Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201
703.842.0740 • 703.842.0741 (fax) • www.asmfc.org

MEMORANDUM

May 10, 2013

TO: Spiny Dogfish and Coastal Sharks Management Board

FROM: Toni Kerns, ISFMP Director

SUBJECT: 2013/2014 Spiny Dogfish Preliminary Quotas

NOAA Fisheries has approved the New England and Mid-Atlantic Fishery Management Council's jointly recommended increased quota for 2013-2015 for the spiny dogfish fishery. Increases from 2012 levels: 40.842 million lb in 2013 (+14%), 41.784 million lb in 2014 (+17%), and 41.578 million lb in 2015 (+16%).

The 2013/2014 preliminary ASMFC spiny dogfish quotas, adjusted for overages and rollovers from the 2012/2013 fishing season, are listed in the table below. The Spiny Dogfish & Coastal Sharks Management Board has set the 2013/2014 coastwide quota at 40.842 million pounds with Northern Region states (Maine to Connecticut) possession limits up to 4,000 pounds. States from New York to North Carolina are not bound by the 4,000 pound possession limit and may set limits to manage their state fishery needs. States may open their fisheries on May 1, 2013, when the new fishing season begins. Fishermen should consult their local jurisdictions for state and federal dogfish regulations, prior to catching dogfish.

Addendum III to the Spiny Dogfish FMP allocates 58% of the annual quota to the states Maine to Connecticut, and allocated state-specific shares for the states of New York to North Carolina (see Table 1). The plan requires overages are paid back the following fishing season by region or state; and allows for up to 5% of a region or state's quota to be rolled over into the subsequent fishing season. Table one specifies preliminary 2013/2014 quotas, including overages and rollovers. To date, no overages have occurred in the previous year's fishery.

Table 1. 2013/2013 Spiny Dogfish Allocations in Pounds.

	2013/2014 % Allocation	2013/2014 Allocation	Adjustments for 2012/2013 Overages (-) and rollovers (+)	Adjusted preliminary 2013/2014 Quota*
Northern Region (ME - CT)	58.00%	23,688,360	(+) 224,413	***23,912,773***
NY	2.707%	1,105,593	(+) 48,312	***1,153,905***
NJ	7.644%	3,121,962	(+) 136,422	***3,258,384***
DE	0.896%	365,944	(+) 15,991	***381,985***
MD	5.920%	2,417,846	(+) 105,654	***2,523,500***
VA	10.795%	4,408,894	(+) 192,658	***4,601,552***
NC	14.036%	5,732,583	(+) 250,500	***5,983,083***

*These quotas may be adjusted as the 2012 landings are finalized and the 2013 data warehouse landings become available.

A combination of three landings sources were used to calculate the adjusted preliminary quotas. Landings in Maine through Virginia during May 1 – December 31, 2012 are from the ACCSP data warehouse. The data warehouse is considered the most accurate source of spiny dogfish landings but does not include audited landings past 2012. Landings in Maine through Virginia during January 1 – April 24, 2013 are from SAFIS dealer reports. North Carolina's landings are from a direct communication with North Carolina Department of Marine Fisheries staff.

Please feel free to contact me or Marin Hawk for assistance (703-842-0740; tkerns@asmfc.org or mhawk@asmfc.org).

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Paul J. Diodati, (MA), Chair *Dr. Louis B. Daniel, III, (NC), Vice-Chair* *Robert E. Beal, Executive Director*

Healthy, self-sustaining populations for all Atlantic coast fish species or successful restoration well in progress by the year 2015

MEMORANDUM

May 15, 2013

TO: Spiny Dogfish and Coastal Sharks Management Board

FROM: Marin Hawk, FMP Coordinator

SUBJECT: Illegible Public Comments Received for Draft Addendum II

Some of the public comments received concerning Draft Addendum II to the Coastal Sharks Fishery Management Plan were unreadable in the original memorandum due to a small text size. Those public comments are contained in this memorandum so the Board may consider them.

If you have any questions or concerns, please contact me at (703) 842-0740 or mhawk@asmfc.org.

From: alqudshug@gmail.com on behalf of Lars ROSENBLUM SORGENFREI
To: Comments
Subject: Preventing a Potential Setback in U.S. Atlantic Shark Finning Policy
Date: Wednesday, March 27, 2013 12:19:32 PM

The troubling proposals stem from confusing text contained within the **2010 Shark Conservation Act**, which suggests a smoothhound exception in a national ban on removing shark fins at sea. This language, however, has yet to be interpreted by the federal government. State interpretation and implementation is therefore premature.

More important, the proposed changes represent a huge step backwards in finning policy at a time when much of the rest of the world is moving toward the clear best practice for finning ban enforcement: requiring that all shark fins stay naturally attached to shark bodies. For example, the European Union (EU), among the top suppliers of shark fins to Asia, has recently changed course from lenient, hard-to-enforce ratios toward complete bans on at-sea removal of shark fins, regardless of species.

The U.S. federal Atlantic ban on at-sea shark fin removal, along with “fins-naturally-attached” decisions in the EU and elsewhere, are based on expert advice that the only way to be sure that sharks have not been finned is to mandate that their fins cannot be removed until after landing. In addition to improving and easing enforcement, this policy facilitates the collection of species-specific catch data, which are vital for population assessment. The ASMFC, however, has not even proposed a fins-naturally-attached policy for smoothhound sharks, or any stronger measures, as options for public comment.

Allowing year-round smoothhound shark fin removal under the world’s most lenient fin-to-carcass ratio would hamper enforcement and create wiggle room for fishermen to fin smoothhound sharks without detection. Other species of small coastal sharks as well as juveniles of depleted large coastal shark species could also be at risk for undetected finning and unrecorded mortality because of these loopholes.

In addition, relaxing a state finning ban jeopardizes the U.S. reputation and goals as an international champion of the fins-naturally-attached method. The U.S. has supported the end of complicated fin-to-carcass ratios in the EU and elsewhere, and has proposed complete bans on at-sea shark fin removal at international fisheries bodies.

Sincerely,

Lars ROSENBLUM SORGENFREI

Danmark

From:	Amanda Lindell
To:	Comments
Subject:	the proposed 12% fin-to-carcass ratio for smoothhounds
Date:	Wednesday, March 27, 2013 8:24:09 PM

Dear Marin Hawk,

The proposed changes represent a huge step backwards in finning policy at a time when much of the rest of the world is moving toward the clear best practice for finning ban enforcement: requiring that all shark fins stay naturally attached to shark bodies. For example, the European Union (EU), among the top suppliers of shark fins to Asia, has recently changed course from lenient, hard-to-enforce ratios toward complete bans on at-sea removal of shark fins, regardless of species.

The U.S. federal Atlantic ban on at-sea shark fin removal, along with "fins-naturally-attached" decisions in the EU and elsewhere, are based on expert advice that the only way to be sure that sharks have not been finned is to mandate that their fins cannot be removed until after landing. In addition to improving and easing enforcement, this policy facilitates the collection of species-specific catch data, which are vital for population assessment. The ASMFC, however, has not even proposed a fins-naturally-attached policy for smoothhound sharks, or any stronger measures, as options for public comment.

Allowing year-round smoothhound shark fin removal under the world's most lenient fin-to-carcass ratio would hamper enforcement and create wiggle room for fishermen to fin smoothhound sharks without detection. Other species of small coastal sharks as well as juveniles of depleted large coastal shark species could also be at risk for undetected finning and unrecorded mortality because of these loopholes.

In addition, relaxing a state finning ban jeopardizes the U.S. reputation and goals as an international champion of the fins-naturally-attached method. The U.S. has supported the end of complicated fin-to-carcass ratios in the EU and elsewhere, and has proposed complete bans on at-sea shark fin removal at international fisheries bodies.

I urge you to support instead a fins-naturally-attached rule *for all sharks,* or even stronger rules

--
Amanda Lindell
alindell12@gmail.com
(863) 258-3124
https://twitter.com/#!/alindell12
http://www.lindellphotography.com/

From:	Bruce Coonradt
To:	Comments
Subject:	NO on shark finning
Date:	Wednesday, March 27, 2013 10:51:07 AM

Dear Sir,

As a concerned citizen, I request that no delay occur regarding the banning of shark finning. This was a major undertaking by many and a set back would be a slap in the face on our right to petition and effect change. The sharks deserve to be left alone to roam the oceans that they inhabit and own. Humans cannot decide the fate of any animal for our own gain. In my view to allow this to occur is morally and ethically wrong. This is human greed pure and simple. We need to respect and protect all living creatures on this planet.

Carol Coonradt
Mukilteo, WA

From:	Claudia Chauvet
To:	Comments
Date:	Wednesday, March 27, 2013 10:02:20 AM

Marin Hawk
ASMFC
1050 N. Highland St., Suite 200-A-N

Sirs,

I am voicing my support for moving forward rather than backward in the prevention of shark finning. I oppose the proposed 12% fin-to-carcass ratio for smoothhounds, and support instead a fins-naturally-attached rule *for all sharks,* or even stronger rules.

The U.S. federal Atlantic ban on at-sea shark fin removal, along with "fins-naturally-attached" decisions in the EU and elsewhere, are based on expert advice that the only way to be sure that sharks have not been finned is to mandate that their fins cannot be removed until after landing. In addition to improving and easing enforcement, this policy facilitates the collection of species-specific catch data, which are vital for population assessment. The ASMFC, however, has not even proposed a fins-naturally-attached policy for smoothhound sharks, or any stronger measures, as options for public comment.

Arlington, VA 22201Allowing year-round smoothhound shark fin removal under the world's most lenient fin-to-carcass ratio would hamper enforcement and create wiggle room for fishermen to fin smoothhound sharks without detection. Other species of small coastal sharks as well as juveniles of depleted large coastal shark species could also be at risk for undetected finning and unrecorded mortality because of these loopholes.

In addition, relaxing a state finning ban jeopardizes the U.S. reputation and goals as an international champion of the fins-naturally-attached method. The U.S. has supported the end of complicated fin-to-carcass ratios in the EU and elsewhere, and has proposed complete bans on at-sea shark fin removal at international fisheries bodies.

I thank you in advance for the attention given to my letter.

Claudia Chauvet

From:	Doris Adebanjo
To:	Comments
Subject:	US shark finning policy comment
Date:	Wednesday, March 27, 2013 11:02:48 PM

To Marin Hawk & others making decisions regarding the US' policy:

Move forward, not back backward on the US' shark finning policy. Allowing year-round smoothhound shark fin removal under the world's most lenient fin-to-carcass ratio would hamper enforcement and create wiggle room for fishermen to fin smoothhound sharks without detection. Other species of small coastal sharks as well as juveniles of depleted large coastal shark species could also be adversely affected by undetected finning due to changes in this policy.

thank you
Doris Adebanjo

From:	Emily Bauernfeind
To:	Comments
Subject:	ATTN: Marin Hawk re: smoothhound shark finning ratios
Date:	Wednesday, March 27, 2013 1:29:37 PM

I oppose the proposed 12% fin-to-carcass ratio for smoothhounds, and support instead a fins-naturally-attached rule *for all sharks.* I'd support even stronger regulations for shark protections.

I just wanted to throw my 2-cents in there before the ASMFC takes final action on these measures in May.

– Emily Bauernfeind
Jamaica Plain, Mass.

From:	FRANKLIN CHRISTINE
To:	Comments
Subject:	Shark finning
Date:	Wednesday, March 27, 2013 2:57:55 PM

Allowing finning of smoothhound sharks (Mustelus canis) in U.S. waters would be a huge step back in U.S. shark fisheries management policy. Please leave out the ammendment to the 2010 Shark Conservation Act so as to prevent this and move forward instead.
C. Franklin)Ms)

From:	Frederik Endres
To:	Comments
Subject:	Don´t create loopholes for the finning industry!
Date:	Thursday, March 28, 2013 5:10:22 AM

Dear Marin Hawk,

I read an artcle about the weakening of the US finning policy for some shark species (smoothhound sharks) and want to ask you not to step backwarts!

Sharks are so important for the health of our oceans but at the same time so slowly repruducing and easy to overcath that they have to be protected stronger and not weaker!

Please think again and don´t make it easier to catch sharks and, what is more, please don´t create loopholes for shark finning!

Yours,

Frederik Endres

From:	fwtks.nero@hush.com
To:	Comments
Subject:	Stop Shark Finning
Date:	Wednesday, March 27, 2013 11:07:11 AM

I am writing to say that I support for moving forward rather than backward in the prevention of shark finning. I ask you to please support a fins-naturally-attached rule *for all sharks.*

Thank you,
Nick Scholtes

From: gr8white14@hotmail.com
To: Comments
Subject: NO weakening of shark finning policy
Date: Wednesday, March 27, 2013 5:01:52 PM

To Whom It May Concern:

I am writing to implore you not to weaken your stance on shark finning. Shark finning is one of the most cruel and barbaric practices we humans perpetrate on animals. The animals are not just killed but are finned alive and then thrown back in to suffer a slow painful death. And this is done for a soup ingredient that has no flavor or nutritional value.
As shark populations decline the natural order is thrown out of balance at the loss of these magnificent apex predators. Further more as a shark decomposes it leaches ammonia into the water. One shark dying of natural causes is of no consequence but thousands dying in one area poisons the water and plant life in that area and leaves nothing but a barren area with no life.
Sharks are essential to the ocean's health and a healthy ocean is essential to our planet's health. Keep these amazing animals protected!

Sincerely,
Pam Naylor
Connected by DROID on Verizon Wireless

From:	inci mutlu
To:	Comments
Subject:	Don"t step back on your policy
Date:	Thursday, March 28, 2013 9:38:52 AM

Dear Marin Hawk,

Your new proposed an amendment that would allow some finning of smoothhound sharks in U.S. waters would be a huge step back in U.S. shark fisheries management policy. Please DON't STEP BACK!

Yours sincerely,

Luca Milano

From:	Jean Michel GUERRIER
To:	Comments
Subject:	Public comment for ASFMC.
Date:	Wednesday, March 27, 2013 10:22:16 AM

Dear Sirs,

I wish to add my voice to the advocates of sharks who urge you NOT to implement or try to implement any regressive amendment that would allow some finning of some sharks in US waters.

