



This document is a review and discussion of the history of tarpon fishing in Boca Grande Pass, including different fishing styles and gear types.

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Presentation Outline

- Tarpon fishing techniques in Boca Grande Pass
 - Live bait
 - Jigs
- Stakeholder concerns
- FWC tarpon mortality study 2002-2004
- FWC rulemaking in 2004 in Boca Grande Pass
- Oregon case study



This presentation is comprised of several distinct parts that together tell the story of tarpon fishing in Boca Grande Pass, management of tarpon fishing in the Pass, and where the Commission could go from here. To let you know how this presentation is laid out, here is an overview of the topics.



The Boca Grande Pass, located at the southern end of Gasparilla Island near Ft. Myers, is one of the deepest natural inlets on the west coast of Florida. Tarpon frequent the pass and the adjacent waters of Charlotte Harbor to feed before spawning offshore. The Pass is home to a world-famous recreational tarpon fishery, and is frequently touted as the “Tarpon Fishing Capital of the World.” The peak season for tarpon in the Pass runs from April to June. During the peak season, the area is home to several tarpon tournaments.

Current Boca Grande Pass Tarpon Fishing Techniques

- Live bait (most common: crabs, shrimp, squirrelfish)
- Artificial lures



Photo from www.floridatightacklecharters.com



Anglers currently use both live bait and artificial lures to catch tarpon in Boca Grande Pass.

A variety of live baits are used to catch tarpon in the Boca Grande Pass, depending on the time of the year and conditions. However, crabs are considered to be one of the most effective baits in the Pass, especially during the full and new moon “Hill tides” that occur from May through early July. Most of the baits used by anglers in Boca Grande Pass are commonly used for tarpon fishing in other areas of the state (e.g., the Keys).

A variety of artificial lures are also used to catch tarpon in the pass, including different varieties of jigs, spoons and plugs.

Traditional Live Bait Gear

- **Line:** 50-100lb test braided line
- **Leader:** long, 100-130lb monofilament; #6, #7 or # 9 wire
- **Weight:** 6-8 ounces
- **Swivel:** 5/0
- **Hooks:** forged J-Hooks: 4/0, 5/0, 6/0, 7/0
- **Rigging:**
 - **Breakaway:** Copper wire wrapped loosely around the weight
 - **Non-breakaway:** Copper wire wrapped multiple times around the weight



Breakaway gear was prohibited in 2004

Descriptions of gear and fishing methods are generalized and representative of what was used in Boca Grande pass during 2002-2004. They are not intended to encompass all techniques or gear used by fisherman at the time and do not necessarily represent techniques or gear in common use today.

Traditional live bait anglers typically deploy gear from the stern of the boat and fish at night or early morning. The weight is rigged with copper wire. In the breakaway version of this gear used previously, copper wire was wrapped loosely around the weight which was designed to break free when a fish is hooked. The purpose of this method was to reduce the chance of a fish throwing the hook during the fight. The non-breakaway version of this rig wraps the copper wire through the weight multiple times to prevent it from breaking away.

Six to eight foot rods are used in conjunction with conventional fishing reels filled with 50-100lb test dacron (or braided) fishing line. Eighty pound test is the most common. Live bait rigs used to catch tarpon in Boca Grande Pass consist of a long leader (usually 100-130 pound monofilament or #6-#7 wire) of varying length (in the study, the leader was 11ft on average), attached to a single 5/0 swivel. A circle or J hook (usually a 4/0, 5/0, 6/0, or 7/0 J hook) is attached to the other end of the leader.

Sometimes (depending on tide, moon, and current) fishermen free-line live crabs on

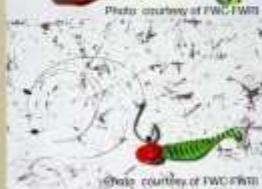
spinning tackle with no weight. Anglers also sight cast live baits to free swimming tarpon in and around the Pass and surrounding beaches.

Jigging Gear

- **Line:** 40-50lb monofilament
- **Leader:** short, 80-100lb fluorocarbon
- **Swivel:** rarely used
- **Hooks:** 5/0, 6/0, 7/0 ,8/0 ,9/0 circle or J-Hooks
- **Lure:** 4-6 ounce jig head and plastic shad
- **Rigging:**
 - **Breakaway:** Jig head is attached directly to the hook via a temporary connection (small cable tie, metal loops, etc.)
 - **Non-breakaway:** More secure fasteners are used to attach the jig head to the hook



Breakaway gear was prohibited in 2004



Descriptions of gear and fishing methods are generalized and representative of what was used in Boca Grande pass during 2002-2004. They are not intended to encompass all techniques or gear used by fisherman at the time and do not necessarily represent techniques or gear in common use today.

