

CURRENT ADVANCES IN EARLY STAGE FISH RESEARCH

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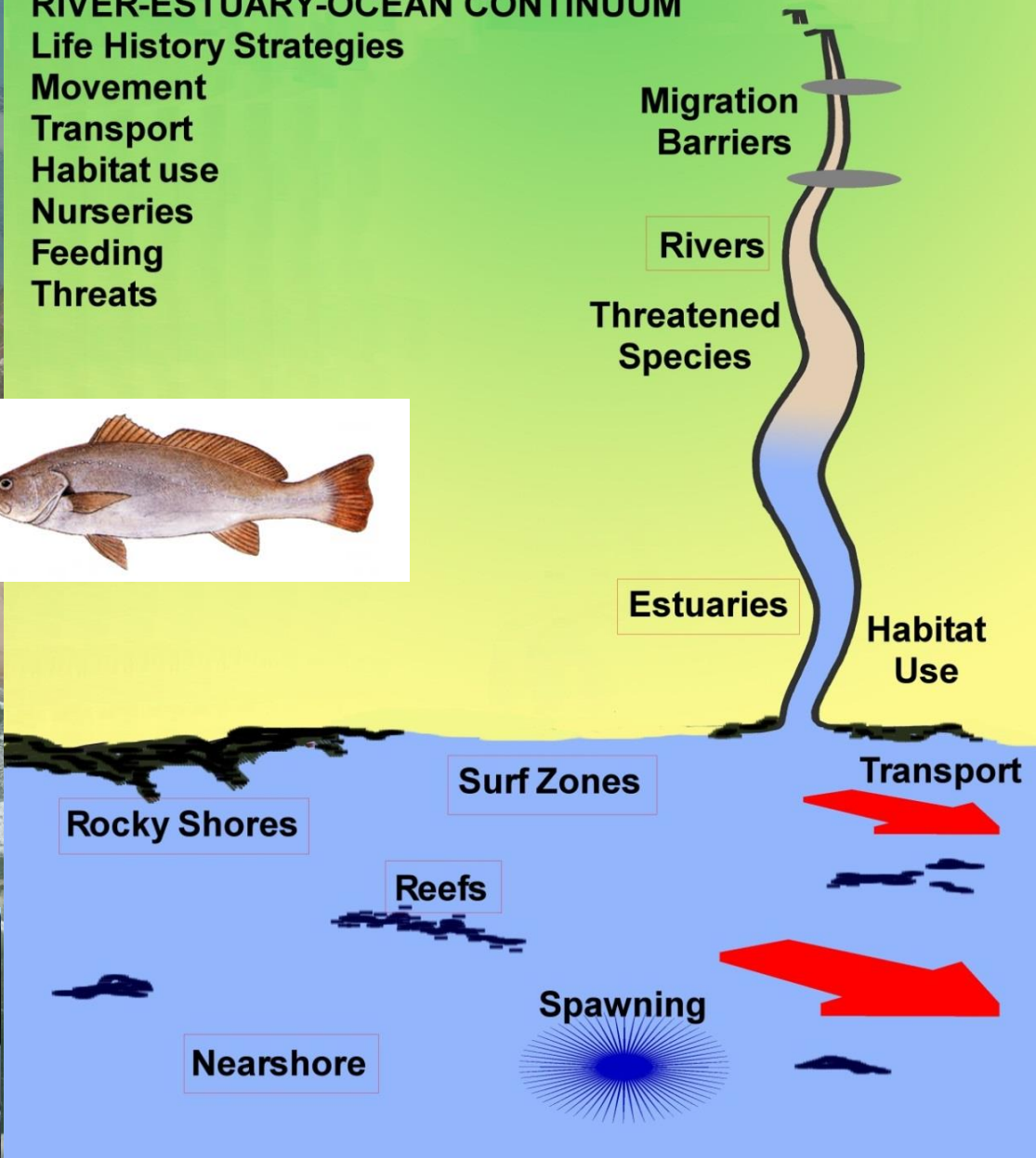
**Nelson Mandela
Metropolitan
University**

for tomorrow



FISH RESEARCH AT NMMU

RIVER-ESTUARY-OCEAN CONTINUUM
 Life History Strategies
 Movement
 Transport
 Habitat use
 Nurseries
 Feeding
 Threats