No finning at all must be the only possibility !

Thank you for your consideration of this matter.

Sincerely,

Jean-Michel GUERRIER
La Chapoulie
24210 PEYRIGNAC
FRANCE
(33) 5 53 50 60 00

From:	Jillian Morris
To:	Comments
Subject:	Concerns about Shark Finning
Date:	Wednesday, March 27, 2013 3:01:11 PM

Marin:

I am writing because of my concern regarding proposed changes to the finning regulations on the Atlantic coast. I am from Maine and grew up on the water. The ocean ecosystem is a delicate balance and fisheries management is crucial for the future of our oceans, but also for the fishermen who rely on them.

The U.S. federal Atlantic ban on at-sea shark fin removal, along with “fins-naturally-attached” decisions in the EU and elsewhere, are based on expert advice that the only way to be sure that sharks have not been finned is to mandate that their fins cannot be removed until after landing. In addition to improving and easing enforcement, this policy facilitates the collection of species-specific catch data, which are vital for population assessment.

Allowing year-round smoothhound shark fin removal under the world’s most lenient fin-to-carcass ratio would hamper enforcement and create wiggle room for fishermen to fin smoothhound sharks without detection. Other species of small coastal sharks as well as juveniles of depleted large coastal shark species could also be at risk for undetected finning and unrecorded mortality because of these loopholes.

In addition, relaxing a state finning ban jeopardizes the U.S. reputation and goals as an international champion of the fins-naturally-attached method. The U.S. has supported the end of complicated fin-to-carcass ratios in the EU and elsewhere, and has proposed complete bans on at-sea shark fin removal at international fisheries bodies.

Thank you for your time. Please consider the future of our oceans and the critical role sharks play in keeping them healthy.

Cheers,

Jillian

--
Jillian Morris
Executive Director & Cameraman
Oceanicallstars
www.oceanicallstars.com
www.shark-girl.com

" In the end we will conserve only what we love;we will love only what we understand;and we will understand only what we are taught."

Dream, teach, get active and get involved. Be the change you want to see in the world

From:	Laurie McLaughlin
To:	Comments
Subject:	shark finning...
Date:	Thursday, March 28, 2013 9:15:13 AM

Greetings, ASMFC officials

I would like to be on record as requesting that you do not increase the percentage of allowable shark finning (on any species).

Ideally, this unsound, unethical practice should be eliminated. It makes the monitoring of fish stocks much more difficult, if not impossible.

And, as a major player in the world fisheries, the US (and Canada, too!) should lead the way with the most scientific, most long-term sustainable regulations and methods.

Thank you,

Laurie McLaughlin
Montreal
(still a 'voting from abroad' US citizen)

From: lindsay bellefeuille
To: Comments
Subject: Shark Finning
Date: Wednesday, March 27, 2013 1:17:25 PM

To whom it may concern,

I am writing this email to you regarding the case of the shark finning. As a concerned citizen I think it is inhume to go forward with this. These sharks deserve to be left alone and be able to roam the sea free of fear of us humans. They deserve to live in their habitat where they belong. They have no voice they can not speak for themselves. WE ARE THEIR VOICE. All I am asking is you please take my email as well as many others and their comments into consideration. I personally believe “Shark Finning” should be banned all together but that's probably asking the government for too much. Right? There is so much animal cruelty going on in this world and the US that I am ashamed to say I live in the United States. I THOUGHT this country was the country of DREAMS and FREEDOM??? Thank you for your time I very much appreciate it.

Sent from Windows Mail

From:	Lisa Fletcher
To:	Comments
Subject:	Oppose 12% fin-carcass ration
Date:	Thursday, March 28, 2013 12:27:25 AM

Attn:

Marin Hawk
ASMFC
1050 N. Highland St., Suite 200-A-N
Arlington, VA 22201

I respectfully request that the 12% fin-carcass ratio for smoothhound sharks be stricken. This is cruel and highly unethical. Please consider stronger rules, that will not leave these sharks to die after being mutilated.

Respectfully,

Lisa M. Fletcher

Attorney at Law

Sacramento, CA 95828

(916) 346-2064

From:	Megan Shoff
To:	Comments
Subject:	Attn: Marin Hawk
Date:	Wednesday, March 27, 2013 11:04:39 AM

I oppose the proposed 12% fin-to-carcass ratio for smoothhounds, and support instead a fins-naturally-attached rule *for all sharks,* or even stronger rules.

The troubling proposals stem from confusing text contained within the **2010 Shark Conservation Act**, which suggests a smoothhound exception in a national ban on removing shark fins at sea. This language, however, has yet to be interpreted by the federal government. State interpretation and implementation is therefore premature.

More important, the proposed changes represent a huge step backwards in finning policy at a time when much of the rest of the world is moving toward the clear best practice for finning ban enforcement: requiring that all shark fins stay naturally attached to shark bodies. For example, the European Union (EU), among the top suppliers of shark fins to Asia, has recently changed course from lenient, hard-to-enforce ratios toward complete bans on at-sea removal of shark fins, regardless of species.

The U.S. federal Atlantic ban on at-sea shark fin removal, along with "fins-naturally-attached" decisions in the EU and elsewhere, are based on expert advice that the only way to be sure that sharks have not been finned is to mandate that their fins cannot be removed until after landing. In addition to improving and easing enforcement, this policy facilitates the collection of species-specific catch data, which are vital for population assessment. The ASMFC, however, has not even proposed a fins-naturally-attached policy for smoothhound sharks, or any stronger measures, as options for public comment.

Allowing year-round smoothhound shark fin removal under the world's most lenient fin-to-carcass ratio would hamper enforcement and create wiggle room for fishermen to fin smoothhound sharks without detection. Other species of small coastal sharks as well as juveniles of depleted large coastal shark species could also be at risk for undetected finning and unrecorded mortality because of these loopholes.

In addition, relaxing a state finning ban jeopardizes the U.S. reputation and goals as an international champion of the fins-naturally-attached method. The U.S. has supported the end of complicated fin-to-carcass ratios in the EU and elsewhere, and has proposed complete bans on at-sea shark fin removal at international fisheries bodies.

Once again, I oppose the proposed 12% fin-to-carcass ratio for smoothhounds, and support instead a fins-naturally-attached rule *for all sharks,* or even stronger rules.

Thank you,

Megan Shoff, PhD

From: Nick Picha
To: Comments
Date: Wednesday, March 27, 2013 4:57:12 PM

Hello,

I support landing all sharks with fins naturally attached, with no exceptions. I support responsible management, not fin ratio loopholes. I support NO shark finning of any kind or any species anywhere, especially in United States waters.

Nick Picha

From:	Nikki Best
To:	Comments
Subject:	Weakening of shark policy
Date:	Thursday, March 28, 2013 2:19:41 AM

Dear ASMFC,

I support for moving forward rather than backward in the prevention of shark finning. I oppose the proposed 12% fin-to-carcass ratio for smoothhounds, and support instead a fins-naturally-attached rule *for all sharks,* or even stronger rules! We must protect the top predators of the ocean to ensure a healthy ecosystem from the top down.

Regards,
Nikki Best

From:	Sarah Hafer
To:	Comments
Subject:	No Point for 12% Fin-to-Carcass Ratio for Smoothhounds!
Date:	Wednesday, March 27, 2013 12:33:29 PM

Let's move forward in the prevention of shark finning. The proposed 12 percent fin-to-carcass ratio is mindless. Any amount of finning allowed is simply inhumane.

Move forward with supporting a fins-naturally-attached rule for ALL sharks or even stronger rules.

Thank you,

Sarah Hafer
Sacramento, CA

From:	sshannon7@comcast.net
To:	Comments
Subject:	Preventing a Potential Setback in U.S. Atlantic Shark Finning Policy
Date:	Wednesday, March 27, 2013 5:51:44 PM

I personally wish all shark finning or fishing is banned, period. However if any shark finning is to be allowed then at the very least let us follow the “fins-naturally-attached” route which is more humane as the shark is not cut while alive and then just left to die, unable to steer in the ocean. The US must take an ethical stand and lead the way for other countries to follow or at least be among the most civilised countries when it comes to our treatment of marine life.

Sam Shannon

North Carolina Department of Environment and Natural Resources
Division of Marine Fisheries

Beverly Eaves Perdue
Governor

Dr. Louis B. Daniel III
Director

Dee Freeman
Secretary

MEMORANDUM

To: Christopher Vonderweidt

From: Clark Gray

Date: 9/2/2009

Subject: Additional Information on Carcass to Fin Ratio

Addendum 1 was approved by the Board at their August 20 meeting and provided for a seasonal allowance (March through June) to process smooth dogfish at sea. The purpose of this memo is to re-raise the issue of the 95:5% carcass-to-fin ratio for smooth dogfish that is still included in the requirements for Addendum 1. If you recall in my last memo, I provided some NC trip ticket data that shows the ratio for smooth dogfish ranges from approximately 91:9% to 89:11%. Additional information recently collected off North Carolina show very similar results.

With the current 95:5% ratio for smooth dogfish still in effect, fishermen will be forced to throw fins overboard to meet this requirement. Now that a seasonal allowance for the processing of smooth dogfish has been approved, it is important that we correct this misapplied ratio for smooth dogfish. The supporting information for this consideration is provided below.

NCDMF and commercial fishermen recently conducted an independent carcass-to-fin ratio study on smooth dogfish. The findings indicated carcass-to-fin ratios ranged from 8.6 to 11.2% (Table 1). Landings from a top participant in the smooth dogfish fishery (2009) were analyzed and the carcass-to-fin ratios were calculated. For these landings, carcass-to-fin ratios ranged from 9.2 to 11.3% per individual trips (Table 2). Carcass and fin weights (from 2004 to 2008 top participants) were also analyzed and carcass-to-fin ratios were calculated from NCDMF Trip Ticket data. These ratios ranged anywhere from 9.8 to 10.4% (Table 3).

Table 1. NCDMF independent study on smooth dogfish carcass-to-fin ratios.

	FL length	Weight (kg)	Fins (kg) Dorsal/pectoral	Carcass (kg)	Percentage
1	950	4.97	.18	1.98	9.0
2	900	4.48	.19	1.83	10.3
3	950	4.35	.18	1.85	9.7
4	940	4.45	.17	1.76	9.6
5	1000	5.34	.22	2.28	9.6
6	960	4.91	.18	1.92	9.3
7	910	4.48	.18	1.75	10.2
8	1110	7.76	.28	3.16	8.8
9	1050	6.23	.23	2.68	8.5
10	940	4.55	.19	1.80	10.5
11	1010	5.78	.21	2.44	8.6
12	960	4.96	.20	2.15	9.3
13	1070	7.19	.28	2.60	10.7
14	1010	5.35	.25	2.22	11.2
15	890	3.64	.15	1.54	9.7
16	1000	5.53	.20	2.28	8.7

Table 2. Smooth dogfish carcass and fin landing weights from individual trips. 2009 landing data. * NCDMF was granted permission by participant to divulge trip level landings information.

Trips	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Carcass (lbs)	8,700	7,046	260	10,920	2,064	12,890	10,620	9,400
Fins (lbs)	985	786	24	1,200	229	1,415	1,108	1,030
%	**11.3**	**11.1**	**9.2**	**10.9**	**11**	**10.9**	**10.4**	**10.9**

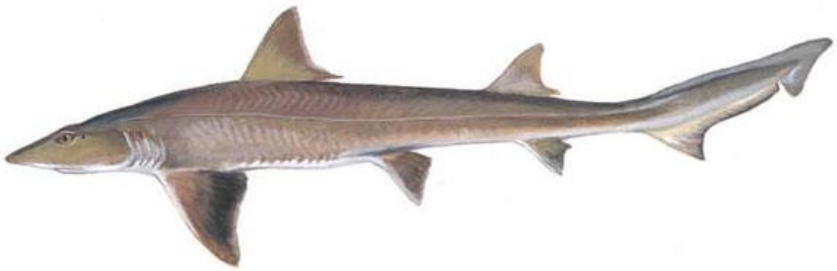
Table 3. Carcass-to-fin percentages from the top participants in the smooth dogfish fishery. Data source: NCDMF Trip Ticket Program.

	2004	**2005**	**2006**	**2007**	**2008**
Carcass (lbs)	116,105	159,337	155,267	136,327	155,418
Fin (lbs)	11,493	16,601	15,895	14,152	15,803
%	**9.8**	**10.4**	**10.2**	**10.3**	**10.1**

CC: Louis Daniel, Mike Johnson, Bill Cole

Smooth Dogfish (*Mustelus canis*)

Fin: Carcass Ratio Project



May 2013

ASMFC Coastal Sharks Technical Committee – Participating Members/Staff

Marin Hawk, FMP Coordinator
ASMFC – Coastal Sharks
1050 N. Highlands St. Suite 200 A-N
Arlington, VA 22201

Russ Babb, Supervising Biologist
NJDEP – Division of Fish and Wildlife
Marine Fisheries Administration
1672 E. Buckshutem Rd.,
Millville, NJ 08332

Holly White, Marine Biologist
NC Division of Marine Fisheries
P.O. Box 1965
1021 Driftwood Dr.
Manteo, NC 27954

Background

The Coastal Sharks Technical Committee (TC) met via conference call in June 2012. The purpose of the call was to review a smooth dogfish processing at sea request from New Jersey commercial fishermen. Section 2.3.1 of Addendum I to the 2008 Interstate Fisheries Management Plan for Atlantic Coastal Sharks (FMP), Smooth Dogfish Processing at Sea, allows commercial fishermen to completely remove all smooth dogfish fins at sea from March – June with a max 5% fin to carcass ratio; the dorsal fin and tail must remain attached naturally to the carcass from July – February.

In July 2009, during the development of Addendum I, North Carolina submitted a memo with trip ticket information from 2004 – 2009 that finds the fin to carcass ratio varied from 9.8 – 10.4%. During the June 2012 TC conference call, the TC chose not to endorse the results of the North Carolina trip ticket study because the weights were not observed by North Carolina Division of Marine Fisheries staff and was calculated from the bulk sum of all fish caught on a trip. Endorsement of this particular study was heavily dependent on the fact that no individual fish weights were present.

