

Tab E, No. 4

Getting at Awareness, Knowledge, Perceptions, and Intentions related to Barotrauma Mitigation



Image credit: Bryan Fluech

Gulf of Mexico Fishery Management Council
June 5, 2017



UF | **IFAS Extension**
UNIVERSITY of FLORIDA

Sea Grant
Florida

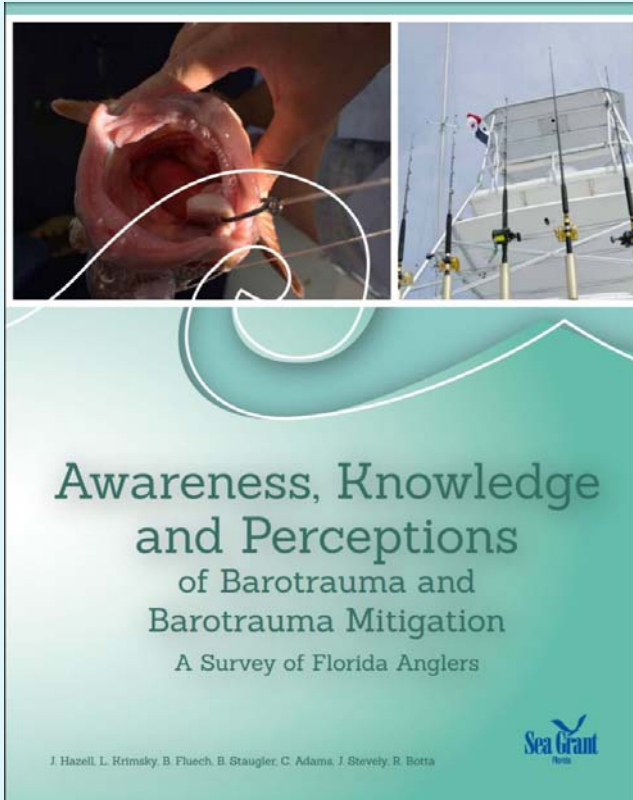
2 Surveys

- **Florida Sea Grant**
 - Recreational anglers (including guides)
 - Florida (Gulf & Atlantic)
 - 2014 via email
- **UF Fisheries & Aquatic Sciences**
 - Commercial, Recreational, and Guides
 - Florida (Gulf & Atlantic)
 - ✦ Results separate & combined
 - 2015/16
- **Completed for Council**

FSG Barotrauma Survey



Objectives: Develop a better understanding of Angler's understanding of....



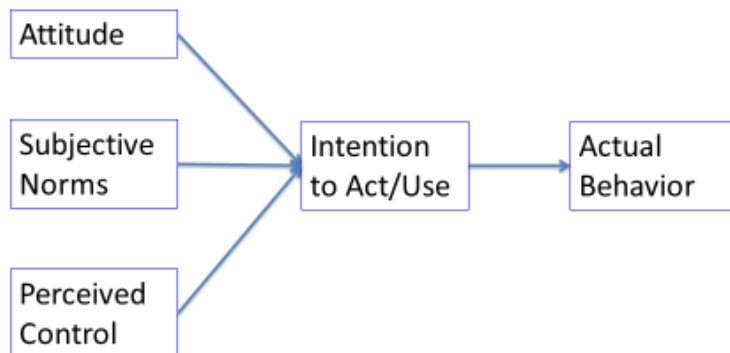
- The signs of barotrauma
- The availability of different tools
 - Venting
 - Descending gear
- The use of these tools to mitigate barotrauma
- Gaps in outreach information and methods

https://www.flseagrant.org/wp-content/uploads/TP_224_web.pdf

FAS Barotrauma Survey

Objectives: Predict and explain fishers' intentions to use venting tools and/or fish descenders based on....

Theory of Planned Behavior



- Theory of Planned Behavior
 - Attitudes towards method
 - Subjective norms
 - Perceived control

Crandall CA, TM Garlock, and K Lorenzen. Patterns and determinants of barotrauma mitigation tool use in reef fisheries in the Southeastern United States: the power of subjective norms, in review in Fisheries Research

While releasing reef fish (i.e. snapper, grouper, etc.) caught from deep water, have you ever noticed that some were physically unable to return to the bottom on their own? Such fish are often referred to as “floaters”.

Answer Choices	Average %	Total n
Yes	71%	527
No	29%	212
<i>Total</i>	100%	739

True or false. The following symptoms are visible signs associated with floaters.

Answer Choices	True	False	Total n	% Correctly Answered
"Bugged" or protruding eyes	414	90	504	82%
Swollen or distended belly	453	53	506	90%
Organ sticking out of the mouth	481	30	511	94%
"Guts" protruding from anal opening	320	182	502	64%
<i>Total</i>	1668	355	2023	82%

What is the organ that may protrude out of a floater's mouth?



Image credit: Florida Sea Grant

Answer Choices	Average %	Total n
Spleen	1%	6
Stomach	34%	174
Swim bladder	47%	240
Other	1%	4
I don't know	18%	92
<i>Total</i>	100%	516



Image credit: Florida Sea Grant

Do you use any gear or other methods to help return floaters to depth?