Jigs for tarpon are typically fished from the bow of the boat during the day. Prior to 2004, jigs were often rigged in a manner that would allow the lure to break free of the rig when a tarpon is hooked.

Jig fisherman use six to eight foot rods in conjunction with spinning and conventional reels spooled with 40-50 pound test monofilament line. Leaders are generally short (3ft on average in the study), and are comprised of 80-100 pound test. Non-breakaway jig heads (typically 4-6 ounces) and soft plastic shad bodies are attached via a cable tie or other method designed to prevent the jig from breaking away during the fight.

The jig is fished in a near vertical fashion close to the bottom.

Stakeholder Concerns

Early 2000s

- Some stakeholders raised concerns about conflicts between different groups of fishermen
- Claims about the jig fishery included
 - Tarpon being killed with the jig fishing method
 - High rates of foul-hooking associated with the jig method



Some stakeholders have raised concerns regarding the practice of jig fishing for tarpon in the Boca Grande Pass. Among the concerns, people feel that most of the tarpon do not eat the jig, but are foul-hooked instead.

FWC Tarpon Catch and Release Mortality Study

Objectives

- 2002-2004: Obtain short term catch and release mortality rate estimates for tarpon caught using live bait and breakaway jigs in Boca Grande Pass
- 2004: Evaluate rates of foul-hooked tarpon caught using live bait and breakaway jigs and collect detailed information on hook placement



Beginning in 2002 and in response to local concerns regarding decreases in survival and numbers of tarpon in Boca Grande Pass, researchers used ultrasonic telemetry to estimate the mortality rates of fish caught on live bait and breakaway jigs. In 2004, additional concerns were raised about the incidence of foul hooked tarpon in the fishery. However, the original study lacked the adequate numbers of hook placement observations to make statistically valid conclusions regarding the incidences of foul-hooking using jigs and live bait. Thus, in 2004, additional trips were made to increase the observations of hook placement using the two methods in the Boca Grande Pass and adjacent waters.

FWC Methods: Post-Release Mortality

- Study conducted 2002-2004
- Tarpon used in study were fish caught on charter boats
- FWC researchers did not fish, they observed
- A total of 40 tarpon were tagged and tracked for up to six hours post release with acoustic transmitters
 - Live Bait: 41 trips, 92 tarpon hooked, 19 tagged
 - Jigs: 42 trips, 138 tarpon hooked, 22 tagged



The post-release mortality study used acoustic tags to track tarpon up to six hours post release. Mortality was inferred if a tag stopped moving for an extended period of time. A small number of mortalities were confirmed visually (all shark predation). Although a total of 41 fish were tagged, one tag malfunctioned and therefore only 40 fish were tracked.

FWC Results: Post-Release Mortality

- Total catch-and-release mortality rate was 17.5%
- Visually-confirmed mortality rate was 10%
 - All 4 (3 jig, 1 live bait) visually confirmed mortalities caused by shark predation
- Post-release mortality by gear type:
 - Live Bait: 11.1% (2 out of 18)
 - Jigs: 22.7% (5 out of 22)
- **Difference not statistically significant due in part to small sample size**



The total catch and release mortality-rate for the study was 17.5% (7 out of 40 died). Of the seven fish that died, two were caught with live bait and five with jigs. Four of the deaths were visually confirmed (10%) and all resulted from shark attacks. The remaining three fish were presumed dead because of the cessation of movement of the acoustic signal; however, researchers were unable to visually confirm the fish as dead. The post-release mortality rate for live bait was 11.1%, or 2 out of 18 fish caught on live bait, with 95% confidence intervals of 1.8% to 34%. The post-release mortality rate for jigs was 22.7%, or 5 out of 22 fish caught on jigs, with 95% confidence intervals of 9.7% to 43.8%.

While the post-release mortality rate is higher for jigs vs. live bait, this difference is not statistically significant due in part to the low sample size of seven fish.

FWC Results: Additional Comparisons for Jig and Live Bait Trips

- Catch per unit effort (number of tarpon landed per hour fished) was higher on live bait trips vs. jig trips (statistically significant)
- Average length of tarpon landed with jigs was larger than tarpon caught using live bait (statistically significant)
- The average fight time was longer on jig trips vs. live bait trips (statistically significant)



Catch-per-unit-effort (number of tarpon landed per hour fished) was higher on live bait trips (0.19) than jig trips (0.06). Researchers used the IGFA rule that defines a landed fish as one where the leader has been touched. This difference is statistically significant.