North Carolina submitted additional information in September 2009 to that was not included in the June 2012 TC conference call. The additional information included individual weights from sixteen fish sampled by North Carolina Division of Marine Fisheries staff. The purpose of the memo was to revisit the issue of the maximum 5:95 fin to carcass ratio. The findings of this additional study indicated fin to carcass ratios ranged from 8.6 – 11.2% for a dorsal and pectoral fin set. To date the TC has not endorsed the September 2009 study.

The TC agreed, during the June 2012 conference call, that the July 2009 North Carolina memo results indicate that the correct fin to carcass ratio is likely different from the current 5:95 ratio. TC members from Massachusetts, New Jersey, North Carolina, and South Carolina agreed to begin weighing individual smooth dogfish as a comprehensive study to determine a scientifically valid smooth dogfish fin to carcass ratio. Currently, only New Jersey and North Carolina have collected data.

Draft Addendum II to the Interstate Coastal Sharks Fishery Management Plan was developed to address implementation of a coastwide quota and to respond to the above-mentioned New Jersey request. State-shares are proposed as an option in the document to prevent the quota of smooth dogfish being taken in one region while excluding other regions of the coast. The at-sea processing aspect of Draft Addendum II was developed in response to National Marine Fisheries Service (NMFS) pending implementation of the provisions of the Shark Conservation Act of 2010 (SCA). The SCA contains an exception for commercial harvest of smooth dogfish within 50 nautical miles of a state. The SCA is implementing a 12% fin to carcass ratio for smooth dogfish, a ratio less restrictive than the ratio in state waters. In a TC conference call in January 2013, the TC agreed that maintaining consistency between federal management and state management is necessary to uphold the objectives of the FMP. Therefore, the TC recommended that a 12:88 fin to carcass ratio, consistent with the SCA, be included as the preferred option in Draft Addendum II to the FMP.

Objective

The objective of this white paper is to determine a scientifically valid smooth dogfish fin to carcass ratio, in order to assist the Spiny Dogfish and Coastal Sharks Management Board in their final action for Draft Addendum II to the FMP.

Survey Methodology

Due to other work priorities and a lack of activity/landings within the State's dogfish net fisheries, New Jersey's samples were collected on 11 October 2012 from the Ocean Trawl Stock Assessment Survey, which uses a stratified random sampling design to collect trawl data from state coastal waters. The survey area includes only waters adjacent to the New Jersey coastline. Trawl samples are collected with a three-in-one trawl, which is a two-seam trawl constructed of polyethylene twine with forward netting (wings, belly) of 12 cm (4.7 in.) stretch mesh and rear netting of 8 cm (3.1 in.) stretch mesh. The codend is 7.6 cm stretch mesh (3.0 in.) and is lined with 6.4 mm (0.25 in.) bar mesh liner. The headrope is 25 m (82 ft.) long and the footrope is 30.5 m (100 ft.) long. The trawl bridle is 120 ft. long, the top leg consisting of 0.5 in. wire rope and the bottom leg comprised of 0.75 in. wire rope covered with 2 3/8 in. rubber cookies. A 60 ft. groundwire, also made of 0.75 in. wire rope covered with 2 3/8 in. rubber cookies, extends between the bridle and trawl doors. The trawl doors are wooden with steel shoes, 8 ft. x 4 ft. 2 in., and weigh approximately 1,000 lbs. each.

Trawl samples are collected by towing the net for 20 minutes, timed from the moment the winch brakes are set to stop the deployment of tow wire to the beginning of haulback. Target towing speed is 2.5 – 3.0 knots, or about 2.8 knots. A 20 minute tow generally covers about one nautical mile. Following haulback, the catch is dumped into a 4 x 8 ft. sorting table where fishes and macroinvertebrates are sorted by species into plastic buckets and wire fish baskets. The total weight of each species is measured with hanging metric scales and the length of all individuals comprising each species caught, or a representative sample by weight for large catches is measured to the nearest centimeter (cm).

All smooth dogfish retained in this study were randomly removed throughout the day by Marine Fisheries staff following the recording of total dogfish weight for a given trawl. No preference was given to sex or size. Personnel on the vessel reported that the fish collected and retained were representative of size of fish collected throughout survey.

Study Design, Processing Methodology and Caveats

Three commercial fishermen who regularly land smooth dogfish were consulted prior to sample collection and processing. One commercial fisherman (Kevin Wark - Fisherman 1) visited the Marine Fisheries office at Nacote Creek and processed two smooth dogfish according to his processing methods. This process was photo-documented, step by step by Marine Fisheries staff. In recent years, this harvester stated that he would rarely land smooth dogfish due to the high volume needed and the low price attained at market. The other two fishermen (John Breitling and Eric Snelling – Fishermen 2 & 3) attested to regularly landing smooth dogfish when they were available, and probably more importantly, when other higher-valued species were not readily available. The two latter fishermen process their catch slightly differently than Fishermen 1. Based on later conversations with all three fishermen, it was decided that the processing methods of Fishermen 2 & 3 better represent the processing observed across New Jersey's smooth dogfish fishery.

For fin identification, see Figure 1 below. Three main differences were noted between Fisherman 1 and Fishermen 2 & 3. First, Fisherman 1 used a circular cut on the pectoral fins (P), leaving the fin attachment points on the log and having less meat on the fins (see Figure 2). Fishermen 2 & 3 performed a straight cut similar to the observed process in North Carolina on all fins, with no circular cuts. Fishermen 1 was also very exact in his cutting on all fins and took less "meat" than the other fishermen attested to taking during normal fishing and processing operations. Second, when cutting the belly flap, Fisherman 1 did not take the P1 fins, but would remove them in separate cuts prior to making this cut. Most NJ fishermen remove all fins first, and then perform one single cut when removing the head and belly flap. This cut begins behind the head down through the gills into belly area then running above the P fins (typically already removed) and ending just past the P1 fins, removing them attached to the flap. The fishermen reportedly receive approximately $3.00 per pound ex-vessel for the D1 and P fin set. The third difference involved the use/retention of the caudal fin. Fisherman 1 stated that he did not retain the caudal, but the other two fishermen

reported that they did indeed retain the tail, which was typically placed in a separate basket (separate from the other processed fins) on the harvest vessel. Most fishermen appear to retain the caudal fins separately in New Jersey, which reportedly receive $0.45 per pound paid ex-vessel to the fishermen.

Figure 1. Fin Identification and Codes

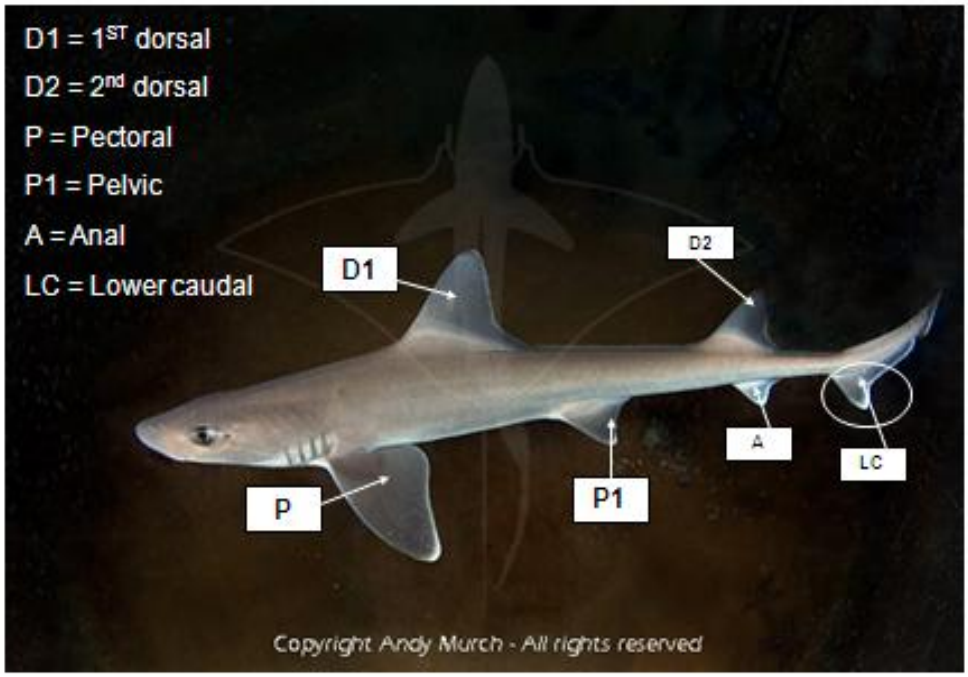


Figure 2. Circular cut, which leaves less meat on the P fins, not the normal cut for NJ fishermen.

Results / Discussion

The dogfish collected from our trawl survey were an average of 707.2 mm in length. The length range was 545 – 1,060 mm. There was a reasonable split within the sexes collected, with 29 males and 23 females. It is noteworthy that these collected fish were a touch on the smaller side, versus what we would see in our commercial fisheries or in our spring trawl survey. It appears that the majority of our fishermen cut very similar to North Carolina fishermen (straight cuts), but with a few differences: North Carolina fishermen retain the D1 and D2 fins, along with the P fins. We are unsure if the caudal fin is retained in North Carolina. Most NJ fishermen do not retain or use the second dorsal and our fishermen cut and, as noted above, retain the caudal fins in a basket, culled separately.

To summarize, the primary New Jersey fin set is the dorsal (D1) and the two pectoral fins (P) together in one basket and the entire caudal (not the lower lobe) in a separate basket. Because of the varying fin sets both within New Jersey and between the two states, during independent processing, all fins were cut and weighed separately to allow for ease of analysis, depending on what fins are retained and what fin sets are used for a given state. During processing, the following metrics were collected: length (mm), sex, round or whole weight (kg), dressed/carcass weight of processed log (kg), D1 weight (kg), D2 weight (kg), P weight (kg), caudal weight (kg) and all fins weight in kg (see Figure 3 below and Table 1 for collected data).

Initially, one of our main concerns was that the fish needed to be collected within both size and sex bins, which would introduce more variables. Again, the fish collected in the October survey were smaller than those typically retained by commercial fishermen. However, as expected, when comparing NJ and NC numbers, we believe the data neatly confirms proportional growth for fins and body. Initial fin: carcass analysis shows that when comparing NJ and NC data (using the NC fin set), NJ falls in at 8.7% and NC at 9.6% (see Tables 2 & 3). One reason that the NJ numbers may be a bit lower is that it is possible that our processor was a little too careful; not processing at the same speed and pace that a fishermen would be working at, which would presumably leave more meat on the fins. A quick fishery dependent sampling trip on a commercial boat could potentially shed some light on this.

Quick analysis of the data and histograms, NJ data suggests that a mean would be appropriate to characterize a ratio. However, given that the fin: carcass ratio changes with dressed weight, depending on fishery practices and acceptable enforcement tolerances (confidence intervals around the mean), several ratios may be necessary. More problematic from a regulatory, implementation and eventually, an enforcement viewpoint is the fact that NC fishers and NJ fishers harvest different fin sets, at least as reported in NC's 2009 study versus NJ's 2012 study, respectively. While the allowance for harvesters to remove the dorsal fin during the post July 1 period is not viewed as problematic from NJ's perspective, it could have enforcement implications or be difficult to implement across multiple states given the differing fin sets that are retained. A suggestion might be made for a uniform processing and fin set retention across the states in order to implement this otherwise reasonable request from industry.

Figure 3. Processed log and straight cuts of D1, D2, P and caudal fin (Note, NJ fishermen do not retain the D2 for sale).

If you consider all fins retained by NJ fishermen (D1, P ***and*** the caudal), the percentage is 13%. With just the D1 and the P, without the caudal, is 7.5%. Adding the D2 to the fin set (similar to how NC processes) would add one percent due to the nominal size of the D2 fin. To further complicate the matter, it appears that some (reportedly only a few) NJ fishermen retain the D1 ***and*** D2, along with the P fins and discard the caudal.

Step by Step Processing

Figure 4. Shows a typical smooth dogfish (*Mustelus canis*) prior to processing procedure.

Figure 5. Straight cut – representative of NJ process

Figure 6. Prior to processing, the total length and weight of the whole dogfish was recorded.

Figure 7. First cut…the first dorsal fin (D1) was removed via a flat cut directly below the cartilaginous section of the fin. A small sliver of meat was left on the first dorsal fin as a result of this type of cut, as shown in photo below.

Figure 8. The pectoral fins were then removed using a straight cut that accounts for the angle of the shark torso. An alternate to this cut (circular cut) is illustrated in Figure 9. This alternate cut cuts around the fleshy lobe at the base of each pectoral fin. The resulting fin has less meat on it. For this study we used the first pectoral fin cut style although it is recognized that some prefer the alternate cut.

Figure 9. A circular cut, which is not typical within NJ commercial industry.

Figure 10. Final Steps in Processing - The caudal fin was removed with a cut on the trunk just anterior of the caudal fin.

A vertical cut was then made, in line with the posterior gill slit, down and then along to the color change of the sharks belly flap.

This horizontal cut continues along the belly flap color line. This cut stemmed from the previous vertical cut and terminated directly after the P1 attachment (taking the P1 fins with the belly flap).

The previous two cuts then allowed for the head, belly flap, and entrails to be removed together as shown below. The result was a clean log with the second dorsal intact with the log.

