

Monitoring angler environmental attitudes and behaviour using a Facebook angling group - an example of angler self-reform?



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RHODES UNIVERSITY
Where leaders learn

Introduction – power of Facebook

Prospects and challenges for social media data in conservation science

Di Minin et al 2015

TABLE 1 | Common social media platforms for sharing nature experiences.

Name	Description	Number of users (Billions)*	Interface to access content	Available API (search) parameters that can be used to restrict the content that is downloaded	Popularity of the platform (% of respondents in our survey)				
					In the survey overall	In sharing any nature related content	In sharing nature related texts	In sharing nature related pictures	In sharing nature related videos
Facebook	World's most popular social media platform. Status updates with friends, groups, pages	1.440	Graph API: https://developers.facebook.com/docs/graph-api	User, page, event, group, place, placetopic	95	90	87	90	90
Youtube	Video streaming with social networking	1.000	Data API: https://developers.google.com/youtube/v3/	Video, channel, playlist	68	19	–	–	32
Twitter	Microblogging, short 140-character publicly visible messages, trending topics	0.302	Streaming APIs: https://dev.twitter.com/streaming/overview	User, location (as bounding box), keyword, tags, followers	33	19	18	11	7
LinkedIn	Professional network on the Internet	>0.350	REST API: https://developer.linkedin.com/docs/rest-api	Profile, connections, people, company, jobs, groups	34	2	2	1	2
Instagram	Mobile photo/video sharing with social networking and trending topics	0.300	Instagram API: https://instagram.com/developer/ , API Console: https://apiigee.com/console/instagram	User, location (as point-coordinates with search radius), keyword, tags, followers, photos, popular items, comments, likes	34	31	–	32	NA
Flickr	Image/video hosting, photostreams, content-filtering, professional photo	0.920	Flickr API: https://www.flickr.com/services/api/	User, location (as point-coordinates with search radius), photos, keyword, tags, people, groups, galleries, favorites, contacts, comments, places	13	10	–	10	2

Not everyone will post something that will be of interest to you – but facebook groups provide opportunities for you to engage with content that is potentially relevant to your study area

Calls with the group had 590 self-selected members. See <http://explore.oxfordjournals.org/doi/10.1093/oxfrev/advn011>

Supplementary Materials. The survey

This screenshot shows the Facebook search interface for 'fishing groups'. The search bar at the top contains the text 'fishing groups'. On the left, a sidebar lists various filters: All, Posts, People, Photos, Videos, Marketplace, Pages, Places, and Groups. The main content area displays a list of search results:

- Fishing and fishing**: Group - 16K members. Talking about fishing anywhere. 120 posts a day.
- FISHING PE -SALT and FRESH WATER angling posts(Kempston Fisheries)**: Group - 3.4K members. For all fishing related posts .Businesses ,Clubs ,Public ,Anglers to post any thin... 25 unread posts.
- BILIMORIA FISHING TACKLE**: Group - 370 members. WHERE GREAT FISHING BEGINS. 7 posts a week.
- Port Elizabeth Fishing Forum**: Group - 3.6K members. This forum is a fun and informative means of communication for recreational a... 4 posts a day.
- FISHING The CAPE**: (partially visible)

This screenshot shows the Facebook search interface for 'snake groups'. The search bar at the top contains the text 'snake groups'. On the left, a sidebar lists various filters: All, Posts, People, Photos, Videos, Marketplace, and Pages. The main content area displays a list of search results under the heading 'Groups':

- Snakes of Southern Africa**: Group - 181K members. This Group will help you identify Southern African snakes and answer any ques... 200 posts a day.
- The venomous snakes and other reptiles of Africa**: Group - 30K members. Please feel free to ask questions, post pics or if you are in need of assistance wi... 40 posts a day.
- Reptiles, Snakes, Boas, Pythons, other exotics, and Whatever for adults**: Group - 9.3K members. This is a group for people who own and love reptiles. We do not judge a perso... 70 posts a day.

A 'See All' button is located at the bottom of the group list.