Answer Choices	Average %	Total n
Yes	89%	458
No	11%	59
<i>Total</i>	100%	517

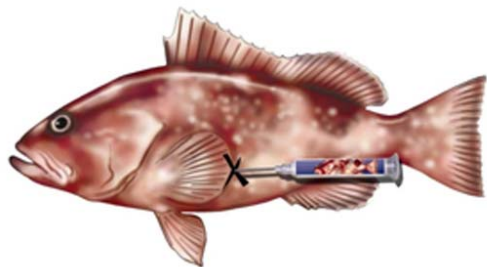
Please indicate the reason(s) why you said no to helping floaters return to depth.

Answer Choices	Average %	Total n
The fish will not survive anyway	6%	5
They can eventually get back down on their own	13%	10
I'm not aware of methods and/or gear to help fish return to depth	47%	36
I don't think it's a problem	3%	2
It doesn't effect that many fish	12%	9
Other	19%	15
<i>Total</i>	100%	77

Do you use a venting tool to help floaters return to depth?

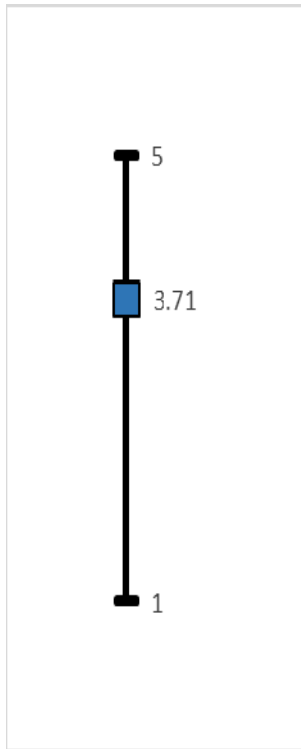
Answer Choices	Average %	Total n
Yes	92%	423
No	8%	35
<i>Total</i>	100%	458

Please select the option below that most accurately describes how you insert a venting tool into a fish.

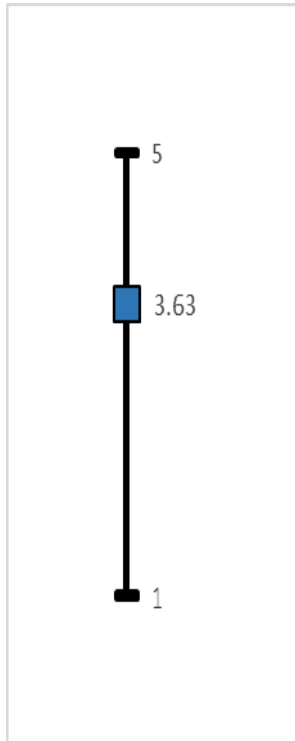


Answer Choices	Average %	Total n
Insert the needle just under the skin into the body cavity at approximately a 45° angle	51%	202
Insert the needle all the way into the body cavity at approximately a 45° angle	31%	121
Insert the needle just under the skin into the body cavity at a 90° angle	6%	23
Insert the needle all the way into the body cavity at a 90° angle	5%	19
None of the above	8%	31
<i>Total</i>	100%	396

How confident are you that you're properly venting the fish?
(1 being "least confident", 5 being "most confident")



How confident are you that venting helps fish to survive?
(1 being "least confident", 5 being "most confident")



Do you feel you need more information or training on the proper use of venting tools?

Answer Choice	Average %	Total n
Yes	63%	265
No	38%	159
<i>Total</i>	100%	424



Do you use descending/ recompression gear to help floaters return to depth?

Answer Choice	Average %	Total n
Yes	9%	37
No	91%	388
<i>Total</i>	100%	425



What are the reason(s) why you don't use fish descending/ recompression gear?

Answer Choices	Average %	Total n
Takes too much time	4%	27
Unsafe on a moving deck	1%	7
Costs too much	6%	37
Requires too much space for storage	4%	23
Don't understand how to use it	10%	63
Difficult/cumbersome to use	5%	29
Don't think it helps the fish...they will die anyway	2%	11
I vent fish	29%	178
I don't know what fish descending/ recompression gear is	32%	195
Other	8%	49
<i>Total</i>	100%	619

If you use fish descending/recompression gear, how confident are you that you're using the gear properly?



If you use fish descending/recompression gear, how confident are you that this gear helps fish to survive?



Do you feel you need more information on the proper use of fish descending gear?

Answer Choice	Average %	Total n
Yes	70%	297
No	30%	126
<i>Total</i>	100%	423

The preferred methods of receiving information for people who believe they need more information/training on the use of *venting tools*:

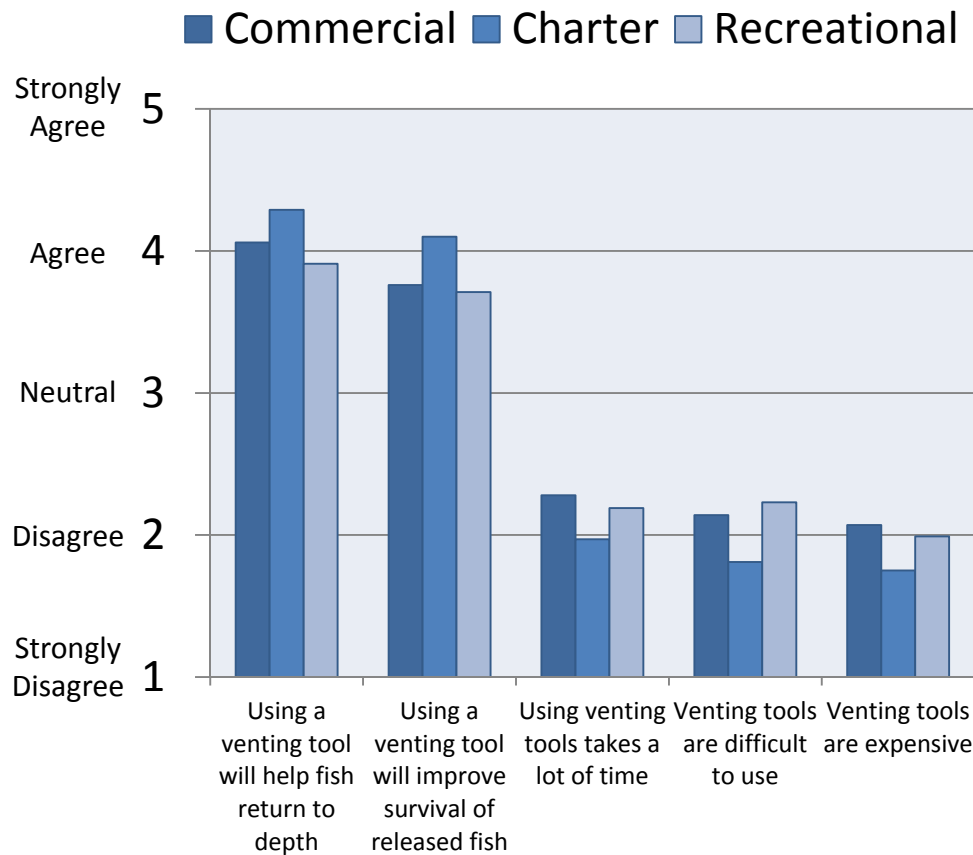
- **Magazines and newspaper articles** (18.2%)
- **TV shows about fishing** (17.8%)
- **Websites** (17.8%)
- **YouTube videos** (14.7%)

The preferred methods of receiving information for people who believe they need more information/training on the use of *descending gear*:

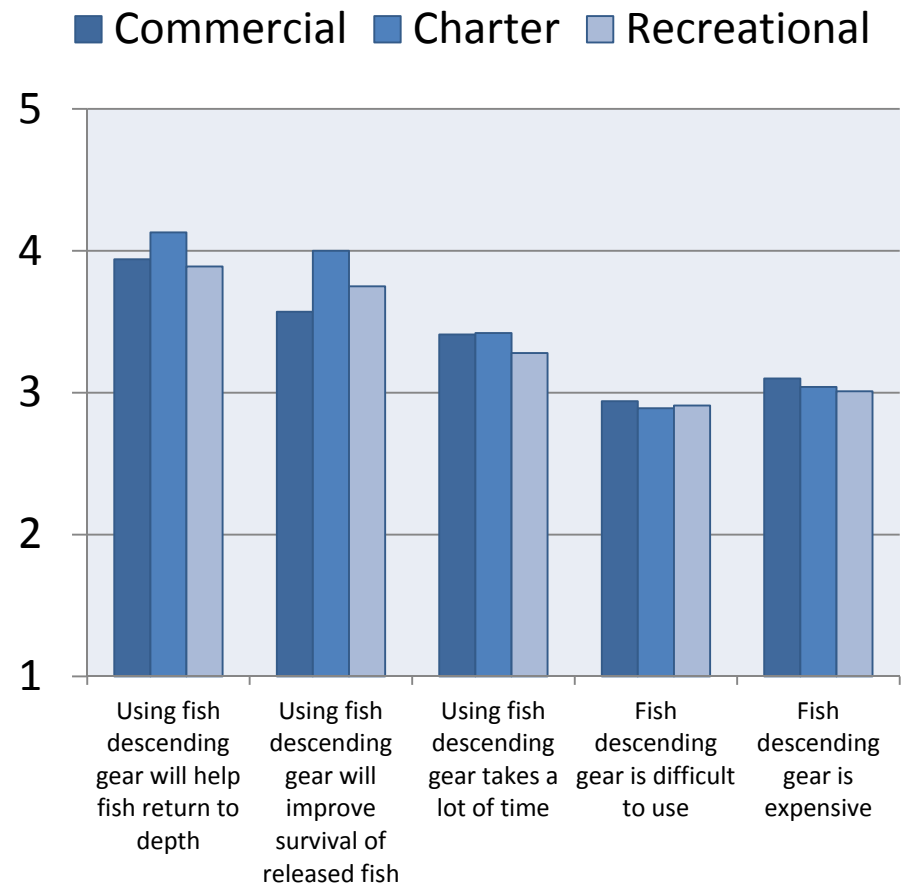
- **Websites** (19.9%)
- **Magazines and newspaper articles** (18.2%)
- **TV shows about fishing** (17.2%)
- **YouTube videos** (14.4%)