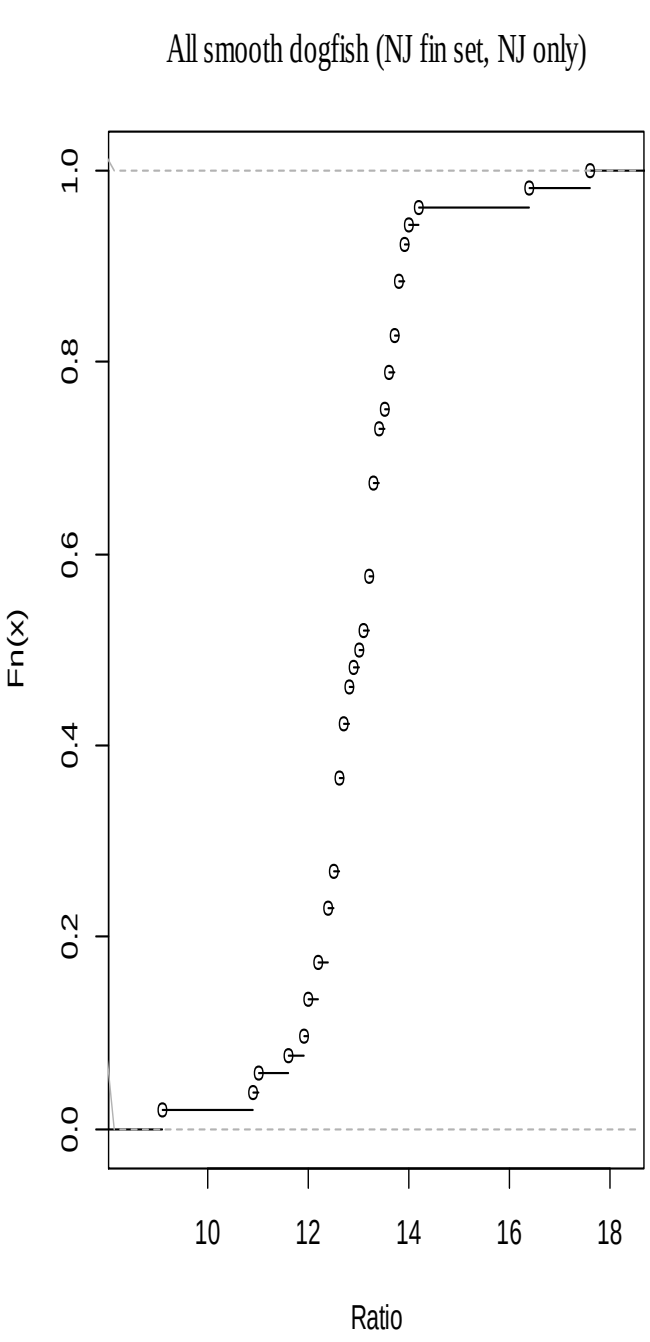
The individual weight (kg) of each fin (first dorsal, pectorals, caudal) were measured and recorded. The mass of the pectoral fins was measured and recorded as a single combined weight.

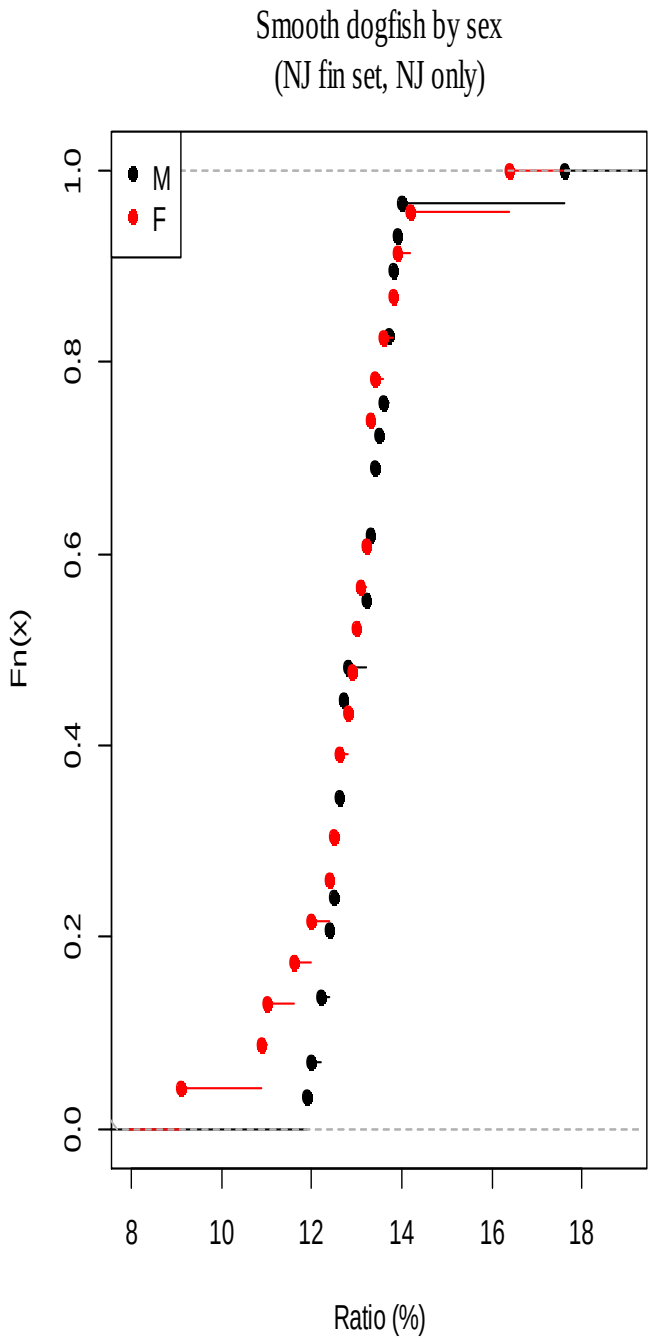
The second dorsal was removed from the cleaned log in the same style as the first dorsal. The mass of the cleaned log with the second dorsal was measured and recorded as illustrated below. The D2 was then removed and weighed. This was done in this manner because it is recognized that there may be a possible market for the second dorsal to be sold as a fin and not in association with the cleaned log, similar to what occurs in NC.

A photograph showing all possible marketable portions of the smooth dogfish.

New Jersey Fin Set Data

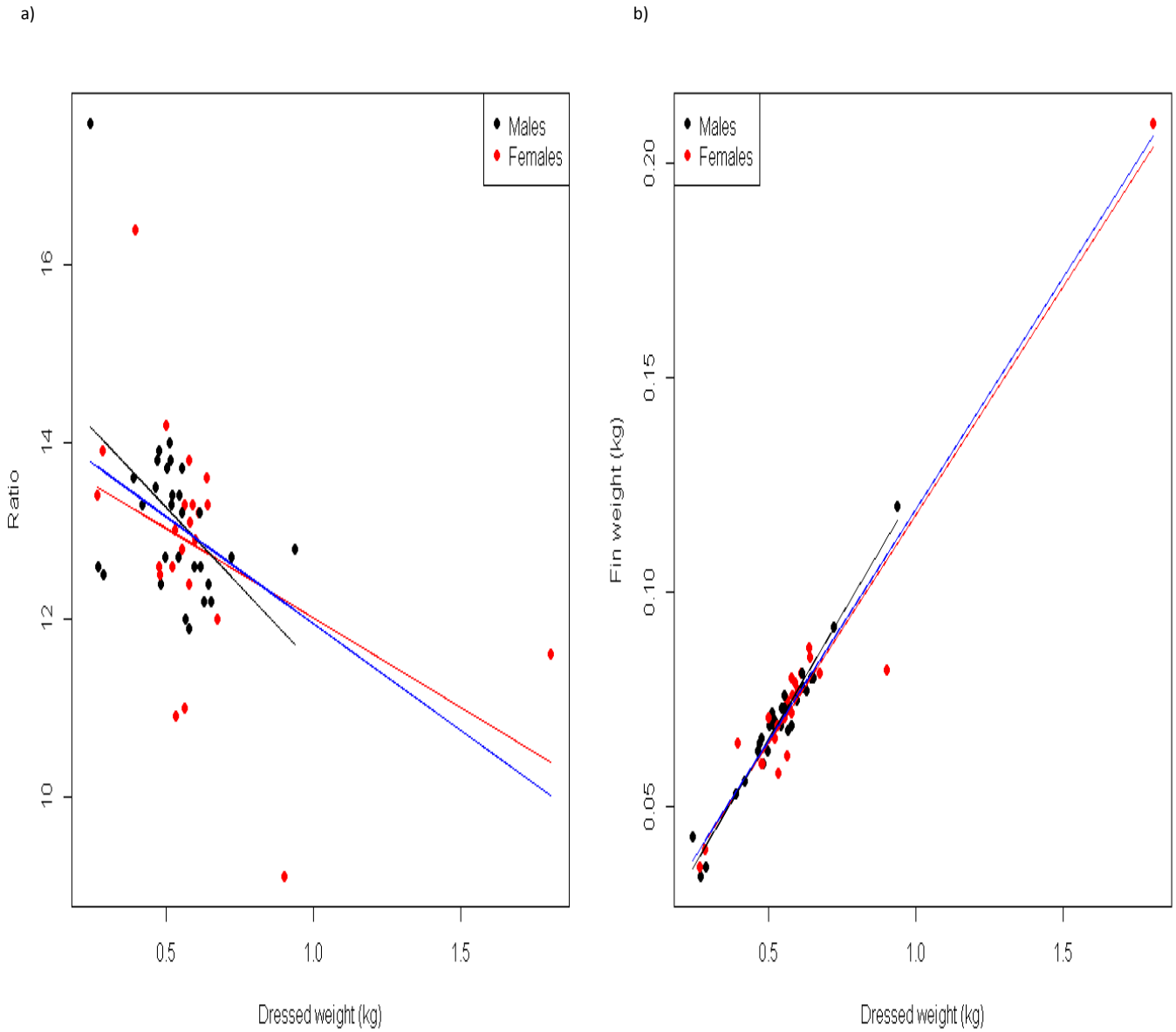
Figure 12. Empirical cumulative distribution function plots for the NJ fin set for all dogfish and by sex of dogfish [Fn(x) = fraction of observations ≤ a given observation]. Small ratios for females diverge (are smaller) from males (i.e., small ratios for females are smaller than small ratios for males). Figure 12 shows that the small female ratios are not associated with aberrant dressed weights, save perhaps two data points.





New Jersey Fin Set

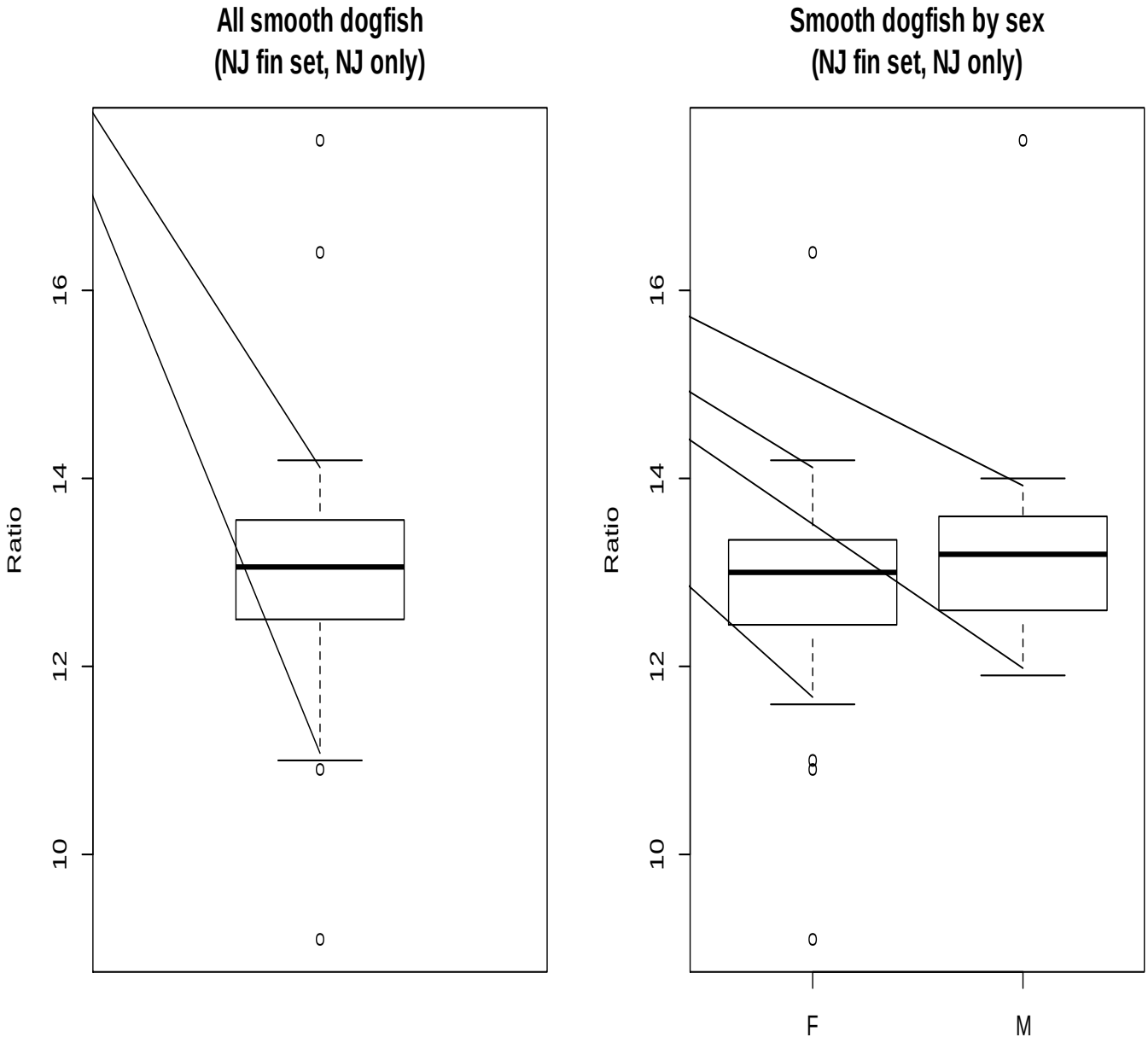
Figure 13. a) Fin: carcass ratio as a function of dressed weight of NJ smooth dogfish (NJ fin set) (blue line is all-fish regression line). Regression lines are added to male fish: ratio = (male dressed weight * -3.536) + 15.032; female fish: ratio = (female dressed weight * -2.022) + 14.04; and all fish (blue line): ratio = (f=dressed weight * -2.416) + 14.370. This figure is provided to convey a sense of the range of variability of the ratio as a function of dressed weight and suggests that future efforts might focus on a broader range of fish sizes (heavier fish in NJ tend to have lower ratios). Future efforts might also focus on the influence of several potential outlying points in ratio estimation. b) The slope of each regression line is an estimate of the respective fin: carcass ratio [male = 0.12 (r^2 = 0.95), female = 0.11 (r^2 = 0.94), or all fish = 0.11 (r^2 = 0.94)][1]. The ratios do not differ by sex (Wilcoxon signed rank W =967.5, p = 0.5365).