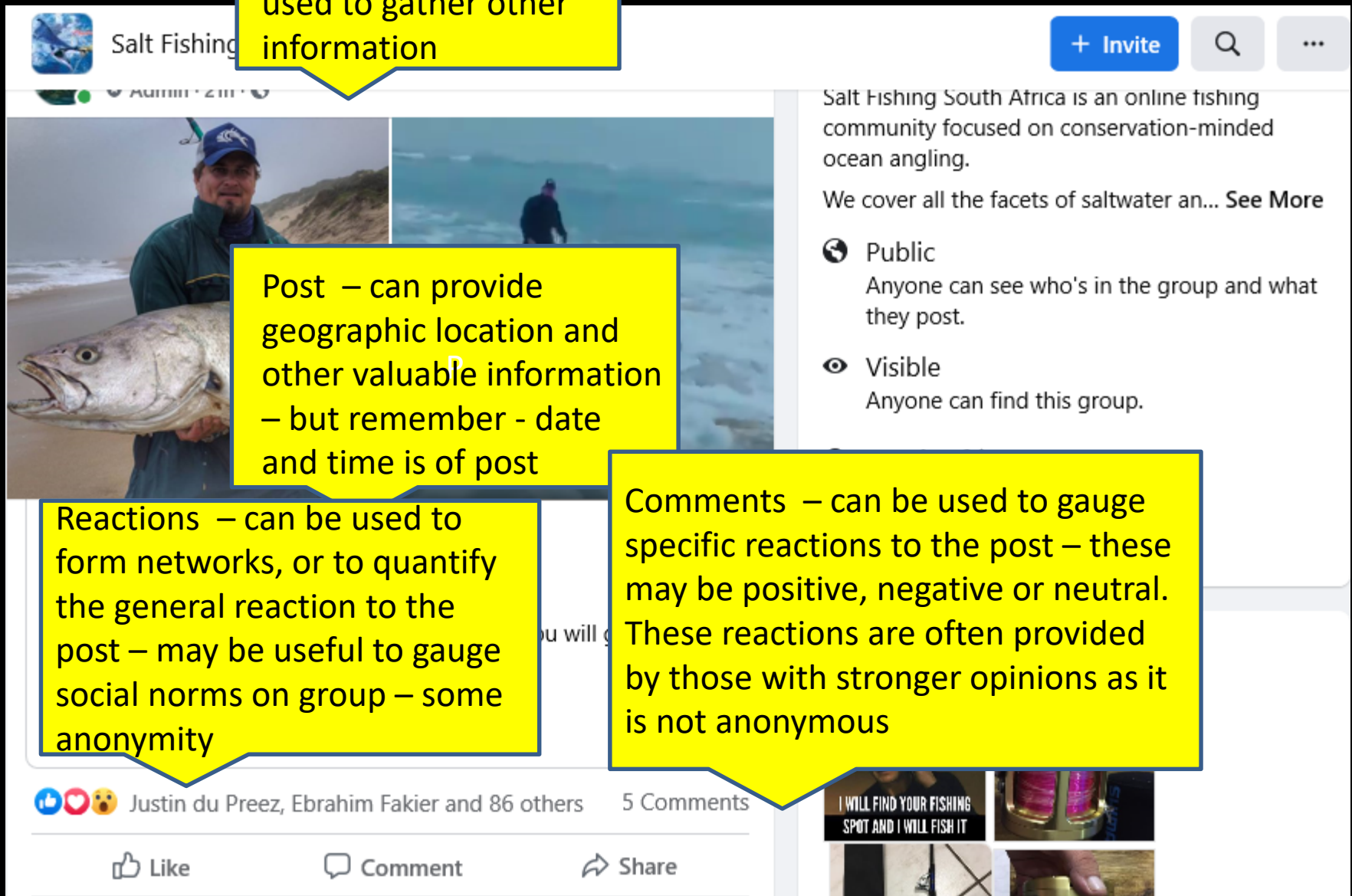
While it is easy to find groups, you must know the context of each group to determine whether it will be useful for research

Photo – not georeferenced in Facebook, but can be used to gather other information

Post – can provide geographic location and other valuable information – but remember - date and time is of post

Reactions – can be used to form networks, or to quantify the general reaction to the post – may be useful to gauge social norms on group – some anonymity

Comments – can be used to gauge specific reactions to the post – these may be positive, negative or neutral. These reactions are often provided by those with stronger opinions as it is not anonymous



About This Group

Salt Fishing South Africa is an online fishing community focused on conservation-minded ocean angling.