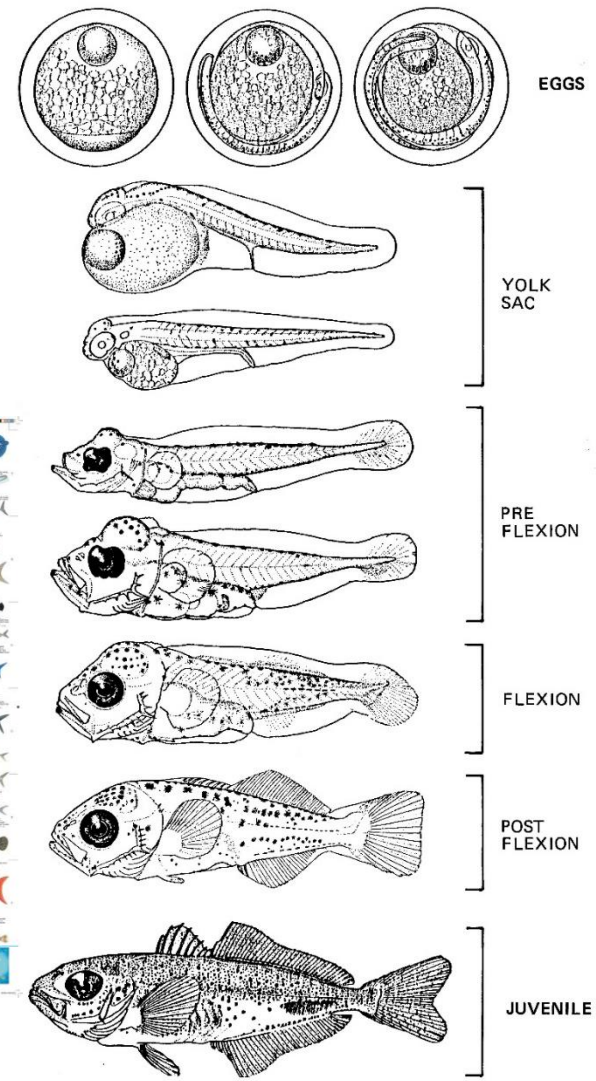
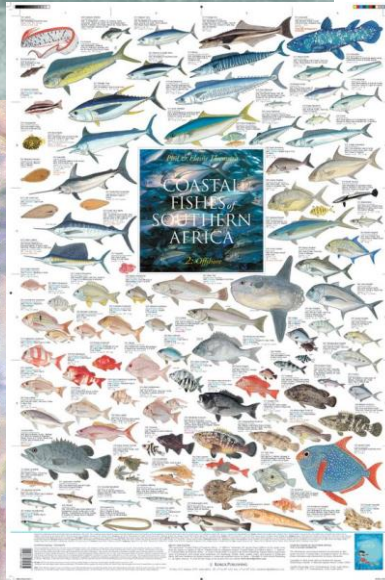


Fig. 5. Early life history stages of *Trachurus symmetricus* from Ahlstrom and Ball (1954).