[1] Note that the arithmetic means of male ratios = 0.13, female ratios = 0.13, and all-fish ratios = 0.13.

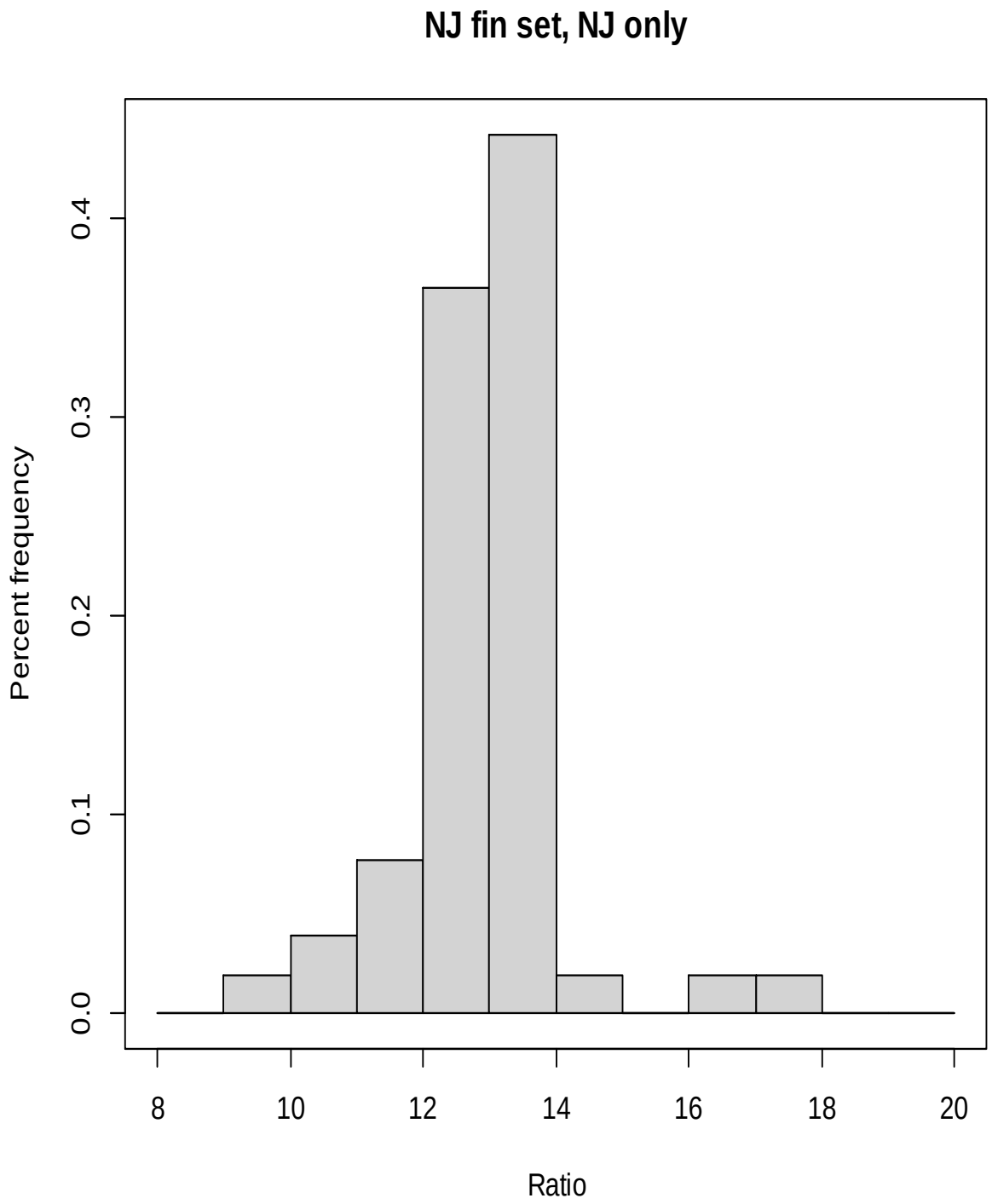
New Jersey Fin Set

Figure 14. The boxplots in the figure below suggest that female ratios are somewhat smaller and more variable than ratios from male dogfish, a finding supported in the regression plots above (Figure 13). There is some suggestion too that some data points might be pruned from the data set. We evaluated all data prior to analyses and concluded that there were no QA/QC concerns about the outlying points (e.g., numbers were not transposed, recorded incorrectly, etc.) so all were retained for analyses.



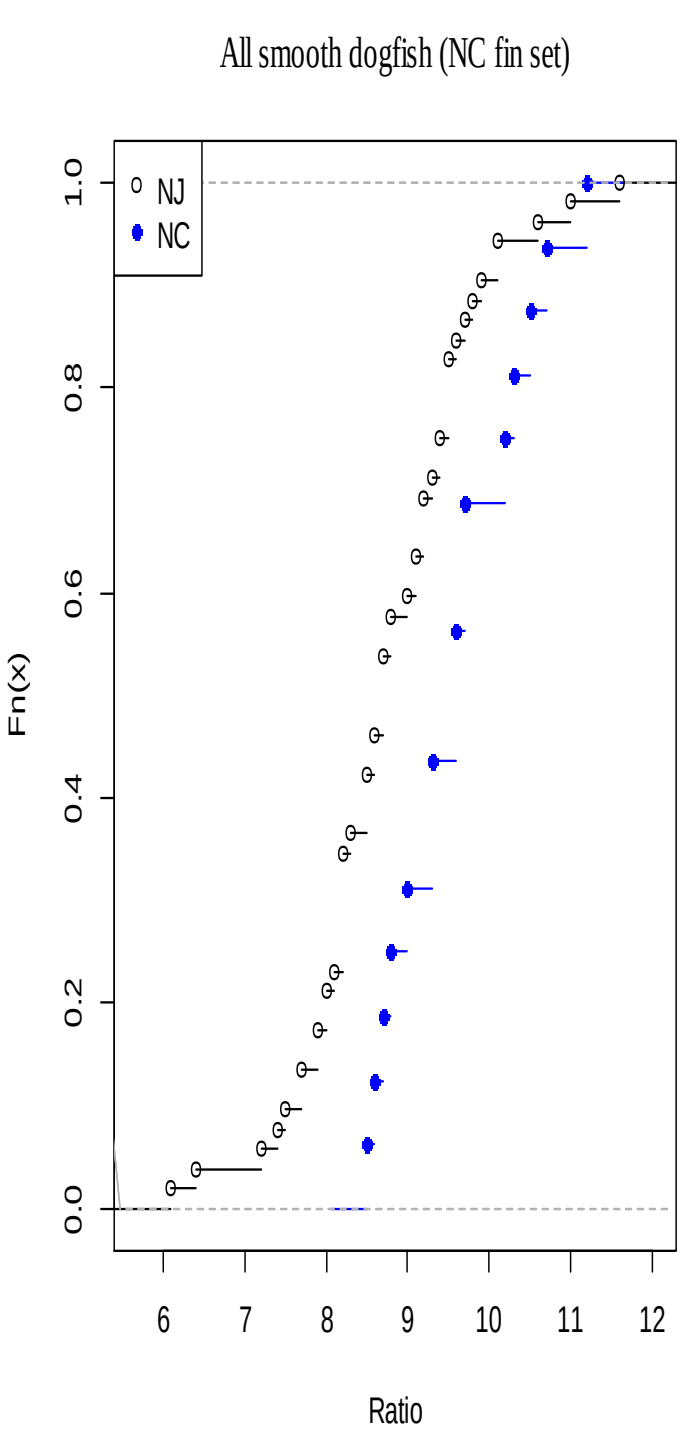
New Jersey Fin Set

Figure 15. The figure below as well as the ECDF plots in Figure 1 2 suggest that the data are reasonably normally distributed, though results from a Shapiro Wilk test indicate otherwise (however, pruning the smallest ratio and two largest ratios did normalize the data). Nevertheless, the mean and median of the values are nearly identical; not surprisingly, the mean and median are nearly identical if outlying points in the boxplot above are removed.



North Carolina Fin Set - Comparison

Figure 16. The empirical cumulative distribution function plot shows that the NJ ratios are less than NC ratio (NC data from 2009). Whether this difference arises from processing techniques or is a result of the larger fish in NC's ratios (see Figure 17 below) is presently unknown. With respect to NJ-only fish, the gender difference in ratios is present, as it was with the NJ fin set, but shows a slightly different pattern (compare with Figure 12).



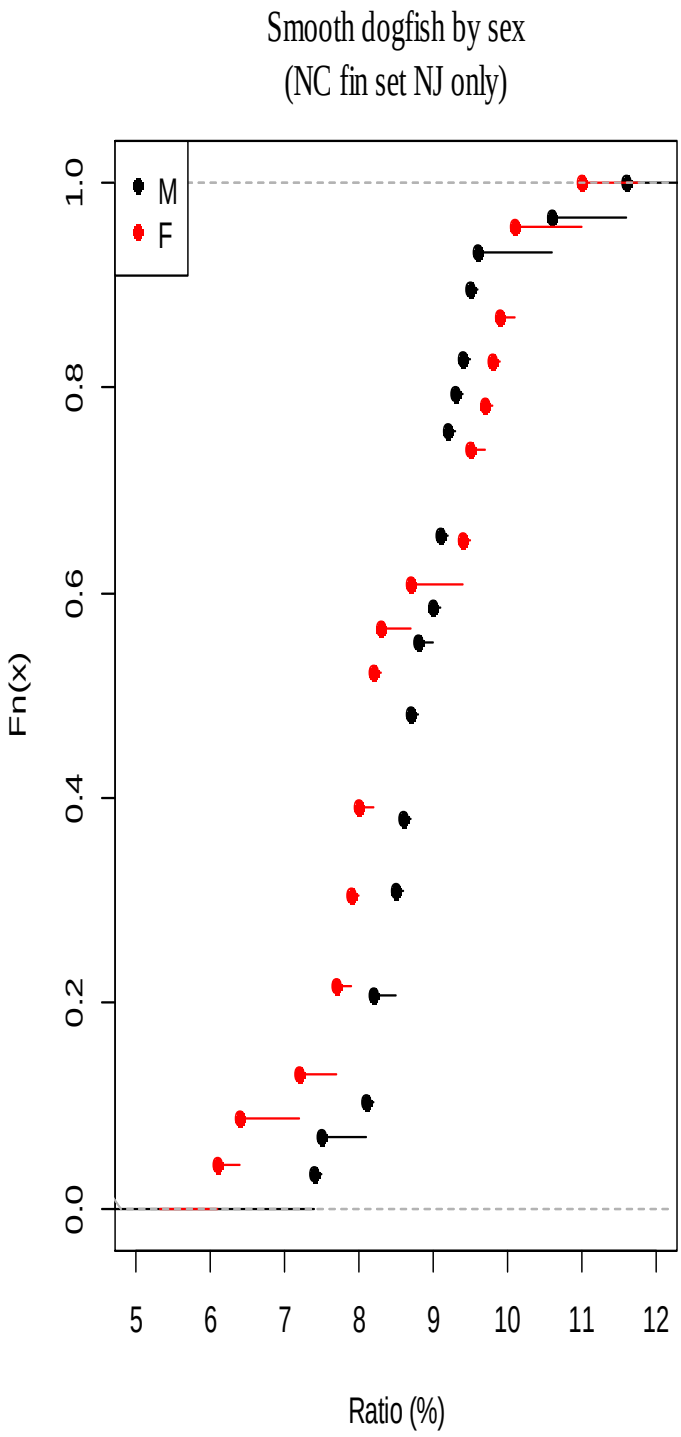
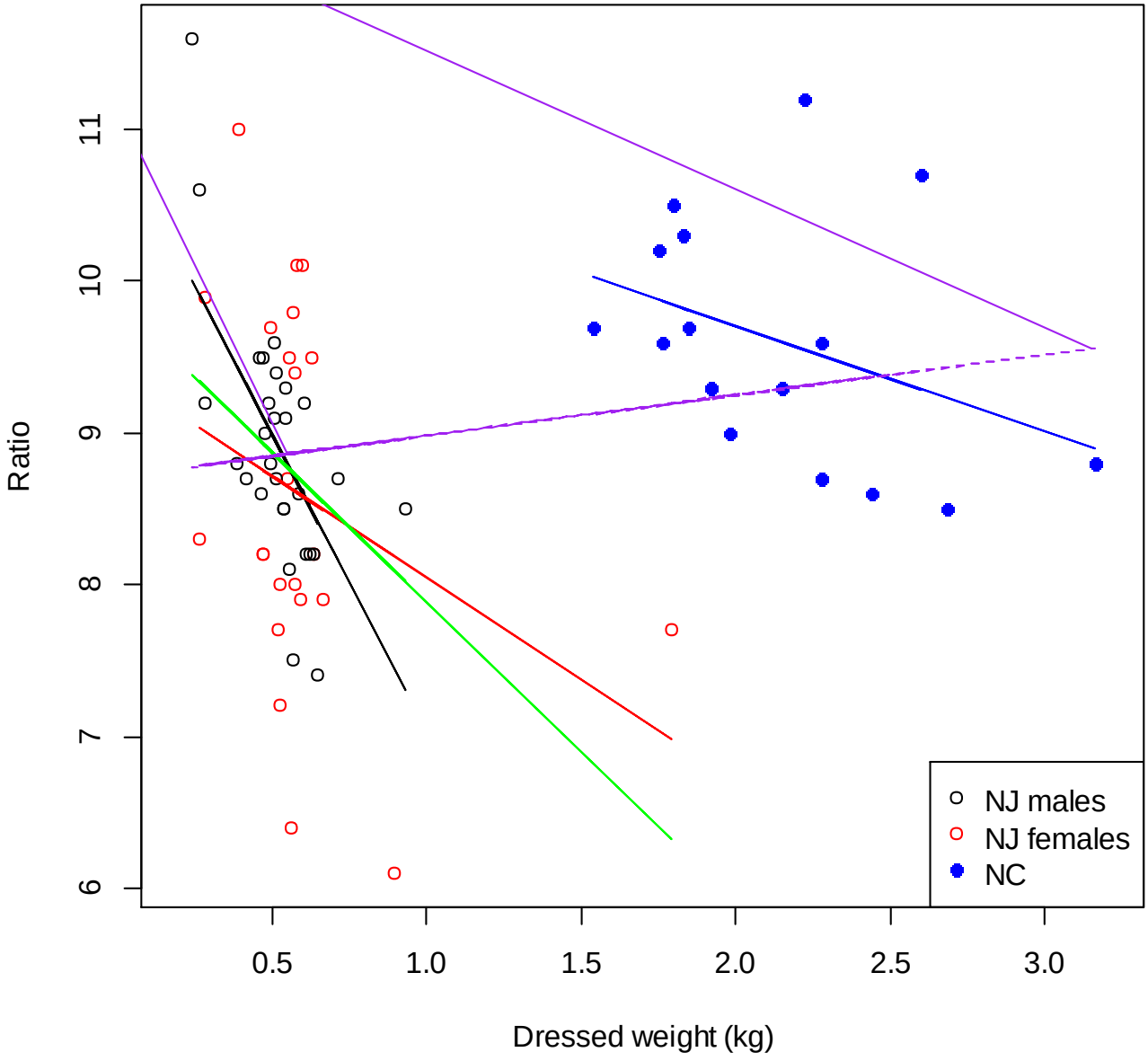
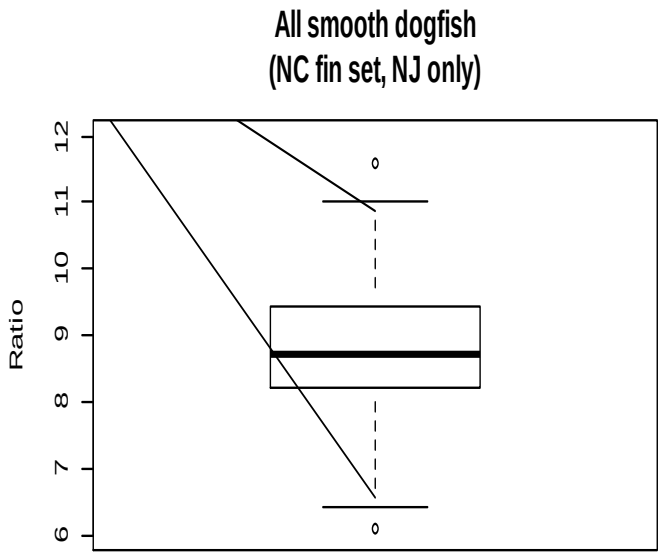