We cover all the facets of saltwater angling including Rock & Surf, Fly Fishing, Fishing Ski, and Ski Boat fishing.

The aim of the group is to provide a forum where the saltwater angling community can share experiences, catches and ideas while at the same time promoting sustainable fishing practices, and the ethical treatment of all marine life.

With this in mind, and realising that our fish stocks all along our coast are in a very poor state, we encourage the practice of catch and release wherever possible and prefer photos of rock and surf catches that have been safely returned to the water, but we will accept photos of dead catches as long as they are within the legal bag and size limits and are not of banned species such as Great White Sharks, Brindle and Potato Bass and Natal Wrasse.

From an offshore point of view, we would prefer to see catches of pelagic species (eg. Coota, Tuna and Queen Mackerel etc.) posted and photos of released bill fish (Marlin and Sailfish.) Once again we'd prefer photos of released catches of reef fish and bottoms but we will accept any legal catch here too.

This group is not for the angler who wants to brag about the huge hauls of fish he has removed from the ocean, but rather for those that want to showcase their legal catches, preferably that have been released and are still playing a role in the ocean environment.

We will not tolerate photos of one angler with 30 fish that he claims were caught by himself and 2 friends. Only post photos of your own catch.

SWEARING -

No bad language will be tolerated AT ALL and any comments or posts containing swearing will be removed by the moderators immediately. Any person repeatedly posting foul or offensive comments will be removed from the group.

No photos of naked or scantily clad women will be accepted either.

We have many, many ladies and children as members. Please be considerate of them.



Members - 63.3K



Amber, Cameron and 96 other friends are members.



Justin and 11 other members are admins.

[See All](#)

Formed 2012

- **Members of our research group had been members since 2014**
- **We had perceptions that angler attitudes and behaviour had improved**
- **Given that the government does little to manage SA recreational fisheries, we wanted to look at whether anglers themselves can improve their own behaviour**



Aim

To establish whether environmental self-reform had taken place within this recreational fishing community.

This was done by examining the trends in the attitudes and behaviours of the members of the Salt Fishing South Africa Facebook group from 2013 to 2020.

We looked at:

- 1) The proportion of photo posts of fish that were killed and released over time
- 2) The C&R handling practices over time, based on information from photographs
- 3) The proportion of pro-environmental comments in response to posts over time

Photos and posts were used to estimate the proportion of photo posts of fish that were killed and released over time

Salt Fishing South Africa

Write a comment...

14h · 🌐

Just now in Gourits whilst scratching with my spinning rod. 62cm White musslecracker. Released 😊



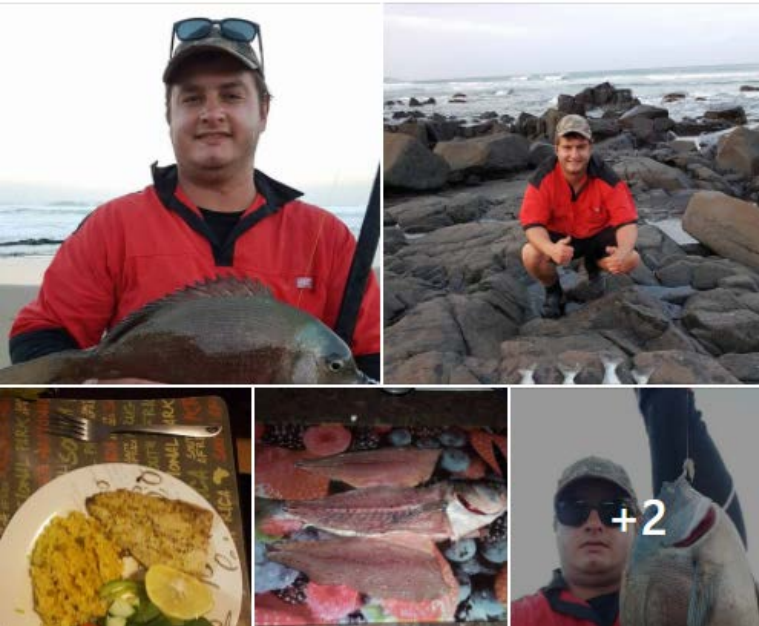
185 19 Comments 1 Share

Like Comment Share

C&R

Salt Fishing South Africa

Tough week in mazeppa bay last week, went with high hopes of landing a PB non edible, unfortunately the weather didn't allow it... I manage to get 4 decent shad off shark point that i kept for the pan... also managed to get 3 nice size Bronze bream off the reefs by shelly beach....