Variability in spatial and temporal occurrence of presettlement and settlement-stage fishes associated with shallow reefs

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Predicting spawning locations and modelling the spatial extent of post hatch areas for fishes in a shallow coastal habitat in South Africa

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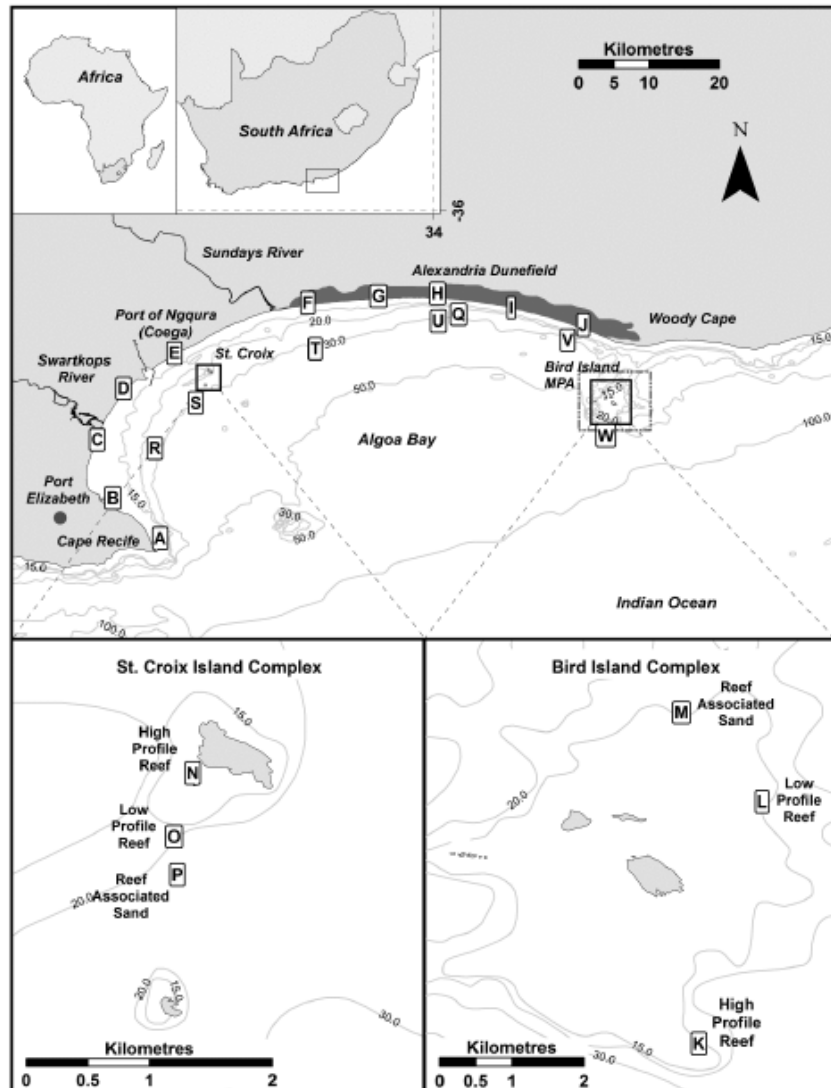


FIGURE 6.1 The geographic position of Algoa Bay, showing the location of the 23 stations sampled for larval fish (August 2010 – October 2012)