The average length of a landed tarpon caught using jigs (171cm total length) was larger than tarpon caught using live bait (142cm total length). This difference is statistically significant.

The average fight time of tagged tarpon was 26 minutes on jig trips (range 5 to 98 minutes) and 11 minutes on live bait trips (range 4 to 55 minutes). This difference is statistically significant.

FWC Study: Incidence of Foul-Hooking

- In 2004, study expanded to examine the incidence of foul-hooking for tarpon landed with live bait and jigs
- Definitions in the study:
 - **Not foul-hooked:** Hooked in the mouth region, regardless of orientation (in/out, out/in)
 - **Foul-hooked:** Hooked in any part of the body other than the mouth (head, eye, fins, tail, etc.)

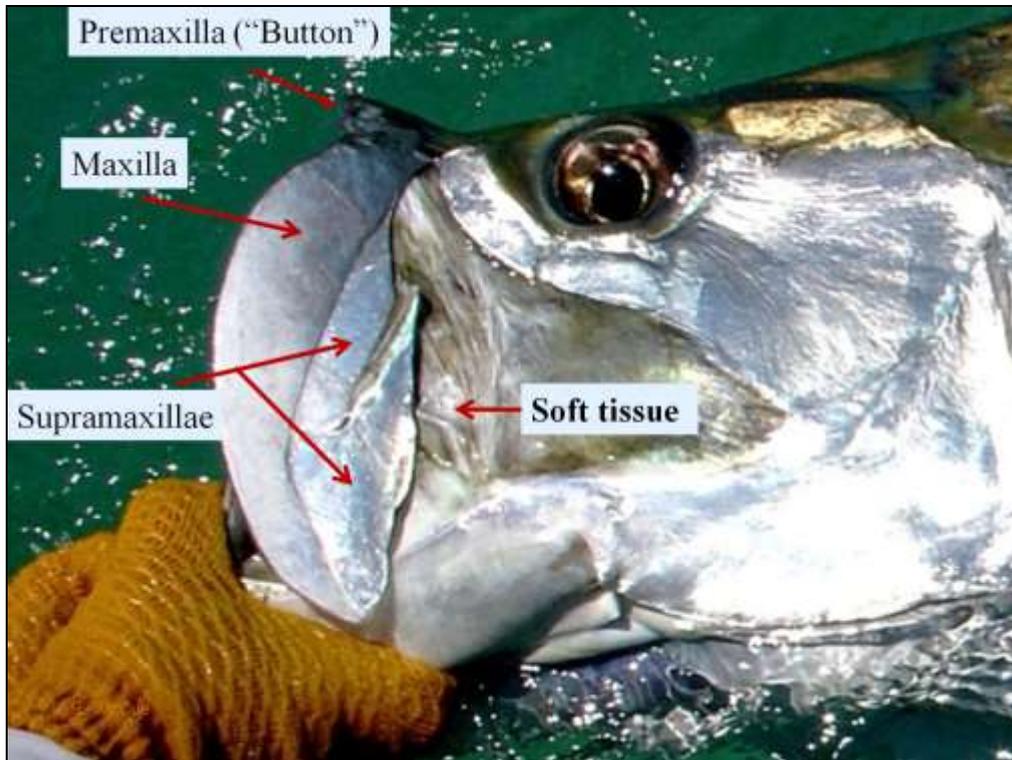


In 2004, the FWC study was expanded to examine the incidence of foul-hooking for fish landed with live bait and jigs. For the study, not foul-hooked was defined as a tarpon hooked in the mouth region, regardless of hook orientation (out/in or in/out). Foul-hooked was defined as a tarpon hooked in any part of the body other than the mouth (head, eye, fins, tail, etc.). The FWC decided to define foul-hooked and not foul-hooked in this way after considering a number of scientific studies about tarpon feeding and striking lures, as well as how other states and the International Game Fish Association (IGFA) define the terms.

Note that several factors contribute to the likelihood that a fish is foul-hooked, including the mode of fishing, fisherman behavior and the distribution, abundance and behavior of the target fish. Note also that fish hooked in the mouth region in the out/in orientation were observed with both live bait and jig fishing methods.

