

Need or greed

Fisheries in crisis and the need to grow:
a catch reconstruction for Senegal

Dyhia Belhabib



Admitting, the first step...

- Official: *"We don't have illegal fishing... It's illegal."*
 - Scientist: "We have observers onboard every single vessel."
- > Issue of denial: which sectors?
- > Catch reconstruction: What are the results?
- > Impact of hidden catches?
- > Drivers for modernity?

Admitting, the first step...

- ***“We don’t have illegal fishing... It’s illegal.”***



Admitting, the first step...

- *“We don’t have illegal fishing... It’s illegal.”*
- ***“We have observers onboard every single vessel.”***

Accepted



It is the law

All vessels comply

Vessels pay for observers

Observers have a good salary

Observers honest/ well trained

Yes: but for GRT > 300

No: they don’t have to

Yes: even directly

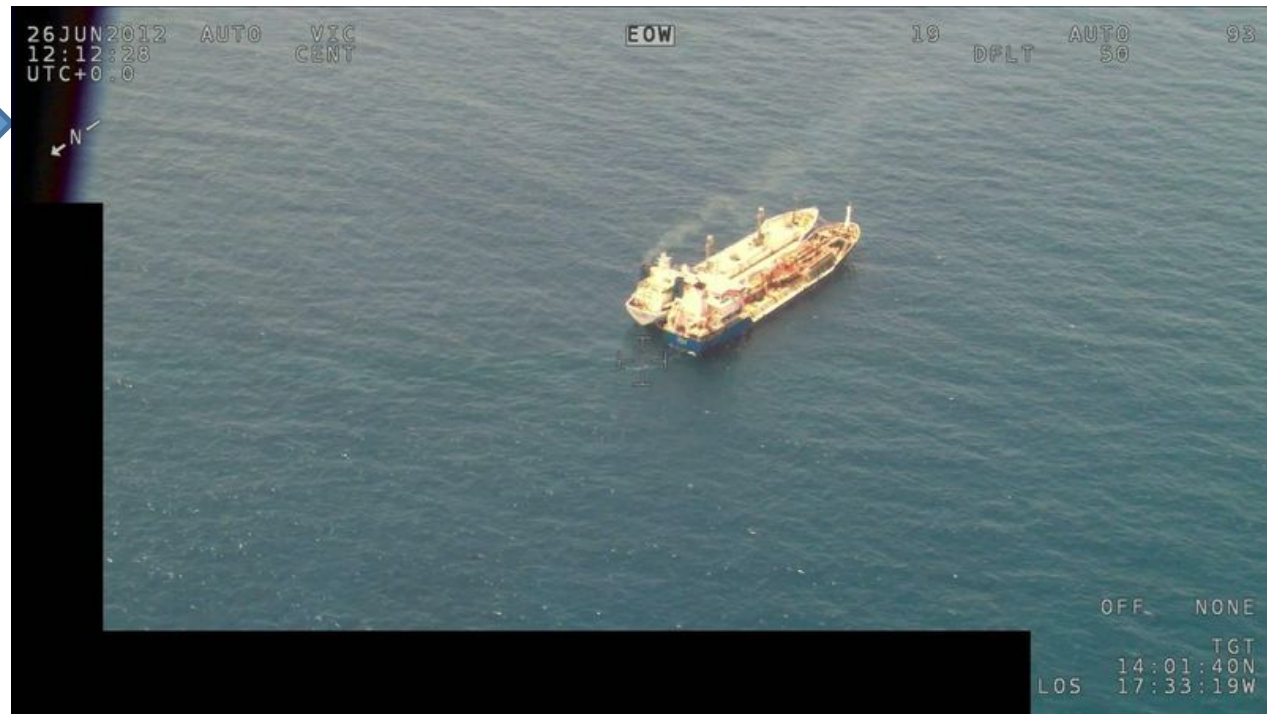
No

Not really

Admitting, the first step...