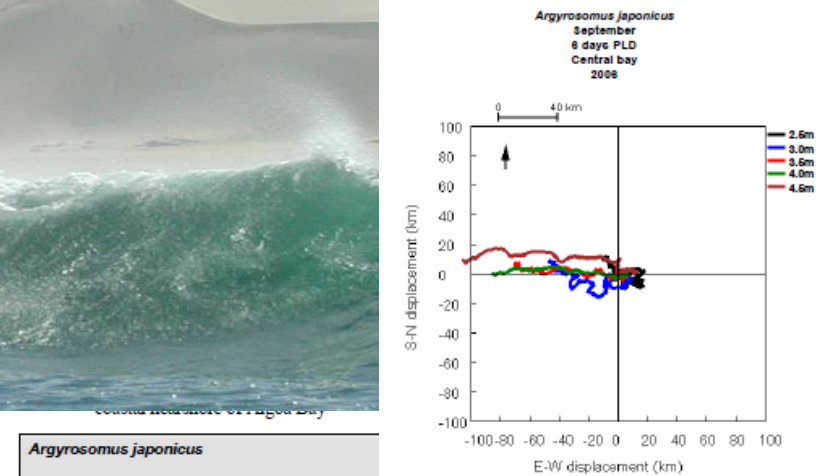


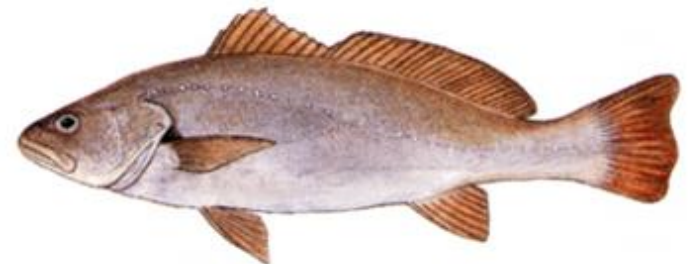
FIGURE 6.5 Distribution models showing probability of occurrence of newly hatched *Argyrosomus japonicus*, and the origin of spawning in the study area of the coastal nearshore of Algoa Bay

Journal of Fish Biology (2016) **88**, 542–556

doi:10.1111/jfb.12841, available online at wileyonlinelibrary.com

Development and ossification of the feeding apparatus in the larvae of two co-occurring species of kob (Sciaenidae), *Argyrosomus japonicus* and *Argyrosomus inodorus*, in South Africa

A. L. DEARY*†, P. PATTRICK‡ AND N. A. STRYDOM§



ESTUARY HABITAT USE IN JUVENILE FISHES



SCIENTIA MARINA 80(2)
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Habitat partitioning by juvenile fishes in a temperate estuarine nursery, South Africa

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VALUE OF TEMPERATE MANGROVES TO JUVENILE FISHES



Food availability in temperate systems overrides shelter provided by mangroves – other habitats available

LOCALISED MOVEMENT AND HABITAT USE (VIE) IN MANGROVES

- Mark-recapture study in mangrove creeks
- Resident in very small areas with limited diet range
- Same species uses different niches - avoiding competition
- SPECIES SELECT BEST AND SECOND BEST HABITAT AND ADAPT - HABITAT USE PLASTICITY

Estuaries and Coasts
DOI 10.1007/s12237-017-0240-3

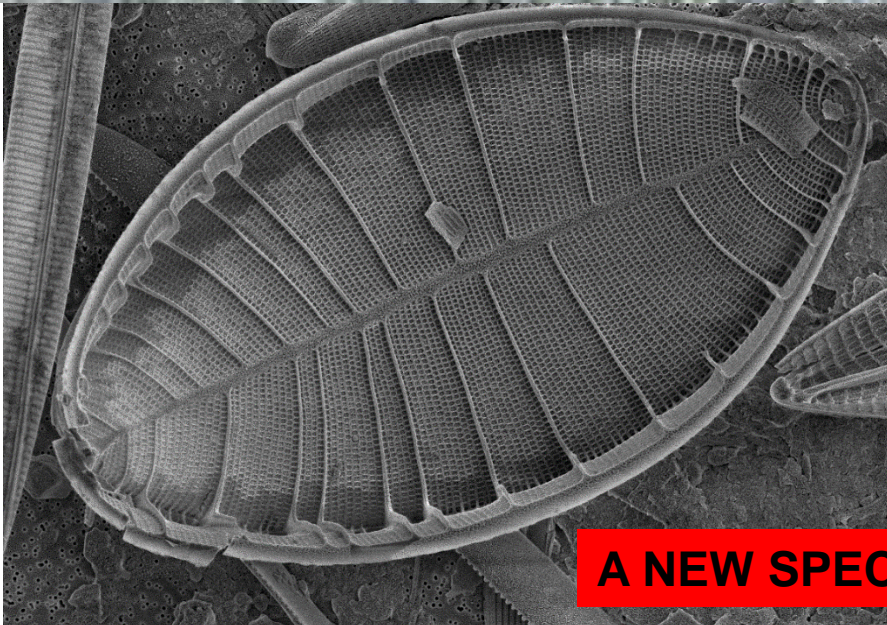


Evidence for Habitat Residency and Isotopic Niche Partitioning in a Marine-Estuarine-Dependent Species Associated with Mangrove Habitats from the East Coast of South Africa

