RASSPL and Science – working together to improve the sustainability of rock and surf angling

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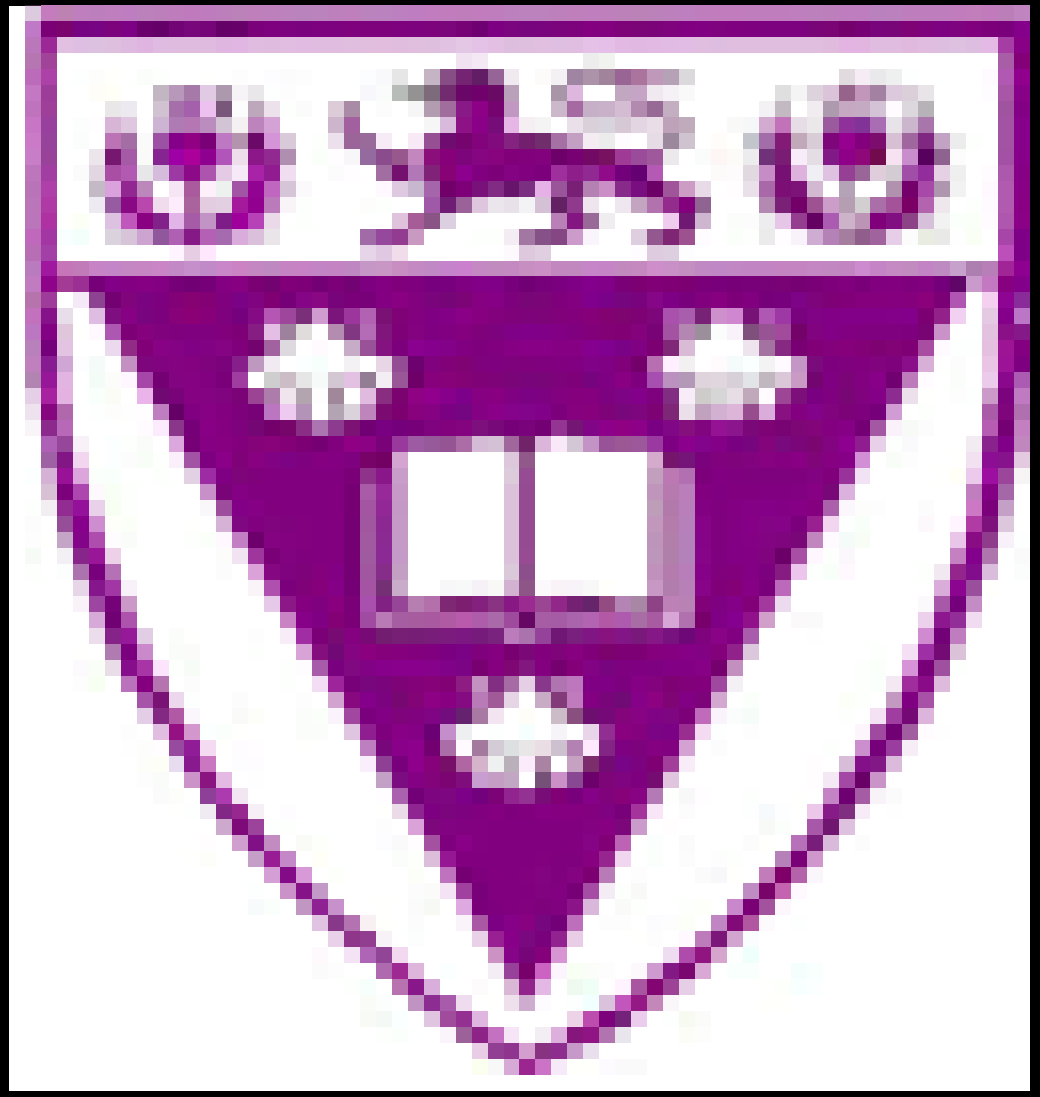
History



We always talk about RASSPL as a conservation conscious body, but how is that and can it be true?

- Quite simply, competitive recreational anglers are the best anglers.
- The average angler also looks up to successful competitive anglers, they identify with their conservation ethic and mimic their behaviour while fishing.
- RASSPL Africa anglers have essentially become champions of conservation. They show others how to behave and they make responsible decisions about the fish that they keep (outside of competitions).
- They know more than the average angler about good fish handling practices and other anglers learn from them when they observe these practices.
- The success of RASSPL Africa and the behaviour of its anglers has the power to reform the behaviour of all South African recreational anglers.