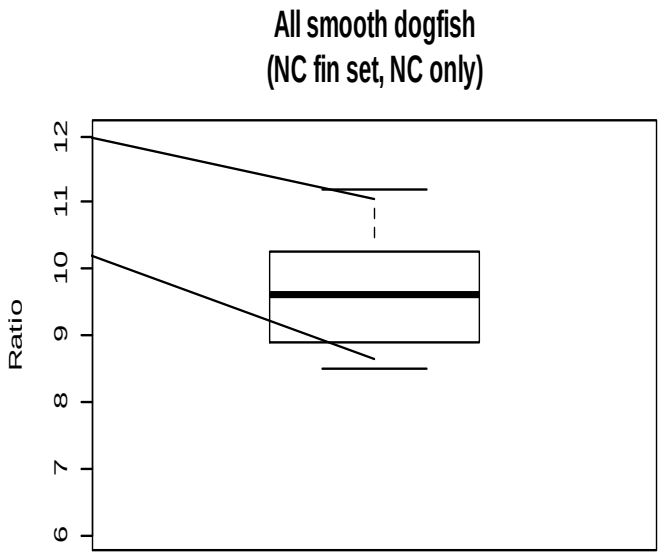
Figure 17. Ratio as a function of dressed weight using the NC fin set (note that green line is an all-NJ-fish regression line & the purple line is the all-all-fish regression line that combines NJ and NC fish) to provide a sense of the range of variability in ratios as a function of dressed weight. Similar to figures above, there is again a suggestion that heavier fish have lower ratios within a state – however when the datasets are combined, there is actually a trend of increasing ratios as a function of dressed weight. NC has an arithmetic mean ratio similar to (9.6 for NC compared to 8.8 for NJ), but statistically different (Wilcoxon's Signed Rank W = 626, p = 0.0024) from NJ's.



The boxplots in figures above show that ratios in NJ tend to be lower and more variable relative to NC. Female ratios in NJ, using the NC fin set, are again lower and more variable than male ratios.

Figure 18.





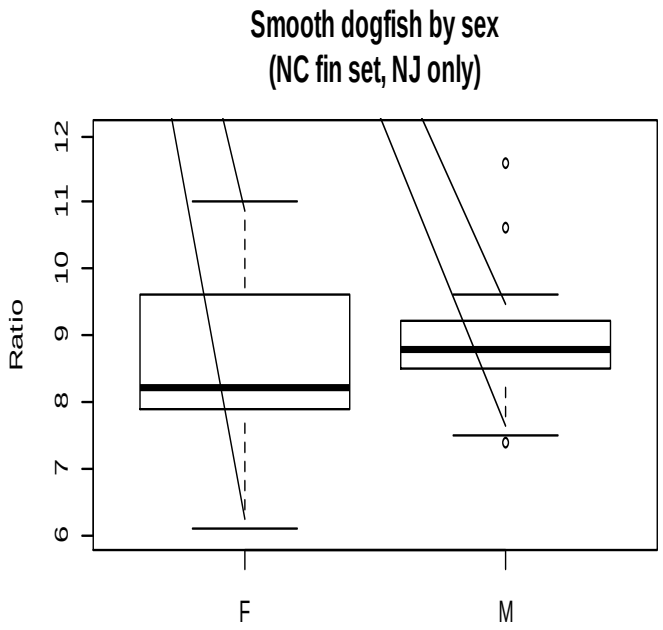
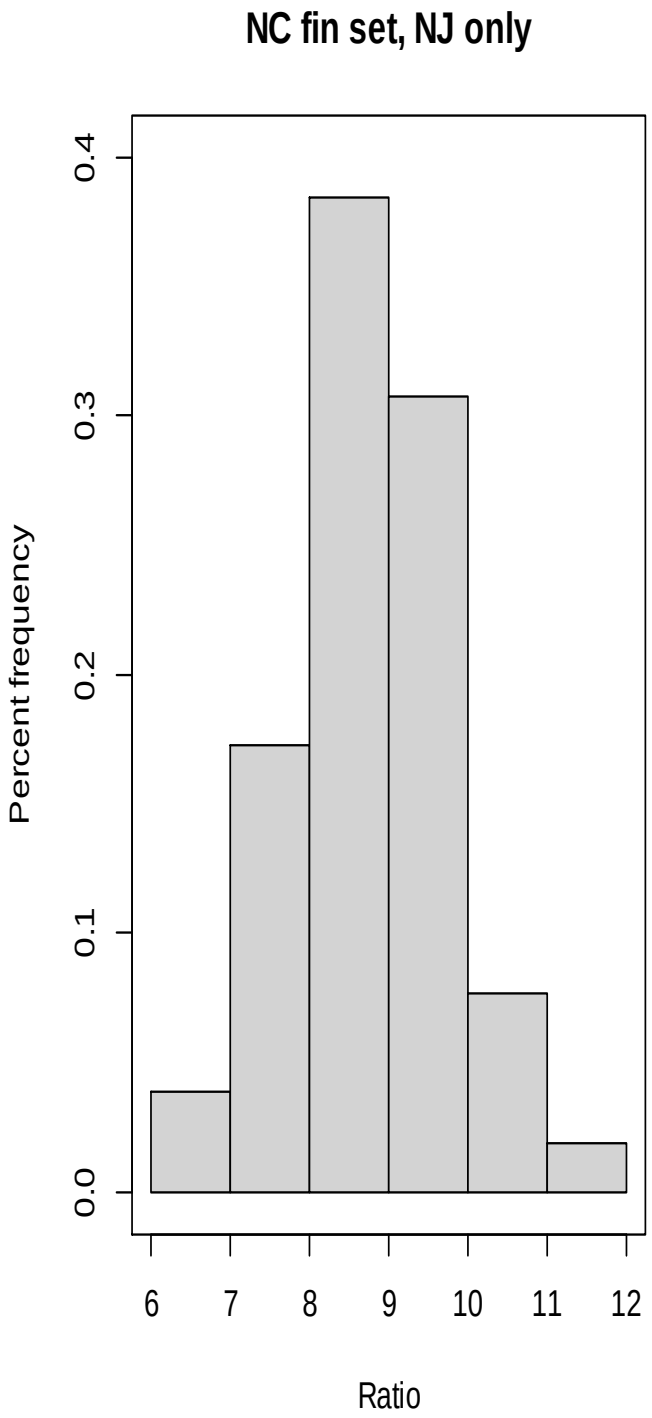


Figure 19. The histogram for NJ suggests that a mean would be appropriate to characterize a ratio, however, given that the fin: carcass ratio changes with dressed weight, depending on fishery practices and acceptable enforcement tolerances (confidence intervals around the mean), several ratios may be necessary. Potentially more problematic from a regulatory and enforcement viewpoint is the fact that NC fishers and NJ fishers (at least in 2009 vs. 2012, respectively) harvest different fin sets.



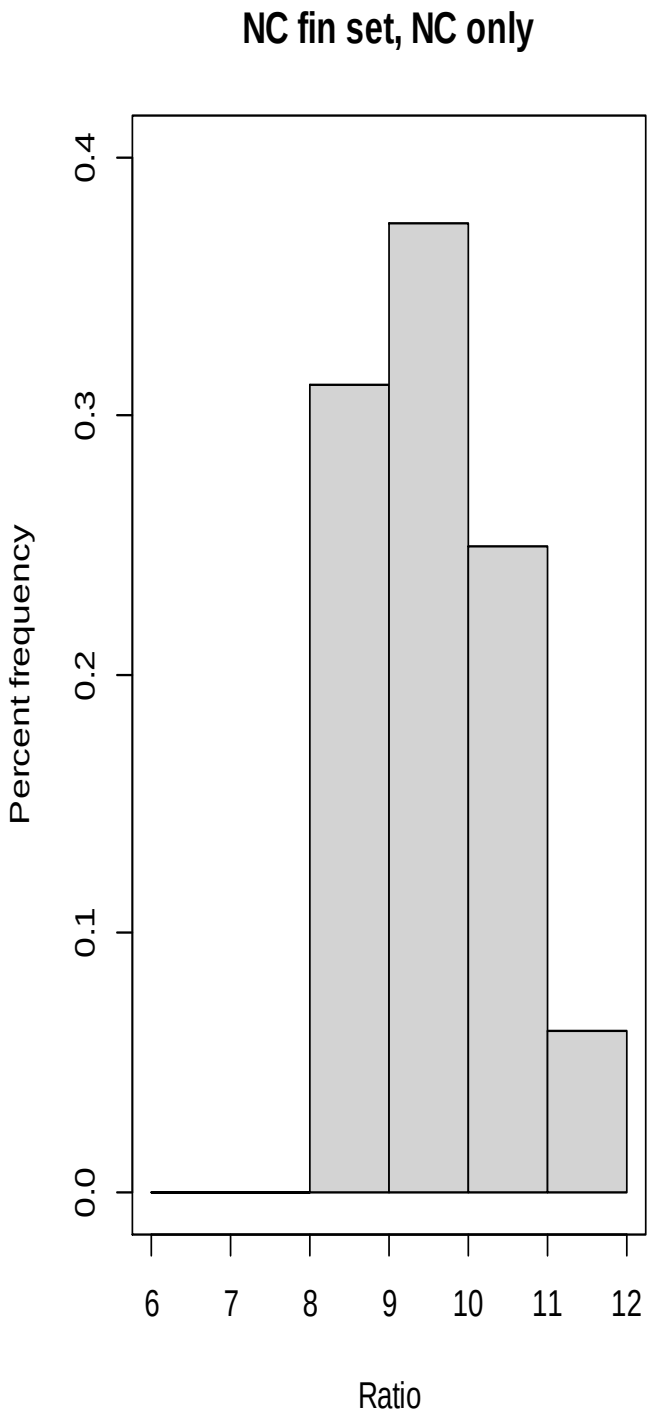


Table 1. New Jersey Data

Source: Ocean Trawl Survey Cruise on 11 October 12

Fin Codes: **D1** = 1st dorsal ; **D2** = 2nd Dorsal; **P** = Pectoral; **P1** = Pelvic; **C** = Caudal