Cuen Muller¹ • Nadine A. Strydom¹



DIATOM COMPOSITION IN STOMACHS OF AN EPIPHYTE FEEDING JUVENILE FISH SPECIES



A NEW SPECIES OF *CISTULA* HAS BEEN DISCOVERED!!

Nutritional condition of fish larvae in South African estuaries: an appraisal of three biochemical methods

D Costalago^a, N Strydom^a & C Frost^b

Environ Biol Fish (2015) 98:2367–2378
DOI 10.1007/s10641-015-0447-8



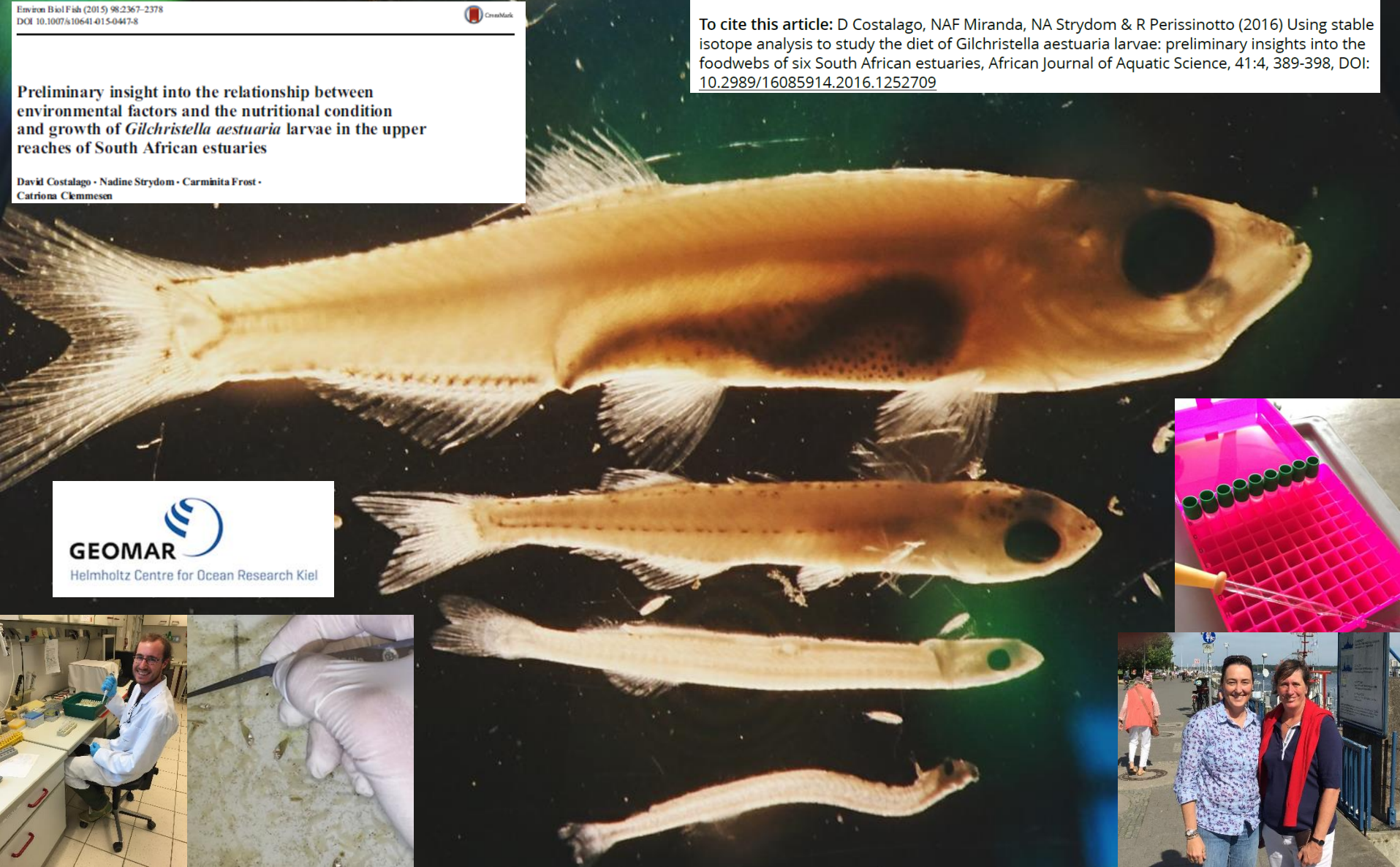
Preliminary insight into the relationship between environmental factors and the nutritional condition and growth of *Gilchristella aestuaria* larvae in the upper reaches of South African estuaries