+2

C&K

Photos were used to assess the C&R handling practices over time

- A score-based system for elasmobranchs and teleosts = analyse handling practices
- Fate of the catch was recorded
- Brownscombe et al. (2017) & DIFS staff ... +



Score
Physical handling
Substrate
Visual indications of off-camera handling



Handling practices for elasmobranchs		
1	2	3
Tail of the shark is lifted high off of the substrate, putting strain on the vertebrae; or jaw is forced open widely causing injury or strain to the body; or small sharks are being handled from the tail, completely off the substrate; the entire body of the ray is lifted by the spiracles, likely causing serious damage to the breathing apparatus	The tail of the shark is slightly lifted off of the substrate, placing some pressure on the vertebrae; or jaws of the shark are held open but to no significant degree; small sharks are being supported by the tail and underneath the head if lifted off of the ground; the ray is being handled by the spiracles but the full body weight is not suspended off of the substrate.	The shark/ray is lying on the substrate with tail on the ground and jaw un-manipulated; the ray is being manoeuvred correctly via the oral cavity, no lesions or abrasions can be seen on the skin.
The shark/ray is lying on rocks; is lying on dry sand far from the water.	The shark/ray is lying on wet sand, close to the water	The shark/ray is submerged in water.
Physical lesions or abrasions can be seen on the skin from manoeuvring the shark/ray over rocks; or the skin of the fish is dry and covered in dry sand indicating prolonged air exposure.	The skin of the fish is wet but covered in sand from excessive manoeuvring over sandy substrate. This likely points to the fish having been moved up the beach away from the water and is an indication of prolonged air exposure; or the skin of the fish is moist not wet.	The skin of the fish is wet, there is minimal to no sand covering the surface of the skin indicating that the fish has been kept close to the water which reduces air-exposure time; no lesions or abrasions can be seen on the skin.

Comments in response to posts were used to gauge the pro-environmental sentiment over time

...and river, *Argyrosomus* spp. 60 cm's but may only land or be in possession of one kob > 110cm per day

Like · Share · 4y



Kob caught in estuaries & from the shore [East of Cape Agulhas only] *Argyrosomus* spp. 60 cm 1

Like · Share · 4y



Share · 4y

Like · Share · 4y

You guys go on over bag limits...Trevor is a well skilled fisherman compared to the Japanese vessels that are milking our oceans dry

Like · Share · 4y



Trawlers and Pelagic longliners can't catch our endemic inshore species like Galjoen, Steenbras and Dusky Kob. We as recreational anglers and "poachers" are the only group who is to blame for overfishing these species.