Tarpon Feeding Video

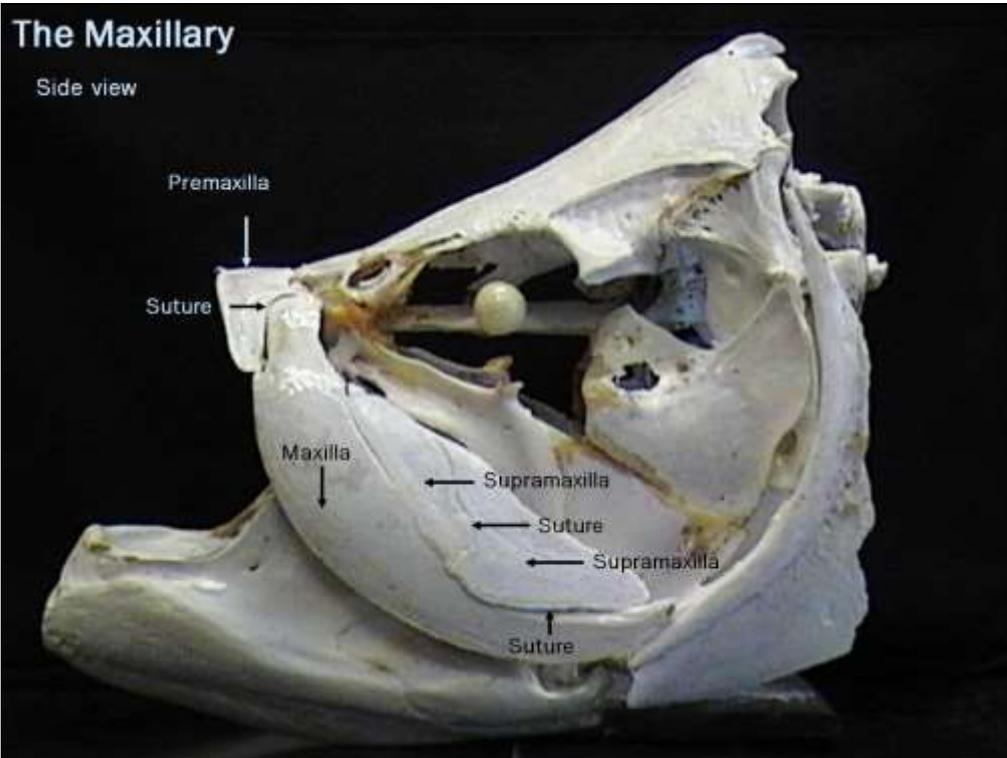




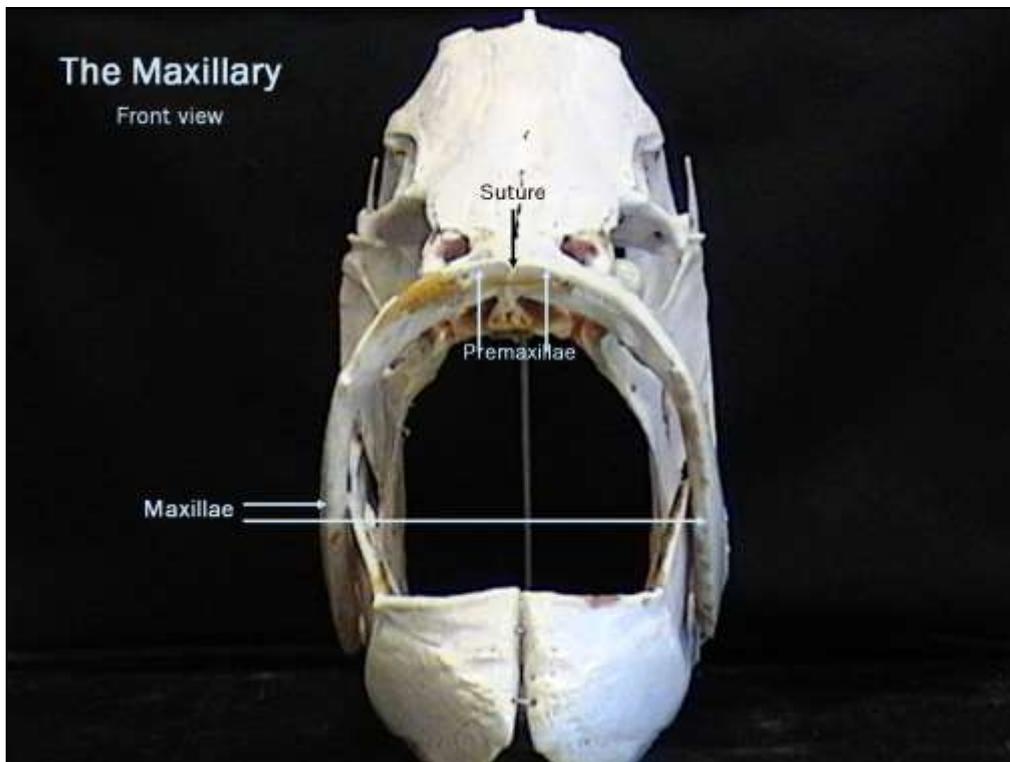
The vernacular term “clipper” is used by local Boca Grande guides to describe the fused maxillae and supramaxillae.