Top twelve, Ladies, Masters and invitation and Namibia teams from South Africa must set the example for all, especially the youngsters

- Knowledge is your best weapon to assist other anglers to improve their conservation practices
- Knowledge of the potential problems for a fish during a C&R event is critical
- Anglers however must use their knowledge to improve their conservation practices and to help others improve their practices

Angling activity	Potential problem	Possible result	Extreme case
Fish hooked	Tissue damage	Injury →	Death
Fish fought	Exhaustion	Injury →	Death
		Stress →	Death
Fish handling	Air exposure	Hypoxia →	Death
	Scale removal	Disease →	Death
	Slime removal	Fungus →	Death
Hook removal	Tissue damage	Injury →	Death
Fish released	Tissue damage	Injury →	Death
	Predation	Injury →	Death

Arlinghaus et al 2007

AVOID THIS SITUATION

Injury
Disease/fungus
Sublethal stress
Fitness impact
Mortality

CUMULATIVE IMPACT

TARGET FOR RASSPL CATCH AND RELEASE

Recovery
- No fitness effects
- No disease
- Minimal injury
- Minimal sublethal stress

Survival

So how well are RASSPL anglers doing in each of these categories?

Angling activity	
Fish hooked	?
Fish fought	?
Fish handling	?
Hook removal	?
Fish released	?

RASSPL National Experiment - Border

- We placed researchers and students throughout the fishing area to observe fishermen's behavior
- We recorded the time it took to:
- fight the fish,
- measure the fish
- Photograph the fish,
- Release the fish
- Air exposure

- Once fishermen completed their tasks for recording their catch, researchers received the fish into a tub of water and subject to a range of "health tests".
- We also took blood samples from some of the fish to test their glucose and lactate levels
- We also placed fish into 3000 l porta pools for 24 hours on the 3rd day to test their survival

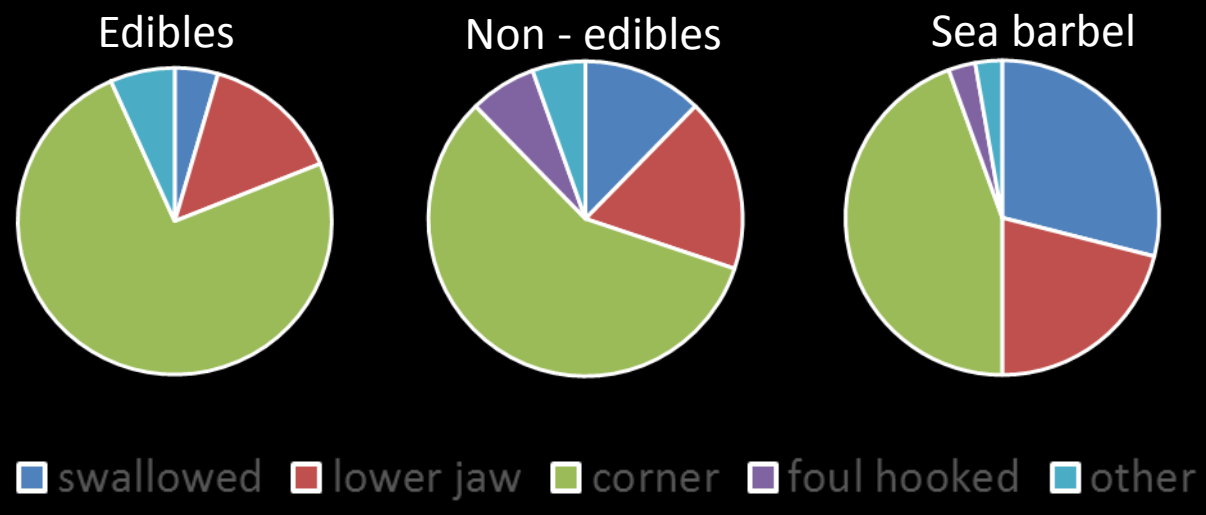
Fish hooked

Hook placement at Nationals

Edibles – 5% swallowed the hook

Non-edibles – 12% swallowed the hook

Sea barbel – 29% swallowed the hook



Study on the survival of dusky kob (*Argyrosomus japonicus*)

Very few kob died when they were mouth hooked

73% of kob died when they swallowed the hook and the angler removed it.