N	LENGTH (mm)	Sex (M / F)	Round / Whole Weight (kg)	Dressed / Carcass Weight (kg)	D1 (kg)	D2 (kg)	P (kg)	CAUDAL (kg)	NJ Fin Set Sum	NJ Fin: Carcass %	NJ Fin Set Sum (w/o Caudal)	NJ Fin: Carcass % (w/o Caudal)
1	688.000	F	1.203	0.563	0.017	0.006	0.030	0.028	0.075	13.3	0.047	8.3
2	690.000	F	1.187	0.554	0.013	0.005	0.030	0.028	0.071	12.8	0.043	7.8
3	738.000	F	1.442	0.639	0.017	0.009	0.034	0.036	0.087	13.6	0.051	8.0
4	684.000	M	1.082	0.498	0.012	0.008	0.025	0.026	0.063	12.7	0.037	7.4
5	546.000	F	0.671	0.287	0.008	0.004	0.016	0.016	0.040	13.9	0.024	8.4
6	705.000	M	1.078	0.516	0.011	0.007	0.031	0.029	0.071	13.8	0.042	8.1
7	551.000	M	0.631	0.289	0.007	0.005	0.014	0.015	0.036	12.5	0.021	7.3
8	874.000	M	2.127	0.939	0.023	0.009	0.047	0.050	0.120	12.8	0.070	7.5
9	743.000	F	1.405	0.641	0.017	0.005	0.030	0.038	0.085	13.3	0.047	7.3
10	715.000	F	1.323	0.613	0.018	0.011	0.032	0.031	0.081	13.2	0.050	8.2
11	716.000	F	1.339	0.579	0.017	0.008	0.031	0.032	0.080	13.8	0.048	8.3
12	548.000	M	0.576	0.270	0.008	0.006	0.014	0.012	0.034	12.6	0.022	8.1
13	704.000	M	1.177	0.554	0.015	0.007	0.028	0.033	0.076	13.7	0.043	7.8
14	710.000	M	1.183	0.554	0.017	0.008	0.026	0.030	0.073	13.2	0.043	7.8
15	554.000	M	0.569	0.244	0.009	0.003	0.016	0.018	0.043	17.6	0.025	10.2
16	545.000	F	0.621	0.268	0.007	0.002	0.013	0.016	0.036	13.4	0.020	7.5
17	705.000	M	1.137	0.544	0.014	0.005	0.027	0.028	0.069	12.7	0.041	7.5
18	735.000	M	1.178	0.522	0.013	0.006	0.026	0.031	0.070	13.4	0.039	7.5
19	677.000	M	1.004	0.466	0.015	0.005	0.024	0.024	0.063	13.5	0.039	8.4
20	732.000	M	1.348	0.646	0.014	0.008	0.030	0.036	0.080	12.4	0.044	6.8
21	729.000	M	1.185	0.546	0.011	0.007	0.028	0.034	0.073	13.4	0.039	7.1
22	711.000	F	1.254	0.580	0.014	0.004	0.028	0.030	0.072	12.4	0.042	7.2
23	743.000	M	1.364	0.629	0.015	0.008	0.028	0.034	0.077	12.2	0.043	6.8
24	710.000	M	1.136	0.519	0.012	0.006	0.030	0.027	0.069	13.3	0.042	8.1
25	735.000	F	1.431	0.676	0.011	0.008	0.034	0.036	0.081	12.0	0.045	6.7
26	723.000	F	1.181	0.533	0.007	0.007	0.024	0.027	0.058	10.9	0.031	5.8
27	733.000	M	1.325	0.597	0.012	0.007	0.032	0.031	0.075	12.6	0.044	7.4
28	745.000	M	1.347	0.617	0.014	0.007	0.029	0.035	0.078	12.6	0.043	7.0
29	691.000	F	1.157	0.530	0.012	0.004	0.026	0.031	0.069	13.0	0.038	7.2
30	735.000	F	1.292	0.592	0.016	0.009	0.034	0.029	0.079	13.3	0.050	8.4
31	784.000	M	1.389	0.655	0.015	0.004	0.029	0.036	0.080	12.2	0.044	6.7
32	671.000	F	1.042	0.478	0.010	0.005	0.024	0.026	0.060	12.6	0.034	7.1
33	734.000	F	1.326	0.599	0.013	0.005	0.029	0.035	0.077	12.9	0.042	7.0
34	696.000	M	1.067	0.483	0.011	0.007	0.025	0.024	0.060	12.4	0.036	7.5
35	730.000	M	1.114	0.513	0.013	0.007	0.026	0.033	0.072	14.0	0.039	7.6
36	714.000	F	1.293	0.581	0.014	0.008	0.032	0.030	0.076	13.1	0.046	7.9
37	713.000	M	1.202	0.566	0.013	0.007	0.025	0.030	0.068	12.0	0.038	6.7
38	682.000	M	1.109	0.503	0.013	0.005	0.026	0.030	0.069	13.7	0.039	7.8
39	1060.00	F	4.368	1.807	0.037	0.017	0.084	0.088	0.209	11.6	0.121	6.7

	0											
40	668.000	F	0.978	0.397	0.011	0.005	0.027	0.027	0.065	16.4	0.038	9.6
41	807.000	M	1.584	0.722	0.016	0.009	0.037	0.039	0.092	12.7	0.053	7.3
42	742.000	M	1.302	0.614	0.014	0.008	0.034	0.033	0.081	13.2	0.048	7.8
43	839.000	F	1.906	0.902	0.015	0.006	0.034	0.033	0.082	9.1	0.049	5.4
44	691.000	F	1.267	0.565	0.008	0.003	0.025	0.029	0.062	11.0	0.033	5.8
45	698.000	F	1.167	0.523	0.010	0.005	0.025	0.031	0.066	12.6	0.035	6.7
46	668.000	F	0.981	0.480	0.008	0.005	0.026	0.026	0.060	12.5	0.034	7.1
47	692.000	M	1.058	0.472	0.010	0.005	0.025	0.030	0.065	13.8	0.035	7.4
48	632.000	M	0.822	0.389	0.008	0.004	0.022	0.023	0.053	13.6	0.030	7.7
49	716.000	M	1.188	0.578	0.011	0.006	0.026	0.032	0.069	11.9	0.037	6.4
50	698.000	F	1.129	0.501	0.011	0.007	0.030	0.030	0.071	14.2	0.041	8.2
51	676.000	M	1.036	0.476	0.011	0.004	0.030	0.025	0.066	13.9	0.041	8.6
52	653.000	M	0.939	0.420	0.009	0.005	0.022	0.025	0.056	13.3	0.031	7.4
N	**LENGTH (mm)**	**Sex (M / F)**	**Round / Whole Weight (kg)**	**Dressed / Carcass Weight (kg)**	**D1 (kg)**	**D2 (kg)**	**P (kg)**	**CAUDAL (kg)**	**NJ Fin Set Sum**	**NJ Fin: Carcass %**	**NJ Fin Set Sum (w/o Caudal)**	**NJ Fin: Carcass % (w/o Caudal)**
Avg	**707.288**		**1.235**	**0.562**	**0.013**	**0.006**	**0.028**	**0.031**	**0.072**	**13.011**	**0.041**	**7.506**
StdDev	81.750		0.525	0.220	0.005	0.002	0.010	0.010				
Var	6683.072		0.276	0.048	0.000	0.000	0.000	0.000				
Size Range	545 - 1,060 mm											
Males	29											
Female	23											

Table 2. North Carolina Data from C. Gray - 2009 (unmanipulated)

fins	carcass	%	
0.18	1.98	9	
0.19	1.83	10.3	
0.18	1.85	9.7	
0.17	1.76	9.6	
0.22	2.28	9.6	
0.18	1.92	9.3	
0.18	1.75	10.2	
0.28	3.16	8.8	
0.23	2.68	8.5	
0.19	1.8	10.5	
0.21	2.44	8.6	
0.2	2.15	9.3	
0.28	2.6	10.7	
0.25	2.22	11.2	
0.15	1.54	9.7	
0.2	2.28	8.7	
0.206	**2.140**	**9.606**	avg

Table 3. For comparison purposes, NJ fin: carcass % ratios both by individual fish and averaged, based on uniform North Carolina fin set of D1, D2 and P.

NJ Data with NC Fin Sets		
Dressed / Carcass Weight (kg) - D2	**NC Fin Set Sum**	**NC Fin Set %**
0.557	0.053	9.5
0.549	0.048	8.7
0.630	0.060	9.5
0.490	0.045	9.2
0.283	0.028	9.9
0.509	0.049	9.6
0.284	0.026	9.2
0.930	0.079	8.5
0.636	0.052	8.2
0.602	0.061	10.1
0.571	0.056	9.8
0.264	0.028	10.6
0.547	0.050	9.1
0.546	0.051	9.3
0.241	0.028	11.6
0.266	0.022	8.3
0.539	0.046	8.5
0.516	0.045	8.7
0.461	0.044	9.5
0.638	0.052	8.2
0.539	0.046	8.5
0.576	0.046	8.0
0.621	0.051	8.2
0.513	0.048	9.4
0.668	0.053	7.9
0.526	0.038	7.2
0.590	0.051	8.6
0.610	0.050	8.2
0.526	0.042	8.0
0.583	0.059	10.1
0.651	0.048	7.4
0.473	0.039	8.2
0.594	0.047	7.9
0.476	0.043	9.0
0.506	0.046	9.1
0.573	0.054	9.4
0.559	0.045	8.1
0.498	0.044	8.8
1.790	0.138	7.7
0.392	0.043	11.0
0.713	0.062	8.7
0.606	0.056	9.2
0.896	0.055	6.1
0.562	0.036	6.4
0.518	0.040	7.7
0.475	0.039	8.2
0.467	0.040	8.6
0.385	0.034	8.8
0.572	0.043	7.5
0.494	0.048	9.7
0.472	0.045	9.5
0.415	0.036	8.7
Dressed / Carcass Weight (kg) - D2	**NC Fin Set Sum**	**NC Fin Set %**
0.556	**0.048**	**8.774**

North Carolina Department of Environment and Natural Resources
Division of Marine Fisheries

Pat McCrory
Governor

Dr. Louis B. Daniel III
Director

John E. Skvarla, III
Secretary

MEMORANDUM

To: Marin Hawk

From: Holly White

Date: 5/14/13

Subject: North Carolina Commercial Fin: Carcass Ratio for Smooth Dogfish

Draft Addendum II to the 2008 Interstate Fisheries Management Plan for Atlantic Coastal Sharks (FMP) is set to receive final action by the Spiny Dogfish and Coastal Sharks Management Board (Board) on Tuesday, May 21, 2013. Before final action is made, North Carolina would like the board to consider recent data collected by North Carolina Division of Marine Fisheries (NCDMF) staff in relation to fin: carcass ratio. The current fin: carcass ratio is 95: 5 but a 88: 12 ratio is pending implementation for smooth dogfish by National Marine Fisheries Service (NMFS) in accordance to the Shark Conservation Act of 2010 (SCA). This proposed change has brought the issue of a scientifically valid fin: carcass ratio to the attention of the Atlantic Coastal Sharks Technical Committee (TC). In a recent TC conference call on January 24, 2013 recommended that the 88: 12 fin: carcass ratio, consistent with the SCA, be included as the preferred option in Draft Addendum II to the FMP.

The TC decided not to endorse a July 2009 study, submitted by NCDMF, with trip ticket information from 2004 – 2009 that found the fin: carcass ratio varied from 9.8 – 10.4%. Endorsement of the study hinged upon the fact that the study only contained trip ticket information (aggregate weights for a trip) and no individuals were sampled by NCDMF staff. In September 2009, NCDMF submitted an additional study including individual weights from sixteen fish sampled by NCDMF staff. The study found that fin: carcass ratios varied from 8.6 – 11.2% for the dorsal and pectoral fin set. To date the TC has not endorsed this study.

In an effort to determine a scientifically valid fin: carcass ratio, TC members from New Jersey and North Carolina have created a comprehensive study to determine a scientifically valid smooth dogfish fin: carcass ratio. New Jersey took the lead in developing a standardized procedure presented in a subsequent white paper.

The purpose of this memo is to share North Carolina data, recently collected, using the same sampling procedures as New Jersey. This memo will show a range of fin: carcass percentages, depending on fin sets, which support an increase in the fin: carcass ratio.

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On May 7, 2013 NCDMF staff conducted a fin: carcass ratio study on twenty-five smooth dogfish from commercial ocean gill net, provided by a commercial fisherman. The study was conducted using the procedures described in a recent New Jersey white paper. Straight cuts were preformed on all commercially marketable fins. Commercial fishermen process smooth dogfish efficiently and at a fast pace using straight cuts. The straight cuts were first demonstrated by the commercial fisherman, and then replicated by NCDMF staff. Fins were identified as: first dorsal (D1), second dorsal (D2), pectoral (P) and caudal (C). During processing, the following metrics were collected (Table 1): fork and total length (mm), sex, round or whole weight (kg), dressed/carcass weight of processed log (kg), D1 weight (kg), D2 weight (kg), P weight (kg), C weight (kg) and all fins weight (kg). Weights were collected on a calibrated digital kilogram scale (0.01 kg).

The smooth dogfish sampled for this study averaged 1035.60 mm total length and 890.16 mm fork length. The length range of sampled fish was 906 – 1270 mm total length and 779 – 1110 mm fork length. The sample contained twenty-one males and four females. Round/whole weight averaged 3.80 kg and ranged from 2.29 – 10.15 kg. Dressed/carcass weight averaged 1.68 kg and ranged from 1.09 – 3.57 kg.

Table 1. NCDMF 2013 Smooth Dogfish Commercial Fin: Carcass Individual Weights (kg) (Collected from Commercial Ocean Gill Net Fishery)

n	TOTAL LENGTH (mm)	FORK LENGTH (mm)	Sex (M/F)	Round / Whole (kg)	Dressed / Carcass (kg)	D1 (kg)	D2 (kg)	P (kg)	C (kg)	TOTAL (kg)
1	1031	879	M	3.37	1.69	0.04	0.02	0.08	0.06	0.20
2	1045	900	M	3.47	1.63	0.04	0.02	0.08	0.06	0.20
3	1030	891	M	3.33	1.50	0.04	0.02	0.08	0.05	0.19
4	995	869	M	3.31	1.59	0.05	0.02	0.08	0.07	0.22
5	1070	910	M	3.25	1.59	0.03	0.02	0.08	0.06	0.19
6	965	833	M	2.30	1.17	0.03	0.01	0.06	0.05	0.15
7	969	830	M	2.84	1.40	0.04	0.01	0.07	0.06	0.18
8	965	830	F	2.53	1.23	0.03	0.02	0.08	0.05	0.18
9	1062	904	M	3.36	1.68	0.04	0.02	0.09	0.07	0.22
10	906	779	M	2.29	1.09	0.03	0.01	0.06	0.05	0.15
11	989	850	F	2.79	1.38	0.04	0.02	0.07	0.06	0.19
12	1030	881	M	3.90	1.79	0.04	0.02	0.11	0.06	0.23
13	1030	885	M	2.98	1.38	0.03	0.01	0.08	0.06	0.18
14	998	858	M	2.92	1.33	0.03	0.02	0.08	0.06	0.19
15	1191	1030	M	9.06	3.22	0.09	0.04	0.20	0.11	0.44
16	1035	888	M	3.28	1.53	0.05	0.04	0.10	0.06	0.25
17	1039	895	M	3.28	1.58	0.05	0.02	0.09	0.05	0.21
18	1068	908	M	3.38	1.60	0.05	0.02	0.10	0.06	0.23
19	1000	862	M	2.80	1.33	0.03	0.01	0.08	0.05	0.17
20	1080	922	M	3.99	1.87	0.05	0.02	0.12	0.08	0.27
21	962	825	M	2.66	1.23	0.03	0.01	0.08	0.06	0.18
22	967	820	M	2.74	1.27	0.02	0.01	0.07	0.06	0.16
23	1043	890	M	3.63	1.61	0.04	0.02	0.09	0.07	0.22
24	1270	1110	F	10.15	3.57	0.08	0.05	0.23	0.13	0.49
25	1150	1005	F	7.41	2.63	0.06	0.03	0.18	0.08	0.35
Average	**1035.60**	**890.16**		**3.80**	**1.68**	**0.04**	**0.02**	**0.10**	**0.07**	**0.23**

Note: D1 = 1st dorsal; D2 = 2nd Dorsal; P = Pectoral; C = Caudal

Depending on the fin set, average commercial fin: carcass ratios varied from 8.28 – 13.46% (Table 2). North Carolina fishermen retain the D1, D2, P and C fin. The caudal (C) is placed in a separate basket. The North Carolina fin set (D1, D2, P and C) fin: carcass ratio ranged from 11.83 – 16.34% averaging 13.46%. The North Carolina fin set without the caudal fin (D1, D2 and P) fin: carcass ratio ranged from 7.87 – 12.42% averaging 9.48%. New Jersey fishermen retain the D1, P and C fin. The caudal (C) is also placed in a separate basket. Using New Jersey's fin set (D1, P, and C) with North Carolina data fin: carcass ratios ranged from 10.65 – 13.82 % averaging 12.26%. If the caudal (C) fin is not retained using the New Jersey fin set (D1 and P) fin: carcass ratios ranged from 6.92 – 9.80% averaging 8.28%.