The vernacular term “button” is used by local Boca Grande guides to describe the premaxillae.

Sutures fuse the eight bones (2 premaxillae, 2 maxillae and 4 supramaxillae) that constitute the maxillary or upper jaw of the tarpon.



Tarpon skull showing the bones of the jaw and suture locations.



Front view of tarpon skull.

The two premaxillae are sutured in the middle. This area is also referred to as the "button."

Hook locations used in the FWC study

- Not foul-hooked
 - Lower jaw or Premaxilla (button)
 - Clipper = Maxilla/Supramaxilla/Soft Tissue
 - Inside the mouth
- Foul-hooked
 - Head (other than the mouth)
 - Body
 - Gills
 - Tail
 - Eye



Hook orientation (out/in or in/out)
was recorded but not used to
determine foul-hooking



Hook locations in the study were recorded as follows:

- Lower jaw or premaxilla (or button), typically in the sutures between bones rather than the bone itself
- Clipper: Hooked in the maxilla or supramaxilla or soft tissue behind the clipper or corner of the mouth.

Locations recorded that were considered foul-hooked included head (other than the mouth), body, gills, tail and eye.

Because of the definitions that FWC used in the study for foul-hooked and non-foul-hooked, hook orientation (out/in vs. in/out) was recorded but not used in determination of foul-hooking. The FWC definitions only used hook location to determine foul-hooked or non-foul-hooked.

Hook Locations Used in the Study



Lower jaw, out/in



Clipper, out/in



Examples of hook locations used in the study.

Lower Jaw, outside/in – Jig trip, 2002

Clipper, outside/in – Spinning gear live bait 2004

Hook Locations Used in the Study



- Premaxilla (button) inside/out



Fish not from FWC study, representative of live bait-caught fish hooked on the premaxilla (button) inside/out – hook in suture between the two premaxillae

The Clipper

- These particular areas of bone and soft tissue constitute the “open circle” of a tarpon’s open mouth
- Artificial lures typically hook a fish shallower than live bait in any fishery
- All hook placements were verified by FWC staff through detailed observations



These pictures are of the same fish caught on a jig. With the mouth closed, this fish appears to have been hooked in the soft tissue at the corner of the mouth (i.e. coded as clipper). In reality, this fish was hooked on the inside of the mouth. Hook location is sometimes difficult to tell by a casual observation.

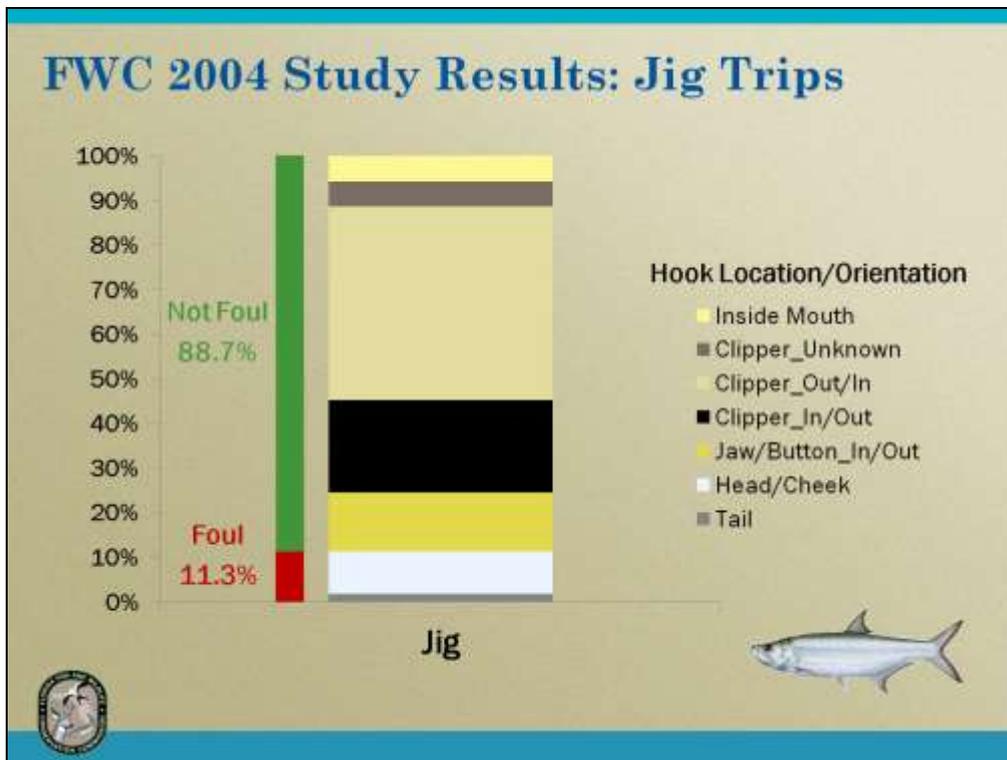
In the FWC foul-hooking study, all hook placements were verified by FWC staff through detailed observations.