David Costalago · Nadine Strydom · Carmita Frost ·
Catriona Clemmesen

Using stable isotope analysis to study the diet of *Gilchristella aestuaria* larvae: preliminary insights into the foodwebs of six South African estuaries

D Costalago, NAF Miranda, NA Strydom & R Perissinotto

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ANTHROPOGENIC ALTERATIONS AND THE EFFECTS ON FISH NURSERIES – SEEKOEI ESTUARY



Summer salinities >50 = fish kills



MARINE FISH USE OF RIVERS – WHY?

African Zoology

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<http://www.tandfonline.com/loi/tafz20>

Introduction, establishment and spread of the Southern mouthbrooder *Pseudocrenilabrus philander* in the Baakens River, Eastern Cape, South Africa

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^b South African Institute for Aquatic Biodiversity, Grahamstown, South Africa
Published online: 08 Jul 2015.

neofuscus)
species

mbica)



- Banded tilapia (*Tilapia sparmanii*)
- Southern mouthbrooder (*Pseudocrenilabrus philander*)
- Mosquito fish (*Gambusia affinis*)
- Common carp (*Cyprinus carpio*)
- Goldfish (*Carassius auratus*)
- Largemouth bass (*Micropterus salmoides*)

East
Enda

Cape
Vuln

Goldie Barb (*Barbus*
Well distributed

LIFE HISTORY STRATEGIES UNDER THREAT
MISSING IN CONSERVATION EFFORTS



**A new fish species from the Baakens River
– *Stenogobius* sp.**



LONG LIVED & OVERFISHED – COLLAPSED COASTAL FISH POPULATIONS



TAKING

South Africa's coastal angling fish stocks are in dire straits



A recently mature adult dusky kob, caught and released by Edward Truter at Sundays Beach near Port Elizabeth.