Comment with the post

2. Neutral

3. Negative

Neutral information: The provision of information relating to fishing activities

Anti-environment: The advertisement of malpractice and/or unnecessary killing of

Provision of information – Pro-environment

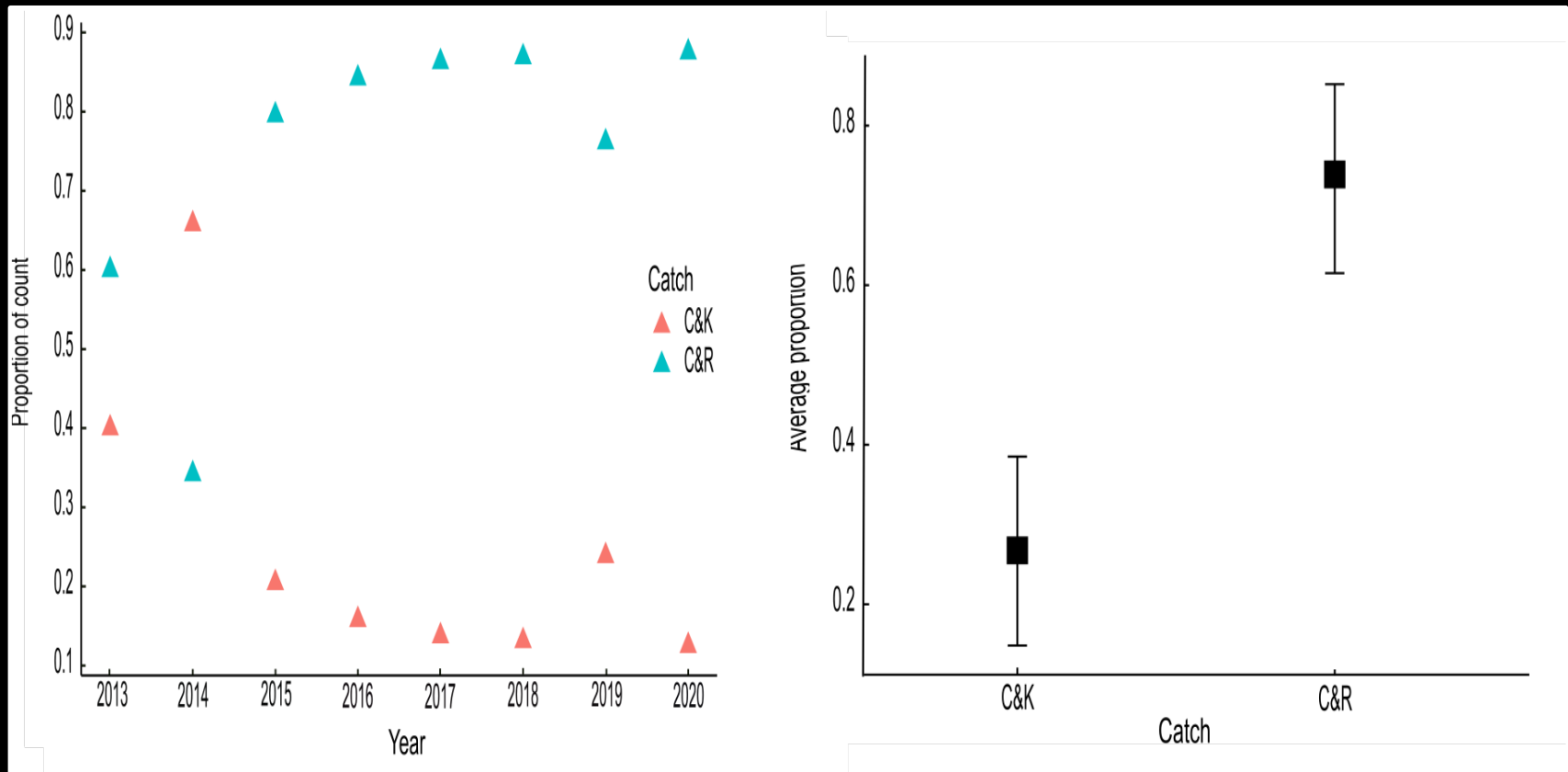
about non-compliance of management strategies; a traditional mind set on conservation put forward

Failure to recognize the impact of recreational anglers and urging others to retain fish – considered to be anti-environment -

Clear recognition of the impact of recreational anglers and urging anglers to practice C&R – pro-environment