Other Lures and Techniques

- Aside from jigs, other fishing lures and techniques from the area (2004) also hooked tarpon in the “clipper”
 - Dead bait fished on the bottom
 - Mirrolures®
 - Live baits fished on spinning tackle
- The soft tissue in the corner of the mouth may be a common hooking location



Aside from jigs, other methods and artificial lures are known to hook tarpon in the soft tissue located in the corner of the mouth.



Summary of hook placement and orientation data for jig trips in 2004 in Boca Grande Pass.

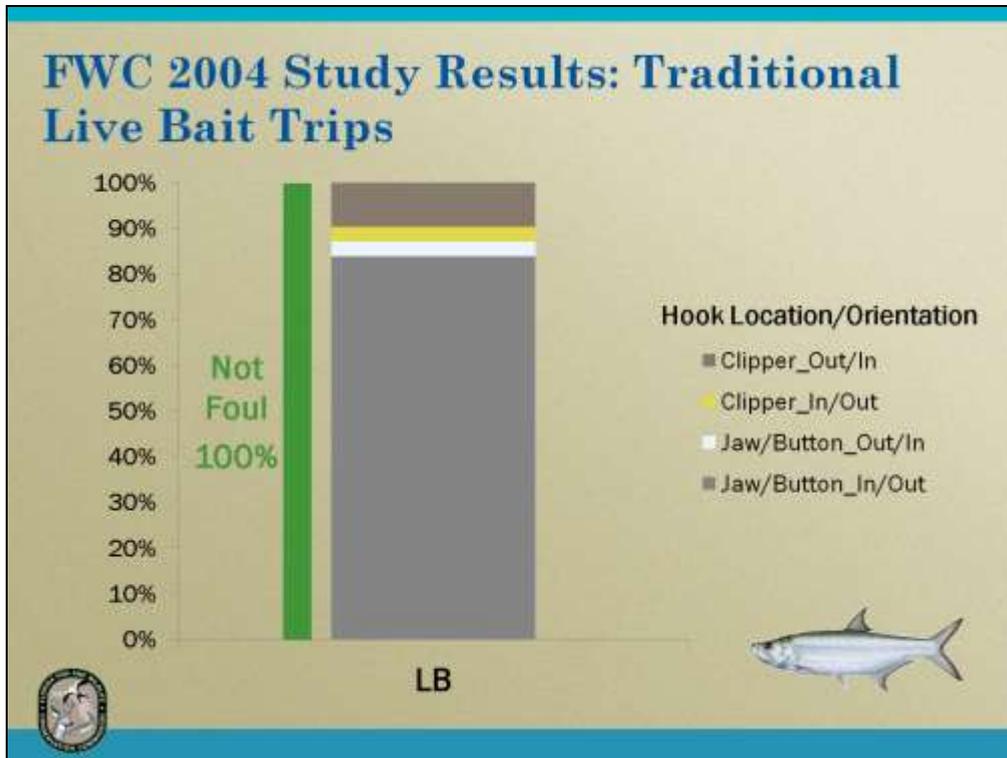
For jig trips, 53 fish were landed and observed.

88.7% (47 of 53) of these fish were determined to be not foul hooked - hooked in the mouth region regardless of hook orientation

11.3% (6 of 53) of these fish were determined to be foul hooked on either the gills, head/cheek, or tail

The most common observation (43.4% or 23 of 53) for jig caught fish was hooked on the maxilla/supramaxilla/soft tissue (clipper) out/in

3 jig fish were observed as hooked inside the mouth



Summary of hook placement and orientation data for live bait trips in 2004 in Boca Grande Pass.