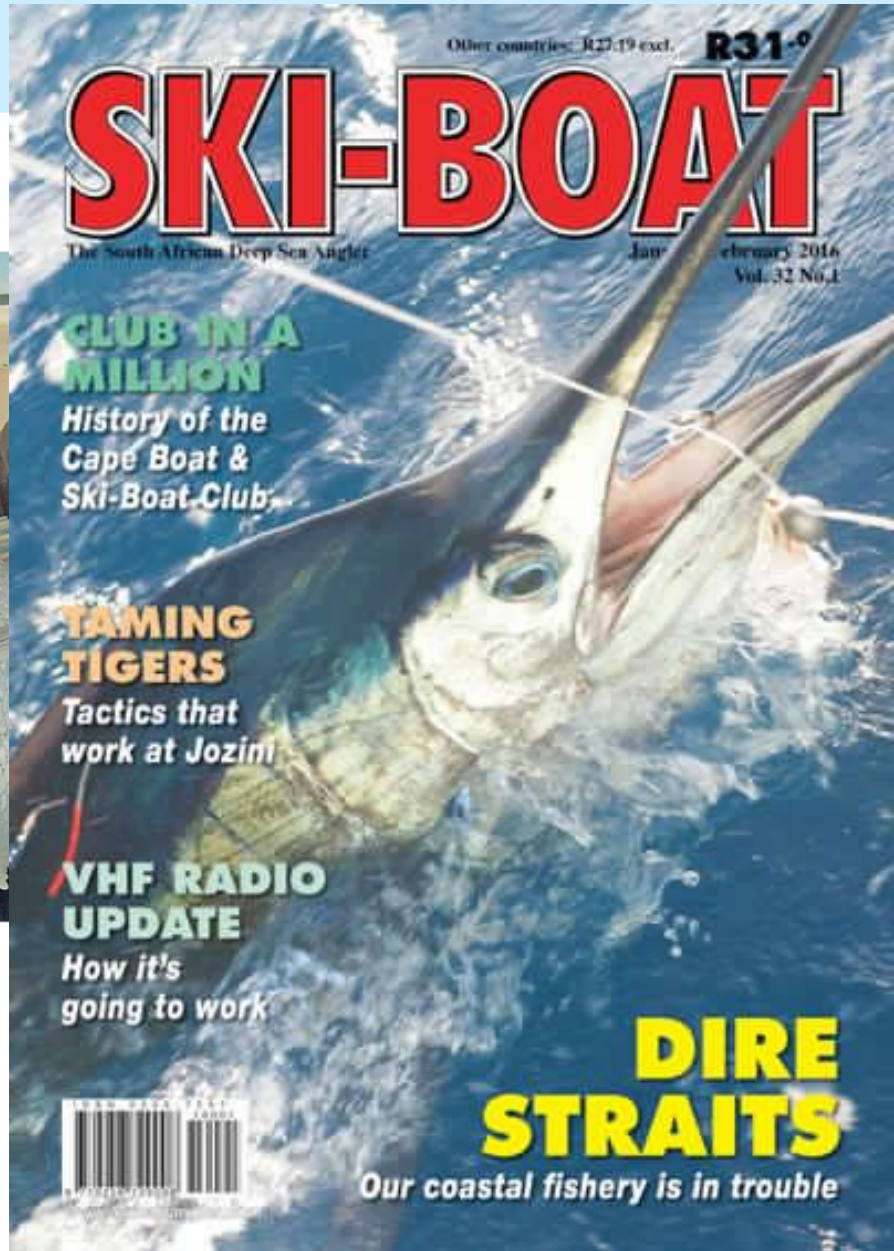
Where have all the fish gone? This seems to be a common question in recent years. To quote one of the world's famous fishery scientists, Dr Daniel Pauly, the answer is "We have eaten them!" The large fishes, the length of a grown man, gracing notice boards at angling clubs and holiday resorts along the South African coast are a thing of the past. Rarely do anglers catch these big fish anymore that were still fairly common up until a few decades ago.

Consider the popular dusky kob or

kabeljou, *Argyrosomus japonicus*, as an example. These iconic angling fish have seen the brunt of angling pressure and scientists estimate that the spawning population has been fished down to very low levels in our waters. How do they know this? Well it has been determined from a number of sources including long-term trends in angler's catches, from various fish tagging programmes involving recreational anglers, from scientific surveys of fish abundance and, more recently, from a genetic study on dusky kob collected from around the South African coastline.

Based on these studies scientists now realise that the dusky kob population is down to between 1-4% of its pristine level and the genes show that there may be less than 1000 large breeding adults that are responsible for the current fish population. This means the kob population is in dire straits. Many of our coastal fishes suffer a similar plight with rampant ignoring of bag and size limits, poor angler education and poaching depriving South Africans of their natural heritage.

The largest fish have been systematically removed from years



EUTROPHICATION INTO THE FUTURE