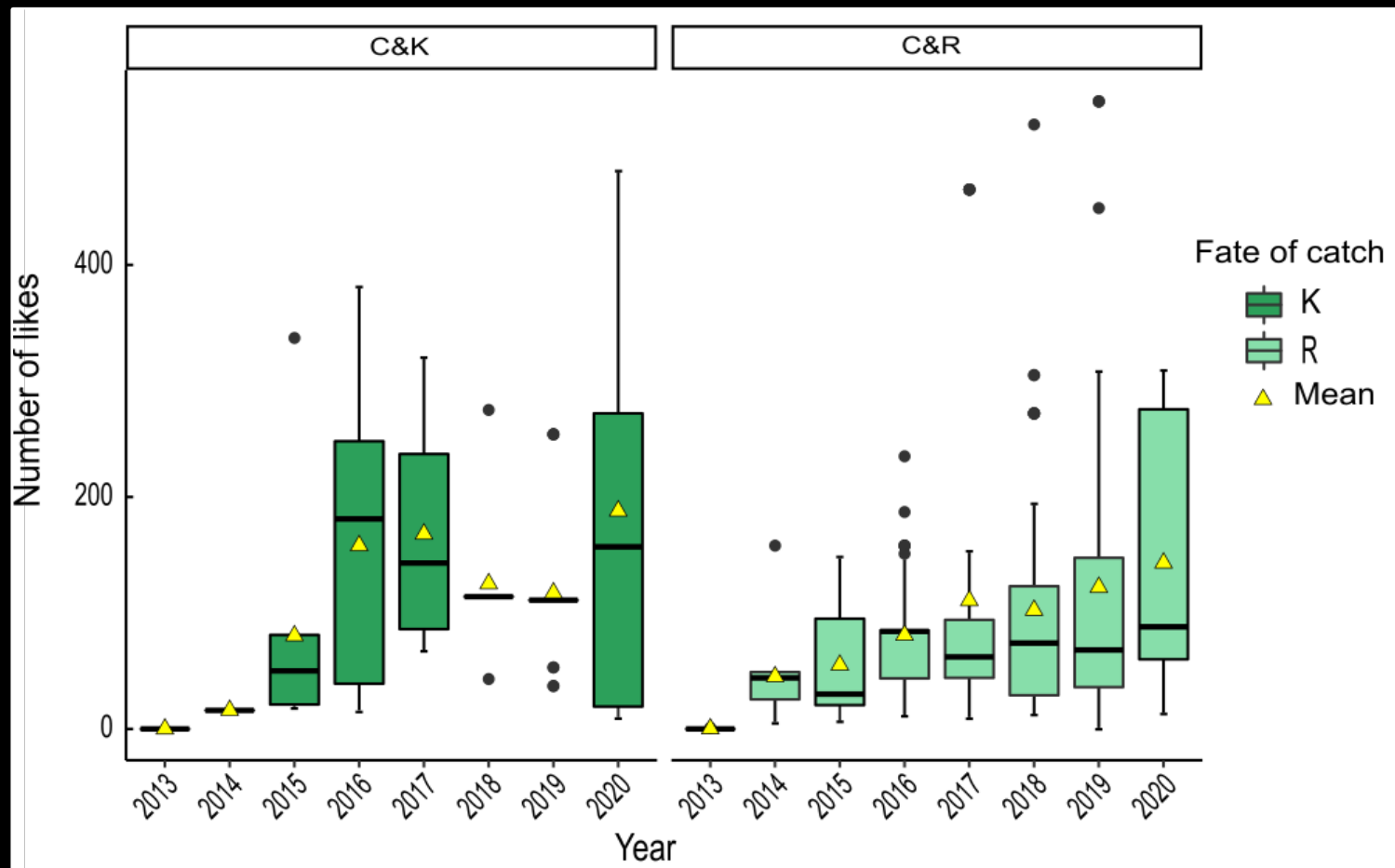
Fate of catch

- Of the 548 photos examined from the SFSA group, the fate of the catch was clearly identifiable in 474 of these photos
- Beta regression (p-value <0.05; z-value = 5.192; df = 4; Pseudo $R^2 = 0.67$).