Attitudes

Venting Tools

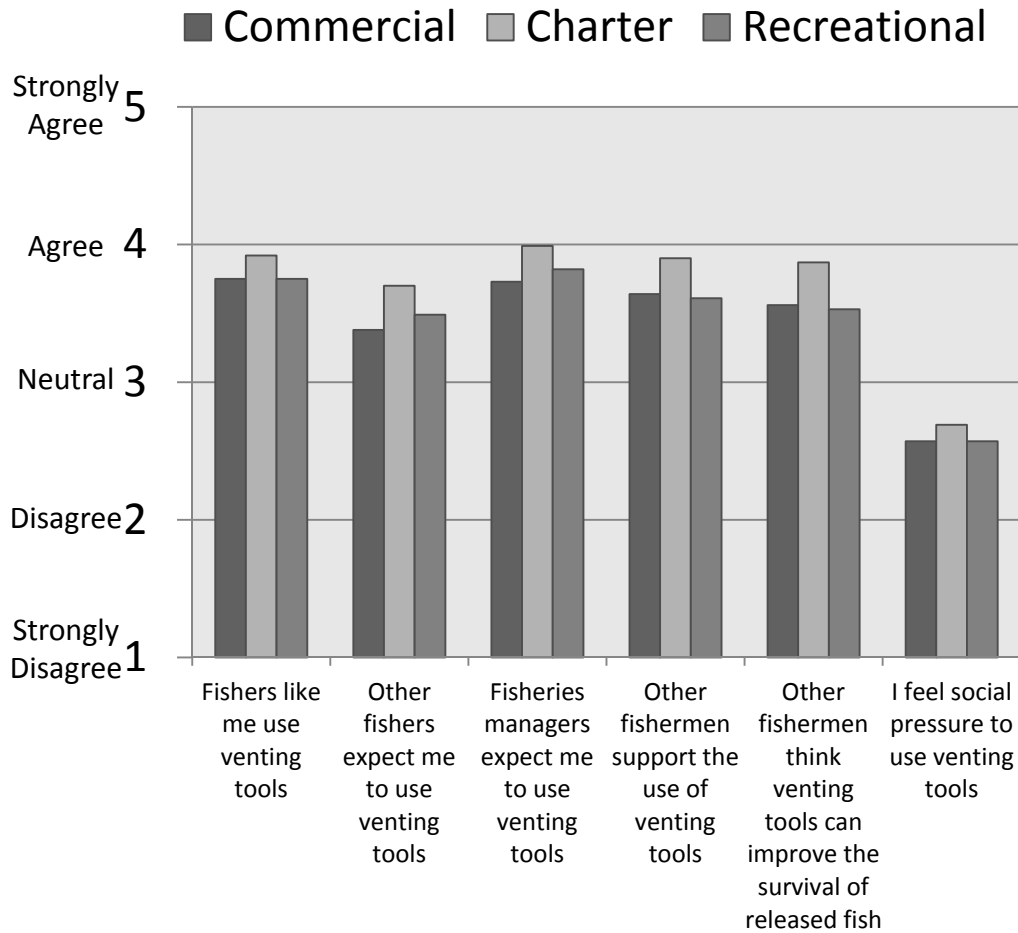


Descending Gear

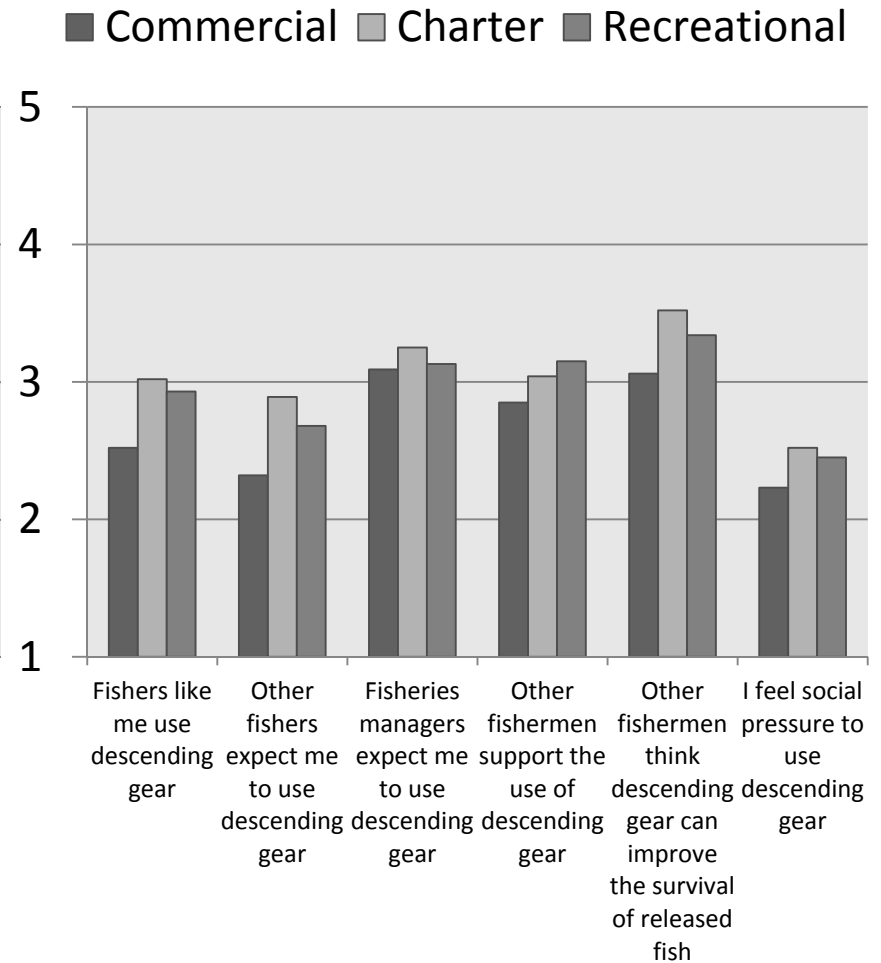


Social Norms

Venting Tools