Table 2. NCDMF 2013 Smooth Dogfish Commercial Fin: Carcass Individual Fin Set Weights (kg) and Percent (%)

D1, D2, P, C Sum (kg)	D1, D2, P, C Fin: Carcass %	D1, D2, P Sum (kg)	D1, D2, P Fin: Carcass %	D1, P, C Sum (kg)	D1, P, C Fin: Carcass %	D1, P Sum (kg)	D1, P Fin: Carcass %
0.20	11.83	0.14	8.28	0.18	10.65	0.12	7.10
0.20	12.27	0.14	8.59	0.18	11.04	0.12	7.36
0.19	12.67	0.14	9.33	0.17	11.33	0.12	8.00
0.22	13.84	0.15	9.43	0.20	12.58	0.13	8.18
0.19	11.95	0.13	8.18	0.17	10.69	0.11	6.92
0.15	12.82	0.10	8.55	0.14	11.97	0.09	7.69
0.18	12.86	0.12	8.57	0.17	12.14	0.11	7.86
0.18	14.63	0.13	10.57	0.16	13.01	0.11	8.94
0.22	13.10	0.15	8.93	0.20	11.90	0.13	7.74
0.15	13.76	0.10	9.17	0.14	12.84	0.09	8.26
0.19	13.77	0.13	9.42	0.17	12.32	0.11	7.97
0.23	12.85	0.17	9.50	0.21	11.73	0.15	8.38
0.18	13.04	0.12	8.70	0.17	12.32	0.11	7.97
0.19	14.29	0.13	9.77	0.17	12.78	0.11	8.27
0.44	13.66	0.33	10.25	0.40	12.42	0.29	9.01
0.25	16.34	0.19	12.42	0.21	13.73	0.15	9.80
0.21	13.29	0.16	10.13	0.19	12.03	0.14	8.86
0.23	14.38	0.17	10.63	0.21	13.13	0.15	9.38
0.17	12.78	0.12	9.02	0.16	12.03	0.11	8.27
0.27	14.44	0.19	10.16	0.25	13.37	0.17	9.09
0.18	14.63	0.12	9.76	0.17	13.82	0.11	8.94
0.16	12.60	0.10	7.87	0.15	11.81	0.09	7.09
0.22	13.66	0.15	9.32	0.20	12.42	0.13	8.07
0.49	13.73	0.36	10.08	0.44	12.32	0.31	8.68
0.35	13.31	0.27	10.27	0.32	12.17	0.24	9.13
0.23	**13.46**	**0.16**	**9.48**	**0.21**	**12.26**	**0.14**	**8.28**

Average

Note: D1 = 1st dorsal; D2 = 2nd Dorsal; P = Pectoral; C = Caudal

The NCDMF September 2009 study of sixteen fish did not contain as many metrics (Table 3). Metrics contained in September 2009 study included: fork length (mm), sex, round/whole weight (kg), dressed/carcass weight (kg), and the dorsal/ pectoral fin aggregate weight (kg). A biologist, no longer employed by NCDMF, conducted this study in 2009 as a supplemental memo for a July 2009 study that was also submitted to the Atlantic States Marine Fisheries Commission (ASMFC). His documentation indicates that he collected the aggregate weights of 'dorsal and pectoral fins' comparing his fin percentage to the current study, it is assumed that 'dorsal and pectoral fins' contained D1, D2 and P individual fins. The average fork length for smooth dogfish in this study was 978.13 mm. Fork lengths ranged from 890 – 1110 mm. Round/whole weight averaged 5.25 kg and dressed/carcass weight averaged 2.14 kg. Round/whole weight ranged from 3.64 – 7.76 kg and dressed/carcass weight ranged from 1.54 – 3.16 kg. Fin: carcass percentages for the fin set (D1, D2 and P) ranged from 8.58 – 11.26% averaging 9.66%. Comparatively, the current study found the fin: carcass ratio averaging 9.48% a 0.18% difference.

Table 3. NCDMF September 2009 Study Fin: Carcass

n	FORK LENGTH (mm)	Sex (M/F)	Round / Whole (kg)	Dressed / Carcass (kg)	D1, D2, P Sum (kg)	D1, D2, P Fin: Carcass %
1	950	F	4.97	1.98	0.18	9.09
2	900	F	4.48	1.83	0.19	10.38
3	950	F	4.35	1.85	0.18	9.73
4	940	F	4.45	1.76	0.17	9.66
5	1000	F	5.34	2.28	0.22	9.65
6	960	F	4.91	1.92	0.18	9.38
7	910	F	4.48	1.75	0.18	10.29
8	1110	F	7.76	3.16	0.28	8.86
9	1050	F	6.23	2.68	0.23	8.58
10	940	F	4.55	1.80	0.19	10.56
11	1010	F	5.78	2.44	0.21	8.61
12	960	F	4.96	2.15	0.20	9.30
13	1070	F	7.19	2.60	0.28	10.77
14	1010	F	5.35	2.22	0.25	11.26
15	890	F	3.64	1.54	0.15	9.74
16	1000	F	5.53	2.28	0.20	8.77
Average	**978.13**		**5.25**	**2.14**	**0.21**	**9.66**

Note: D1 = 1st dorsal; D2 = 2nd Dorsal; P = Pectoral

Comparing the four females from the current study (Table 4) to the averages of the September 2009 study it can be assumed these fish are in the average size range and the average weight for the caudal fin (0.08 kg) could be used to obtain a general fin: carcass percentage for (D1, D2, P, C) from the September 2009 study (Table 5). Combining NCDMF data collected during the September 2009 study and the current study a total of forty-one fish have been sampled by NCDMF (Table 5). The average fork length for the combined data set is 924.49 mm and fork lengths ranged from 779 – 1110 mm. There is a reasonable split between males and females;

twenty females and twenty-one males. Round/whole weights average 4.37 kg and range from 2.29 – 10.15 kg. Dressed/carcass weights average 1.86 kg and range from 1.09 – 3.57 kg. The average fin: carcass ratio of the combined data (D1, D2 and P) is 9.55%; 0.11% less than the average from the September 2009 study. The average fin: carcass ratio of the combined data (D1, D2, P and C) is 11.90%; 1.56% less than the average from the current study. Adding the sixteen females to the current data increased the average fork length, round/whole weight and dressed/carcass weight. Further fin: carcass percentages cannot be precisely calculated from this robust combined data set for lack of individual fin weights of the first dorsal and second dorsal.

Table 4. NCDMF 2013 Smooth Dogfish Commercial Fin: Carcass Individual Female Weights (kg)

n	TOTAL LENGTH (mm)	FORK LENGTH (mm)	Sex (M/F)	Round / Whole (kg)	Dressed / Carcass (kg)	D1 (kg)	D2 (kg)	P (kg)	C (kg)	D1, D2, P Sum (kg)	D1, D2, P Fin: Carcass %	D1, D2, P, C Sum (kg)	D1, D2, P, C Fin: Carcass %
1	965	830	F	2.53	1.23	0.03	0.02	0.08	0.05	0.13	10.57	0.18	14.63415
2	989	850	F	2.79	1.38	0.04	0.02	0.07	0.06	0.13	9.42	0.19	13.76812
3	1270	1110	F	10.15	3.57	0.08	0.05	0.23	0.13	0.36	10.08	0.49	13.72549
4	1150	1005	F	7.41	2.63	0.06	0.03	0.18	0.08	0.27	10.27	0.35	13.30798
Average	**1093.50**	**948.75**		**5.72**	**2.20**	**0.05**	**0.03**	**0.14**	**0.08**	**0.22**	**10.08**	**0.30**	**13.86**

Note: D1 = 1st dorsal; D2 = 2nd Dorsal; P = Pectoral; C = Caudal

Fin: carcass ratios for smooth dogfish are varied depending on the commercial fin set harvested. This memo presents substantial information to support a valid scientific ratio of 88: 12 fin: carcass for all commercially marketable smooth dogfish fins; first dorsal (D1), second dorsal (D2), pectoral (P) and caudal (C).

Table 5. Combined NCDMF Data from 2009 and 2013

n	TOTAL LENGTH (mm)	FORK LENGTH (mm)	Sex (M/F)	Round / Whole (kg)	Dressed / Carcass (kg)	D1, D2, P Sum (kg)	C (kg)	D1, D2, P, C Sum (kg)	D1, D2, P, C Fin: Carcass %	D1, D2, P Fin: Carcass %
1	1031	879	M	3.37	1.69	0.14	0.06	0.20	11.83	8.28
2	1045	900	M	3.47	1.63	0.14	0.06	0.20	12.27	8.59
3	1030	891	M	3.33	1.50	0.14	0.05	0.19	12.67	9.33
4	995	869	M	3.31	1.59	0.15	0.07	0.22	13.84	9.43
5	1070	910	M	3.25	1.59	0.13	0.06	0.19	11.95	8.18
6	965	833	M	2.30	1.17	0.10	0.05	0.15	12.82	8.55
7	969	830	M	2.84	1.40	0.12	0.06	0.18	12.86	8.57
8	965	830	F	2.53	1.23	0.13	0.05	0.18	14.63	10.57
9	1062	904	M	3.36	1.68	0.15	0.07	0.22	13.10	8.93
10	906	779	M	2.29	1.09	0.10	0.05	0.15	13.76	9.17
11	989	850	F	2.79	1.38	0.13	0.06	0.19	13.77	9.42
12	1030	881	M	3.90	1.79	0.17	0.06	0.23	12.85	9.50
13	1030	885	M	2.98	1.38	0.12	0.06	0.18	13.04	8.70
14	998	858	M	2.92	1.33	0.13	0.06	0.19	14.29	9.77
15	1191	1030	M	9.06	3.22	0.33	0.11	0.44	13.66	10.25
16	1035	888	M	3.28	1.53	0.19	0.06	0.25	16.34	12.42
17	1039	895	M	3.28	1.58	0.16	0.05	0.21	13.29	10.13
18	1068	908	M	3.38	1.60	0.17	0.06	0.23	14.38	10.63
19	1000	862	M	2.80	1.33	0.12	0.05	0.17	12.78	9.02
20	1080	922	M	3.99	1.87	0.19	0.08	0.27	14.44	10.16
21	962	825	M	2.66	1.23	0.12	0.06	0.18	14.63	9.76
22	967	820	M	2.74	1.27	0.10	0.06	0.16	12.60	7.87
23	1043	890	M	3.63	1.61	0.15	0.07	0.22	13.66	9.32
24	1270	1110	F	10.15	3.57	0.36	0.13	0.49	13.73	10.08
25	1150	1005	F	7.41	2.63	0.27	0.08	0.35	13.31	10.27
26	-	950	F	4.97	1.98	0.18	0.08*	0.18	9.09	9.09
27	-	900	F	4.48	1.83	0.19	0.08*	0.19	10.38	10.38
28	-	950	F	4.35	1.85	0.18	0.08*	0.18	9.73	9.73
29	-	940	F	4.45	1.76	0.17	0.08*	0.17	9.66	9.66
30	-	1000	F	5.34	2.28	0.22	0.08*	0.22	9.65	9.65
31	-	960	F	4.91	1.92	0.18	0.08*	0.18	9.38	9.38
32	-	910	F	4.48	1.75	0.18	0.08*	0.18	10.29	10.29
33	-	1110	F	7.76	3.16	0.28	0.08*	0.28	8.86	8.86
34	-	1050	F	6.23	2.68	0.23	0.08*	0.23	8.58	8.58
35	-	940	F	4.55	1.80	0.19	0.08*	0.19	10.56	10.56
36	-	1010	F	5.78	2.44	0.21	0.08*	0.21	8.61	8.61
37	-	960	F	4.96	2.15	0.20	0.08*	0.20	9.30	9.30
38	-	1070	F	7.19	2.60	0.28	0.08*	0.28	10.77	10.77
39	-	1010	F	5.35	2.22	0.25	0.08*	0.25	11.26	11.26
40	-	890	F	3.64	1.54	0.15	0.08*	0.15	9.74	9.74
41	-	1000	F	5.53	2.28	0.20	0.08*	0.20	8.77	8.77
Average	**924.49**			**4.37**	**1.86**	**0.18**	**0.07**	**0.22**	**11.98**	**9.55**

***Average weight of the caudal fin (C) from Table 4**

Note: D1 = 1st dorsal; D2 = 2nd Dorsal; P = Pectoral; C = Caudal