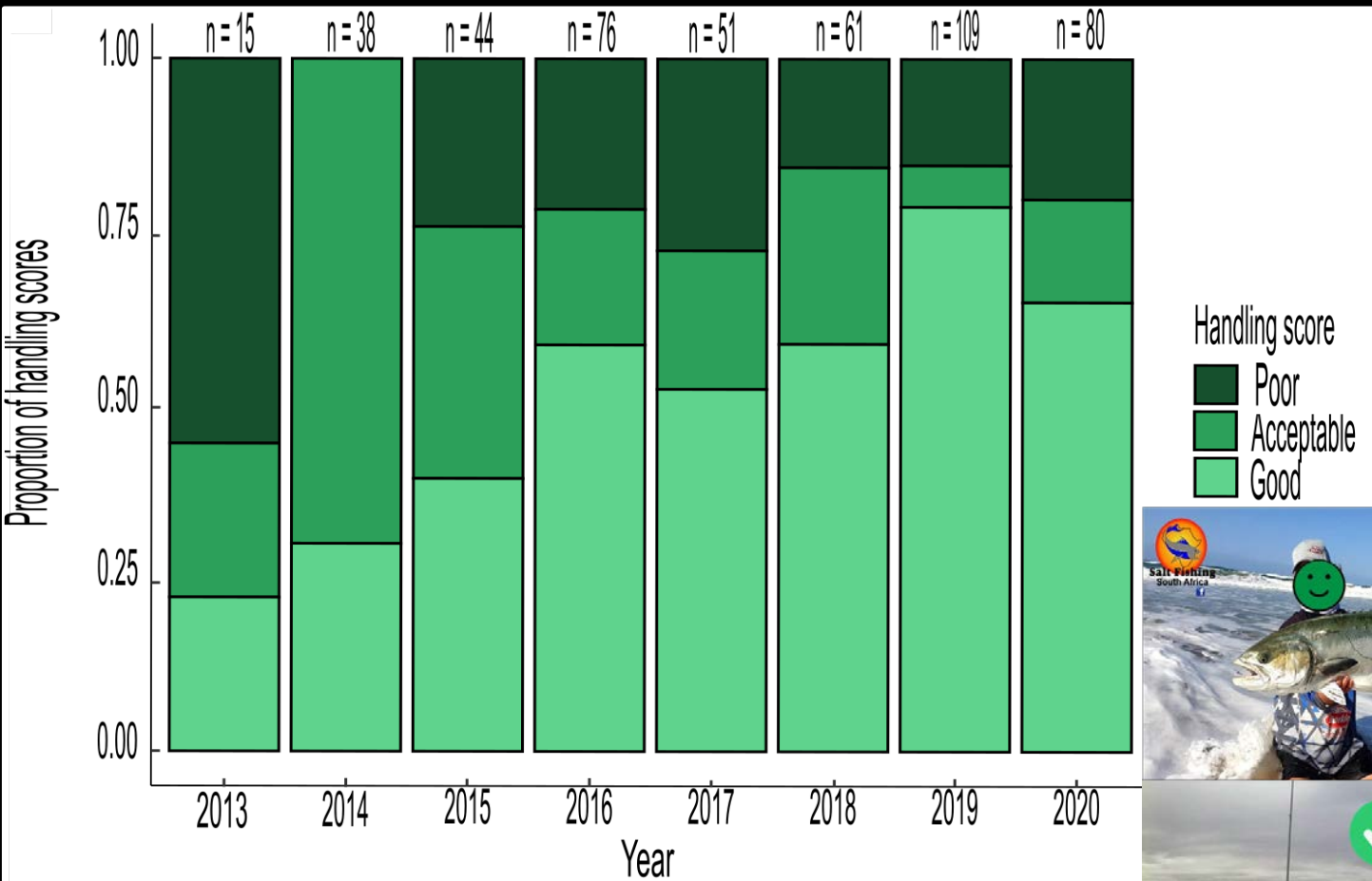
The number of likes in response to the fate of the catch in the photos

- Mann–Whitney U tests: the difference between the average number of likes for C&R and C&K were significant in 2016 ($W = 232$, p -value < 0.05) and 2019 ($W = 1379.5$, p -value < 0.05)