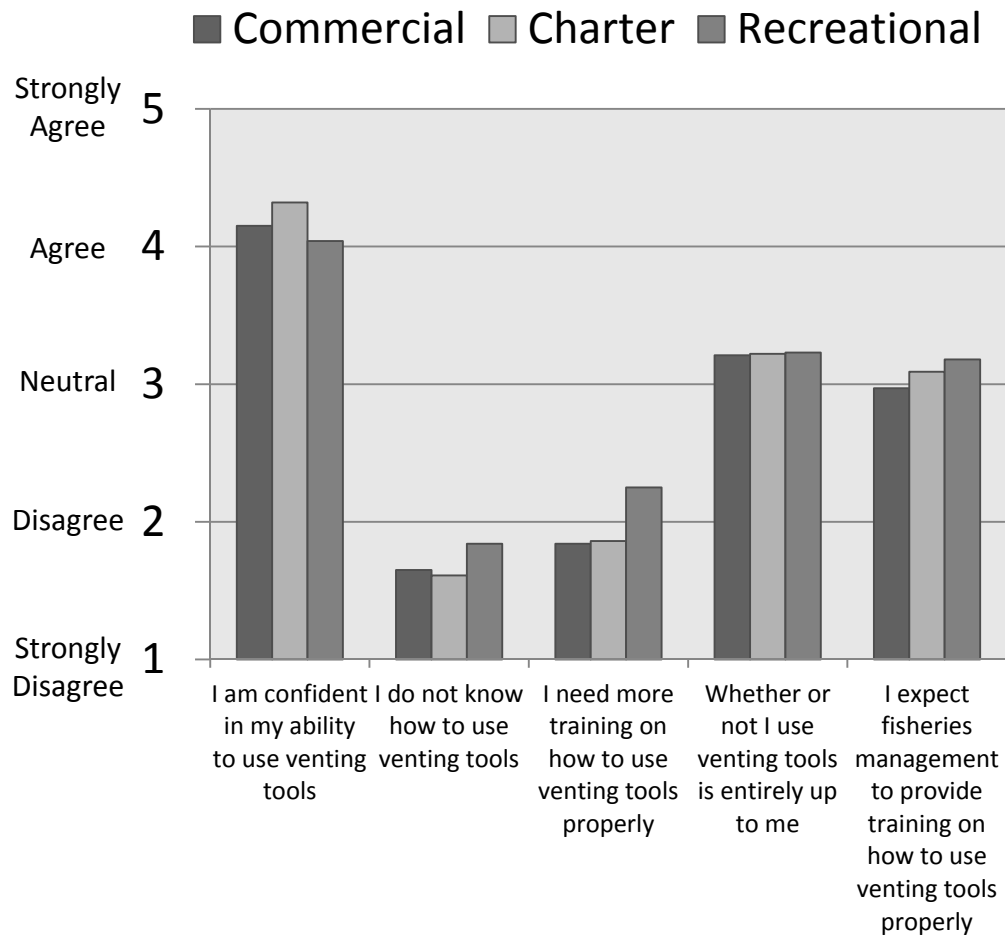


Descending Gear

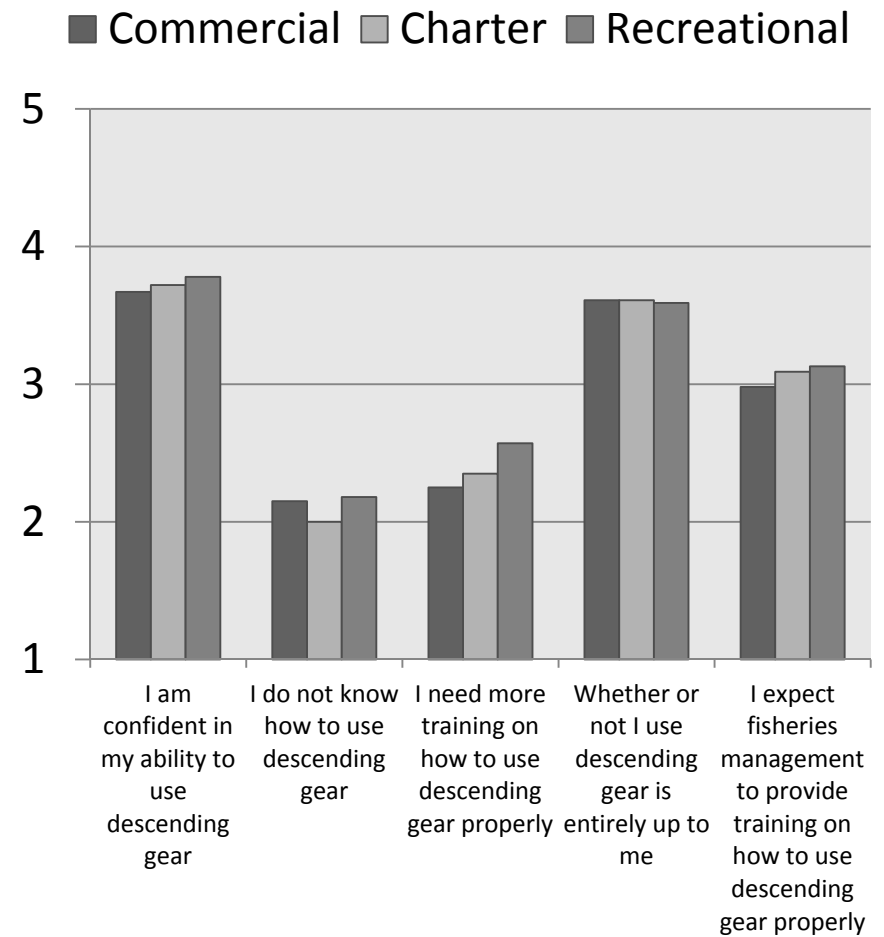


Perceived Control

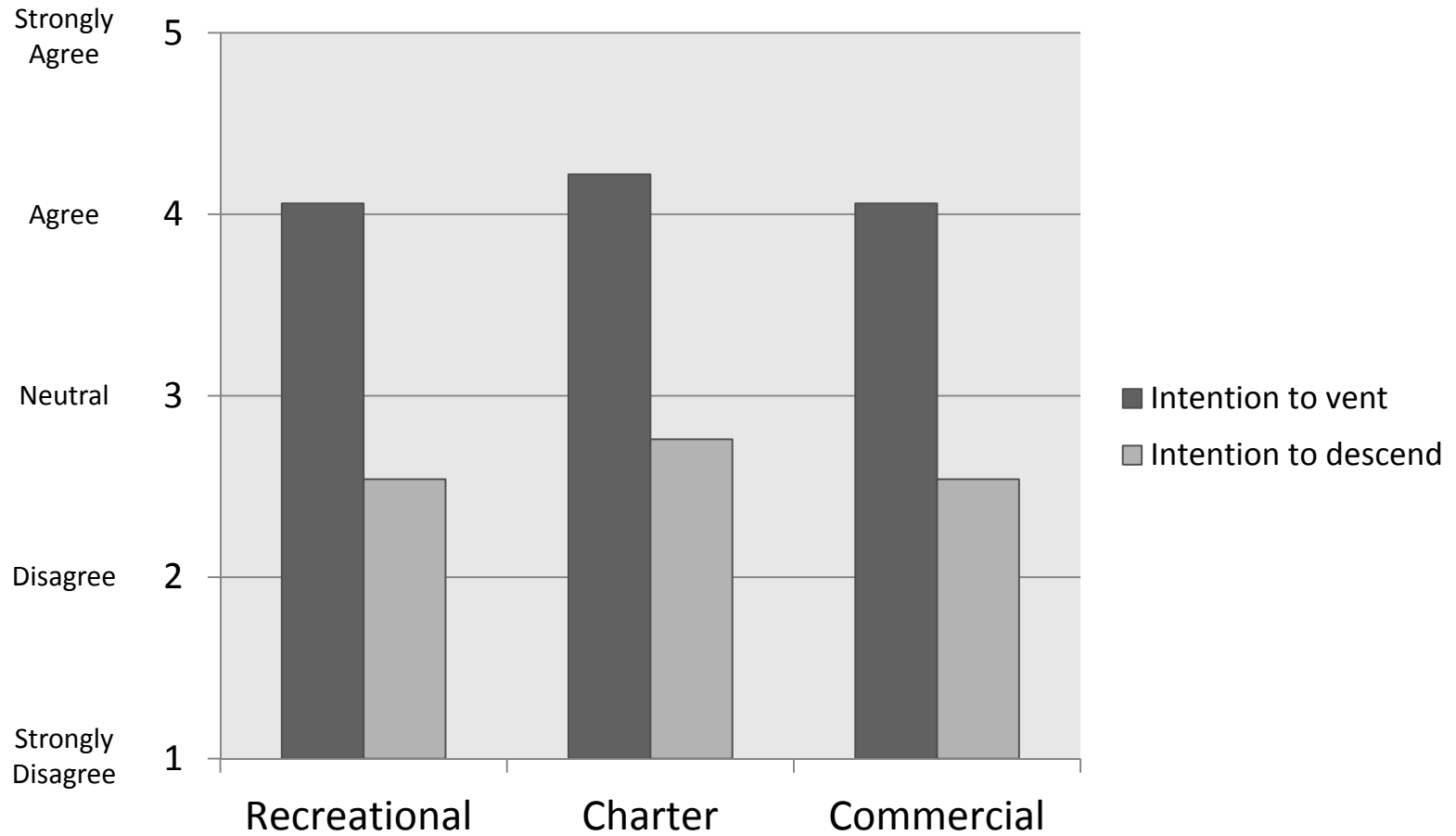
Venting Tools



Descending Gear



Intention - All Respondents



	FisherType	Beta	p
Attitude: Venting Tools	Angler	0.212	<0.001*
	Charter	0.127	0.165
	Commercial	0.129	0.111