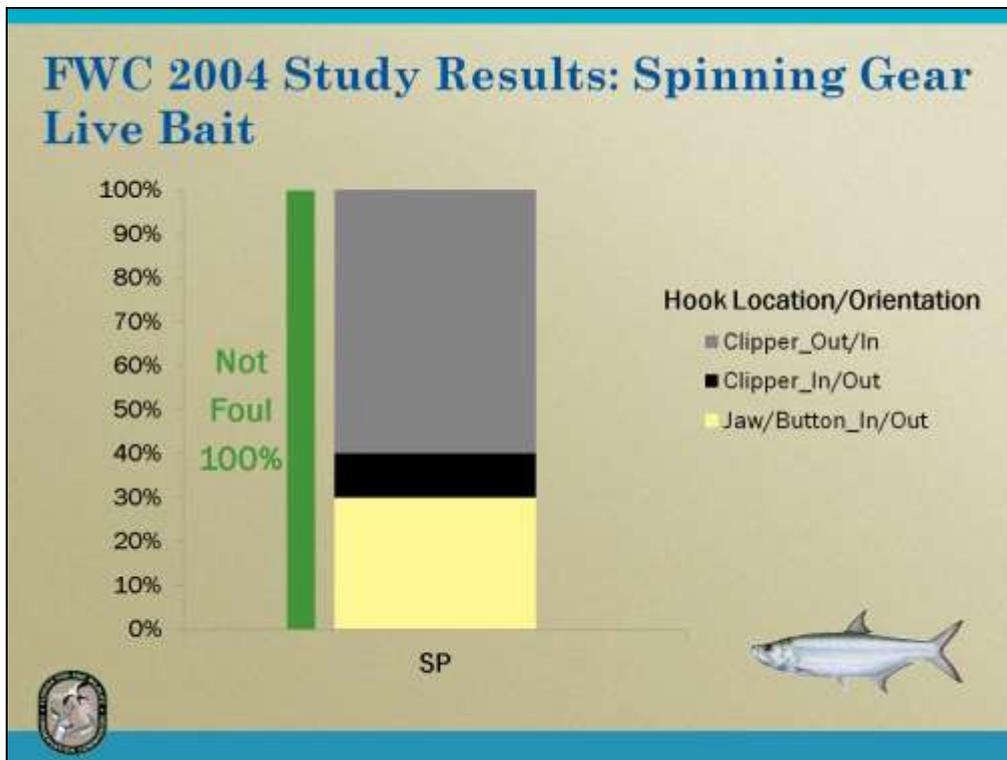
For traditional live bait, 31 fish were landed and observed.

100% of these fish were determined to be not foul hooked – hooked in the mouth region regardless of hook orientation

The most common observation (83.9% or 26 of 31) for live bait caught fish was hooked on the premaxilla (button) inside/out

12.9% (4 of 31) of these fish were hooked out/in

No live bait caught fish were recorded as hooked inside the mouth.



Summary of hook placement and orientation data for spinning gear and free-lining live crabs in 2004 in Boca Grande Pass.

For spinning gear (free-lined live bait) trips, 10 fish were landed and observed.

100% of these fish were determined to be not foul hooked – hooked in the mouth region regardless of hook orientation

The most common observation (60%) for spinning gear caught fish was hooked on the maxilla/supramaxilla/soft tissue (clipper) out/in

No spinning gear caught fish were recorded as hooked inside the mouth.

FWC Study Conclusions

- **Fishing method (live bait or jig) had no statistically significant difference in post-release mortality rates of tarpon**
- Foul-hooking appeared to have little effect on post-release mortality rates of tarpon
 - Out of the 7 post-release mortalities recorded only 1 was foul-hooked
- Jigs foul-hooked more tarpon than live bait (statistically significant difference)
- The foul-hooking rate is not atypical for any fishery, including tarpon



Summary of FWC Study Conclusions:

Post-release mortality was higher for jig-caught fish compared to live bait caught fish, but this difference was not statistically significant. Lack of statistical significance in this case is related in part to small sample size.

Foul-hooking appeared to have had little effect on post-release mortality rates of tarpon. Out of the 7 post-release mortalities recorded only 1 was foul-hooked.

Jigs foul-hooked more tarpon than live bait (11.3% vs. 0%). This difference was statistically significant.

The foul-hooking rate is not atypical for any fishery, including tarpon.