Only 16% died when they swallowed it and the angler cut the line 5cm from the hook.

Many of these fish got rid of the hooks within 5 days.

(BUTCHER et al 2007)

ANGLERS SHOULD CUT THE LINE (5CM AWAY FROM THE HOOK) WHEN FISH SWALLOW THE HOOK TO OPTIMISE THEIR SURVIVAL.

So, what factors influence the hook placement?

- Hook type

Circle hooks
Edibles – 0% swallowed the hook
Non-edibles – 1% swallowed the hook
Sea barbel – 0% swallowed the hook

J hooks
Edibles – 8% swallowed the hook
Non-edibles – 14% swallowed the hook
Sea barbel – 38% swallowed the hook

Fish fought

Fight time at Nationals

Edibles – 61.5 (10-319) secs

Non-edibles – 74.3 (18-451) secs

Sea barbel – 60.5 (18-180) secs

- The longer the fish is played the more physiological disturbance it experiences and the longer it will take to recover
- Fighting fish for long periods reduces their energy stores and creates lactic acid build-up in their muscles
- High water temperature is correlated with increased physiological disturbances and increased probability of post-release mortality (Muoneke 1992).
- Red tides will do the same thing

FIGHT TIME IS A FINE LINE – YOU SHOULD TRY TO REDUCE THE FISH PLAYING TIME, BUT BRINGING A GREEN FISH ONTOTHE SHORE IS ALSO NOT A GOOD IDEA. Fish that jump around frantically are more likely to get injured. I would recommend that your fish should be quite tired, but not exhausted.

Injury during fight or while landing fish

Fish are often injured as we drag them over rocks or over dry sand.

Before you start fishing ask yourself :

“Can I get the fish out here without dragging over something that will hurt it?”

How can I stop the fish from ending up in the dry sand?

If I hook a big fish where could I land it safely?

Angling activity	Potential problem	Possible result	Extreme case
Fish handling	Air exposure	Hypoxia →	Death

AIR EXPOSURE is in my opinion one of the biggest problems in catch and release

Rainbow trout – Fish were chase around in a tank for 30s to simulate the fight.
Some fish were exposed to air for 30s – 38% died
Others were exposed to air for 60s – 72% died (Ferguson and Tufts, 1992).

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Rockbass - Fish that were in air for 30 s required 2 h for full cardiac recovery
Fish that were in air for 180 required 4 h to fully recover (Cooke et al 2001).