Norm: Venting Tools	Angler	0.469	<0.001*
	Charter	0.497	<0.001*
	Commercial	0.479	<0.001*

Control: Venting Tools	Angler	0.082	0.022*
	Charter	0.135	0.112
	Commercial	0.265	<0.001*

Intention to Use: Venting Tools

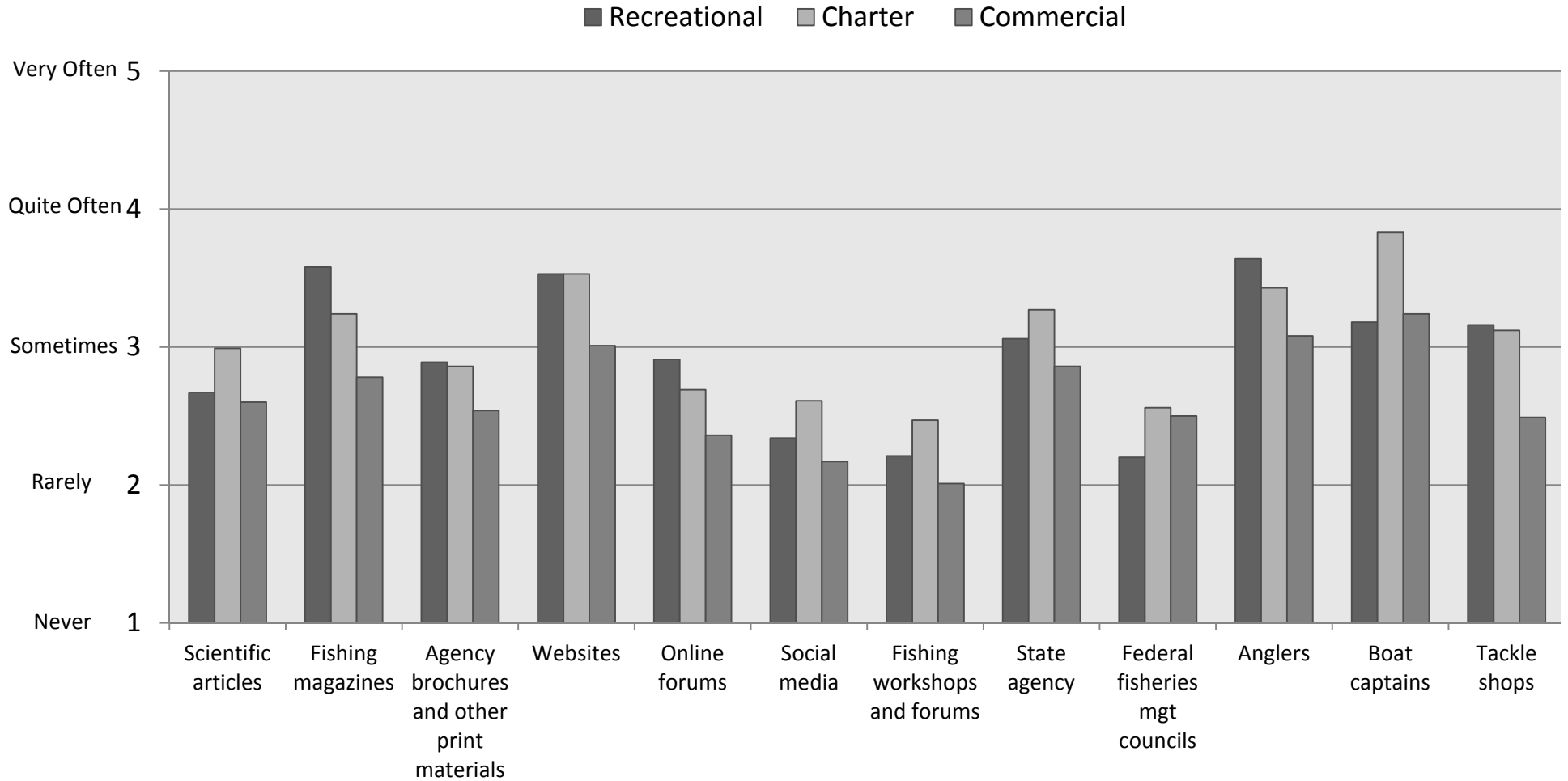
	FisherType	Beta	p
Attitude: Desc. Gear	Angler	0.312	<0.001*
	Charter	0.249	0.034*
	Commercial	0.379	0.001*

Norm: Desc. Gear	Angler	0.380	<0.001*
	Charter	0.516	<0.001*
	Commercial	0.448	<0.001*

