S. maculatus* (Mitchill); (Pisces: Scombridae); in the Western North Atlantic. Florida Department of Natural Resources Laboratory Technical Service 61.