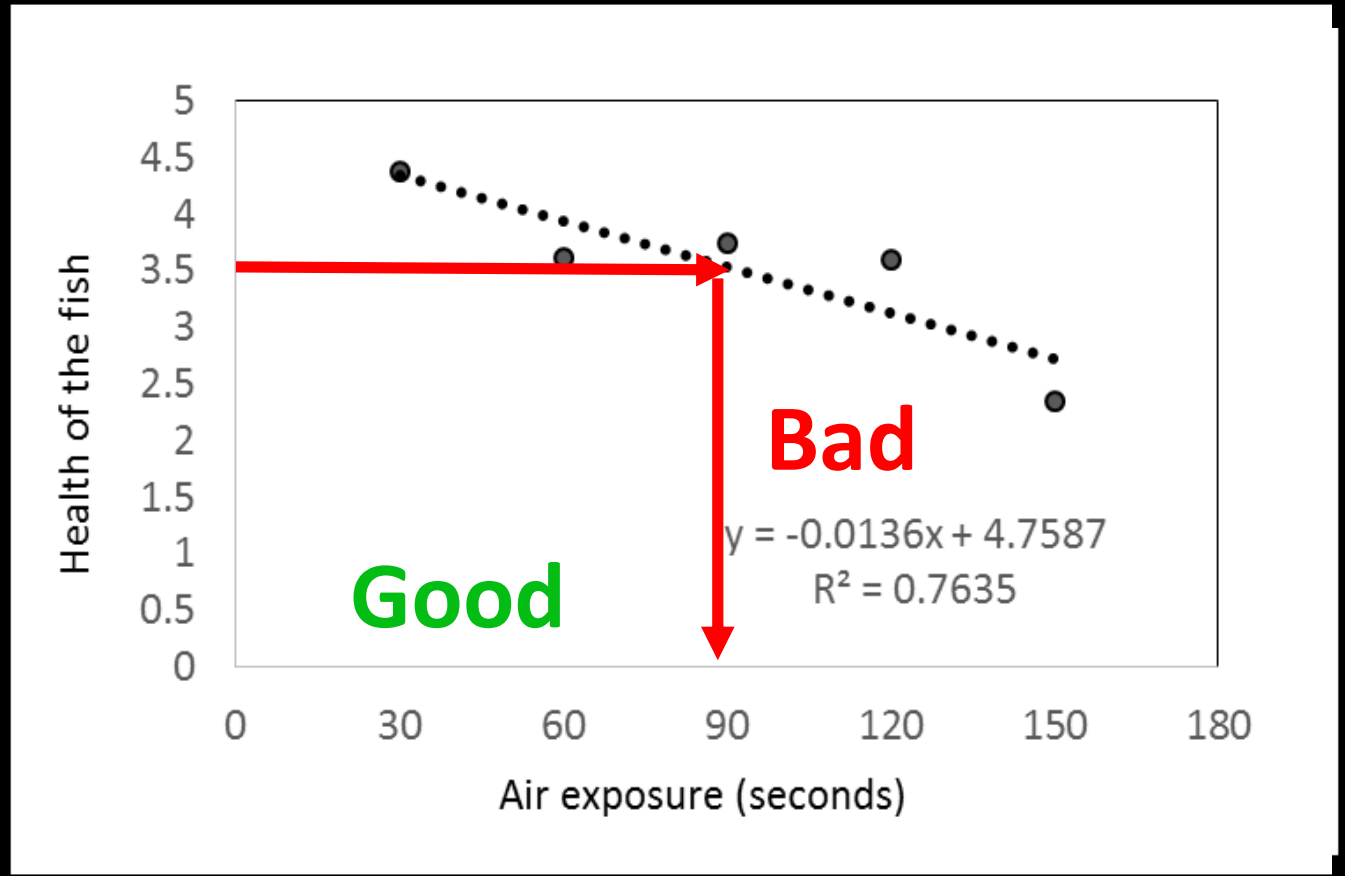
AIR EXPOSURE is in my opinion one of the biggest problems for fish in the RASSPL format

Fish handling – air exposure

Edibles – 94.9 (5-267) secs

Non-edibles – 117.9 (12-410) secs

Sea barbel – 80.5 (16-385) secs



Why is the RASSPL air exposure high?

	From landing to bucket in seconds (Min-Max)
Edibles	46.5 (4 - 647)
Non-edibles	51.7 (5 - 229)
Sea barbel	42.2 (5 - 200)

RULES: Fill your bucket before you start fishing and keep your bucket within 50m of where you are fishing

Guideline: *Anglers are encouraged to help other anglers by carrying a RASSPL catch and release bucket to where a fish is being landed. Where possible, help to get the fish into the bucket.*

Why is the RASSPL air exposure high?

	Time to take measurements and photos in seconds (Min-Max)
Edibles	75.0 (20 - 246)
Non-edibles	98.1 (20 - 272)
Sea barbel	74.6 (13 - 346)

HOW CAN WE FIX IT:

Guideline: *Anglers should ensure that their RASSPL measuring matt in rolled out and ready, that their camera, cards and pencils are easily readily accessible.*

Guideline*: The witness should take all of the photographs*

Guideline*: Cellphones are not recommended for photographs as they are difficult to operate with wet hands and the screen is not always easily visible during the day.*

Guideline: *The angler should show his/her fishing partner how to work their camera before the competition begins.*

Guideline: *The angler should either carry a pair of longnose pliers or have them easily available at the RASSPL catch and release bucket.*

Angling activity	Potential problem	Possible result	Extreme case
	Scale removal	Disease ➔	Death
	Slime removal	Fungus ➔	Death

This often happens when you drag the fish up into the dry sand or if you touch it with dry hands.

It will lead to disease and fungus and could lead to death

Angling activity	Potential problem	Possible result	Extreme case
Fish released	Tissue damage Predation	Injury ➔ Injury ➔	Death Death

Good news:

Porta pool experiment:

- 8 edibles – no deaths, health score after 24 hours 5/5
- 10 non-edibles – health score after 24 hours 4.4/5
- 13 Sea barbel, 5 deaths, health score of remaining fish 5/5
- Swallowed hooks
- But……

QUESTIONS?