2004 Commission Actions

- In 2004, the Commissioners discussed Boca Grande Pass tarpon gear issues at the February and April meetings
- Staff presented information similar to what is in this presentation
- Commission discussion focused on
 - Social conflict
 - Reducing breakaway gear waste on the bottom of the Pass
 - Reducing the number of lines per boat



Management of Tarpon Fishing in Boca Grande Pass

March 28, 2004

- Prohibited snagging or snatch hooking
- Limited fishing lines to 3 per vessel in Boca Grande Pass during April, May, and June

July 1, 2004

- Extended the three-lines-per vessel provision to all species in Boca Grande Pass during April, May, and June
- Prohibited harvest of all fish when using breakaway gear in Boca Grande Pass during April, May, and June

No management actions since 2004



As a result of the findings of the FWC study, the Commission approved rules for tarpon, both statewide and specific to Boca Grande Pass.

At the February 2004 Commission meeting, the Commissioners approved rules that prohibited snagging or snatch hooking of tarpon statewide and limiting the number of fishing lines that could be used from a vessel in Boca Grande Pass to three during April, May, and June.

At the April 2004 Commission meeting, the Commissioners approved rules that extended the three lines per vessel provision to all species in Boca Grande Pass and prohibited all harvest of fish when using breakaway gear, both during April, May, and June.

Since this rulemaking, no management actions have taken place for tarpon, statewide or in Boca Grande Pass.

FWC Definitions

- **Breakaway gear:** means any bob, float, weight, lure, or spoon that is affixed to a fishing line or hook with wire, line, rubber bands, plastic ties, or other fasteners designed to break off when a fish is caught
- **Snagging** or **snatch hooking** means the intentional catch of a fish by any device intended to impale or hook the fish by any part of its body other than the mouth



Gear rule:

68B-4.002(1) "Breakaway gear" means any bob, float, weight, lure, or spoon that is affixed to a fishing line or hook with wire, line, rubber bands, plastic ties, or other fasteners designed to break off when a fish is caught.

Tarpon rule:

68B-32.002(3) "Snagging" or "snatch hooking" means the intentional catch of a fish by any device intended to impale or hook the fish by any part of its body other than the mouth.

Addressing snagging and weights: Case study from Oregon

Snagging

- *Taking or attempting to take a fish with a hook and line in a way or manner where the fish is not enticed to voluntarily take the hook(s) in its mouth. Gamefish which are hooked other than inside of its mouth must be released immediately unharmed*

Use of weights

- *Single point restriction on non-buoyant lures – When angling for salmon and adipose fin-clipped steelhead, a single point hook with a gap size no larger than $\frac{3}{4}$ inch is required for all non-buoyant lures August 1 – December 31 from Bonneville Dam to the OR/WA border*



Several other states have definitions of snagging that are relevant to this discussion. Oregon's definition listed above was used to solve an issue that arose for salmon and steelhead. Anglers congregate near the hatcheries to target these species which only feed for short periods of time. This definition was modeled after definitions for Washington and Idaho and attempted to determine whether the fish was chasing the gear or the gear was being used to chase the fish. This specific definition helped law enforcement who was previously finding anglers in possession of fish that were hooked in an area other than the mouth and told the officer that their intent was to hook in the mouth.

In addition to adopting this definition for snagging, the state of Oregon also made regulations specific to certain water bodies that applied to gear that did not allow the use of a weight.

Addressing Flossing – Oregon case study

Flossing = while drift fishing with a very long leader the angler positions a long, weighted line so that the leader enters the mouth and the hook is aggressively set

Flossing concern addressed by limiting leader length

- Example - *From May 1 through June 30, use of leaders longer than 36 inches is prohibited. Hooks are limited to no more than a single point, size 3/8 inch gap width or smaller hook*



Oregon also restricted the use of flossing, which is the practice of drift fishing on a river with a very long leader (usually 6ft or longer). The leader enters the fish's mouth and the hook is aggressively set, resulting in the fish being hooked outside the mouth. Oftentimes the angler using the flossing method does not even have any bait or lure associated with the hook.

The flossing concern was addressed in Oregon by limiting the leader length. An example of the rule Oregon used for a particular water body is indicated on the slide.

Commission Direction Requested

- Staff has summarized
 - Gear used in the Pass
 - Historical stakeholder concerns
 - FWRI study conducted from 2002-2004
 - FWC rulemaking in 2004 for the Pass
 - Oregon case study



Staff is requesting Commission direction on where to go with this issue.