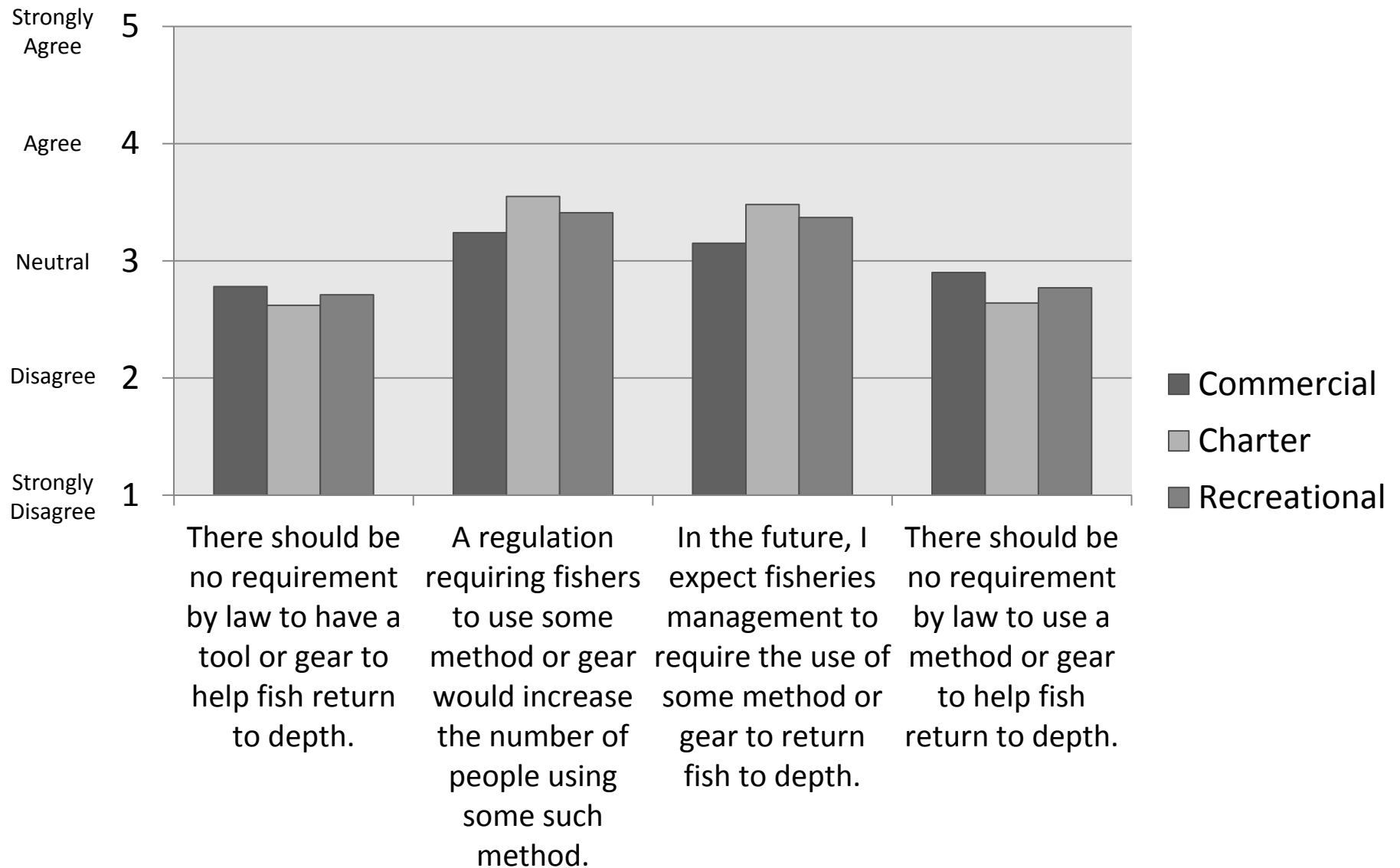
Control: Desc. Gear	Angler	0.195	0.003*
	Charter	0.184	0.059
	Commercial	0.219	0.020*

Intention to Use: Desc. Gear

Sources of Information



Attitudes toward regulation



Additional Findings



- A high proportion of fishing activity (65-81% in the Gulf of Mexico and 58-65% in the Atlantic) was reported to occur at depths of 90 feet or less, where the incidence of barotrauma is expected to be low.
- Some 67-69% of respondents reported encountering barotrauma when reef fishing, with the majority of those indicating that barotrauma was relatively infrequent (occurring 0-25% of the time).
- On average, half of recreational and charter (52% and 51% respectively) and one third (38%) of commercial catches were reported to be discarded.
- In all sectors, more respondents perceived that use by others had been frequent when possession of a venting tool was required in the Gulf.
- Overall respondents showed a preference for venting tools over fish descenders: in the past year, almost all (96-99%) had used venting tools while relatively few (14-27%) had used descending gear, and most respondents (81-86%) indicated that they intend to use venting tools the next time they encounter a fish suffering from barotrauma.

Take Home Messages



- Fishers' are generally familiar with barotrauma signs.
- Emphasize that venting and descending are equally effective (if done correctly) and describe pros and cons of each.
- Emphasizing barotrauma mitigation as a social norm is predicted to have the greatest impact on use of mitigation measures.
- Social norms can be promoted through opinion leaders, fisheries forums, and regulations.
- Anglers may be overly confident in their ability to use mitigation measures correctly.
- Anglers receive educational information via fishing magazines, TV shows, websites, and YouTube videos.
- Re-introduction of requirement to possess a barotrauma mitigation tool is likely to emphasize the social norm and is opposed by only a minority of fishers.

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Thank You



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