Handling practice scores

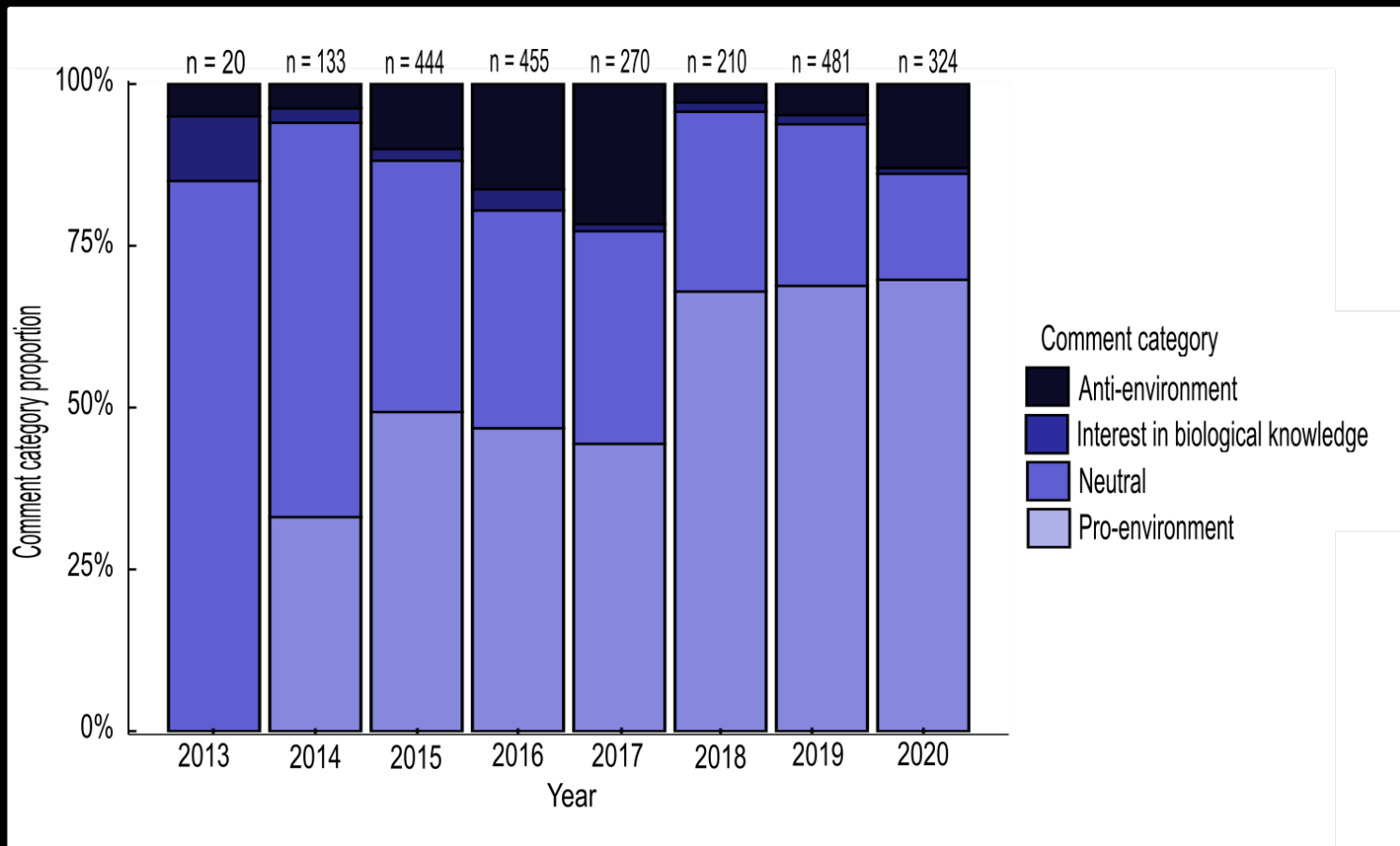
- 451 photos were examined based on handling practices
- Chi-squared ($X^2 = 185.51$, $df = 7$, $p\text{-value} < 0.05$)



Results:

Member comments in response to posts

- 2 337 comments were analysed
- Male (90.58 %)
- chi-squared test ($X^2 = 499.38$, $df = 7$, $p\text{-value} < 0.05$).



Discussion:

- Significant increase in pro-environmental behaviour
- Most likely through the demarcation of an appropriate standard of behaviour, the development of social norms, social learning
- Engagement and relationships between administrators of the group and scientists necessary



Anglers do not need regulations or managers to make them improve their behaviour

Discussion:

Caveats with methodology

- The inability to assess handling practices before and after photos were taken
- Changes in individual behaviour was not quantified
- Skewed sample

We saw what anglers wanted us to see

The findings may just be a reflection of changes in membership – ie. more conservation-conscious (CC) anglers join, less CC anglers leave the group

This is not representative of all anglers in SA – may just be the most CC

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Thank you 😊