- *“We don’t have illegal fishing... It’s illegal.”*
- ***“We have observers onboard every single vessel.”***

Accepted



Admitting, the first step...

- *“We don’t have illegal fishing... It’s illegal.”*
- ***“We have observers onboard every single vessel.”***

Rejected



It is the law

All vessels comply

Vessels pay for observers

Observers have a good salary

Observers honest/ well trained

Yes: but for GRT > 300

No: they don’t have to

Yes: even directly

No

Not really

Conclusion 1: You do have illegal fishing and under-reporting

Admitting, the first step...

- Officials : *“Our vessels are all domestic.”*
- Fishers representative : *“Do you know how expensive a fishing vessel is?”*
- A Chinese vessel sunk in our port, but we don't have Chinese vessels here;
- The vessel is called Chinese National Fisheries Corp. 9415 but it is Senegalese.

Admitting, the first step...

Country of origin	%
Senegal	24
China	19
Flag of Convenience & Africa	3
EU	53

Table showing the origin of the industrial vessels flagged to Senegal.

Conclusion 2: Your vessels are bigger than you think



Admitting, the first step...

- Officials: *“We cover every single landing site, every day every month.”*
 - Fishers:
“Statistics Agents are always in their air conditioned offices, they only come once in a while and they want us to help them?”
- “We catch lots of fish, but not from Senegal anymore.”*

Conclusion 3: Do not under-estimate the power of an artisanal boat

Admitting, the first step...

- ***“They don’t catch much!”*** says the scientist.



Admitting, the first step...

- *“I liked your presentation but by the way, we don’t have subsistence fishing in Senegal.”*
- ***“We don’t have recreational fishing in Senegal.”***
- *“Well recreational fishing is 1%.”*
- *“Senegalese boats discard 1%.”*

Admitting, the first step...



Championnat du monde de pêche sportive : le Sénégal veut le titre mondial pour l'Afrique

PAR OUMAR DIARRA – 11 JUN 2013 À 19:49 - (282 VUES)
CLASSÉ DANS : SÉNÉGAL, TOUS SPORTS



pech
by ya
pech



Meilleure équipe africaine de pêche sportive et même auréolé de deux titres de champion du monde de la discipline en 2002 en Espagne et en 2003 à Dakar, le Sénégal ambitionne de rééditer le coup en août prochain.

« Pour la coupe du monde de la pêche sportive prévue du 15 au 24 août prochain en France, plus précisément à Saint – Louis du Rhône, le Sénégal sera là-bas pour gagner le trophée mondial pour l'Afrique, sinon le podium. Mais pas moins » a estimé Abdou Goth Diouf président de la fédération sénégalaise de pêche sportive.



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Pour le responsable sénégalais de la discipline par ailleurs, premier vice président de la fédération mondiale le Sénégal a les moyens de parvenir à réaliser cette performance. Tout est entrain d'être fait pour y parvenir ».

Selon lui « les Lions de la pêche sportive sont entrain de travailler rudement à gagner le trophée mondial , mais aussi les autorités sénégalaises conscientes de leurs capacités sont entrain de les appuyer ».

Sauf que le budget ne semble pas suffire en ce moment. A moins de deux mois des joutes continentales.



pech

15:11

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days ago

... au senegal à Saly, coryphène de 19kg, espadon, carangue, ...

NEW

Admitting, the first step...

- *“I liked your presentation but by the way, we don't have subsistence fishing in Senegal.”*
- ***“We don't have recreational fishing in Senegal.”***
- ***“Well recreational fishing is 1%.”***
- ***“Senegalese boats discard 1%.”***

Admitting, the first step...

- Government scientist: *“Our driftnets don’t have discards...”*
- *Fishers catch the fish, it has no commercial value, it is not consumed, not sold, not processed, but it is NOT discarded.”*

Conclusion 4: If it is not sold, it doesn’t mean it doesn’t exist

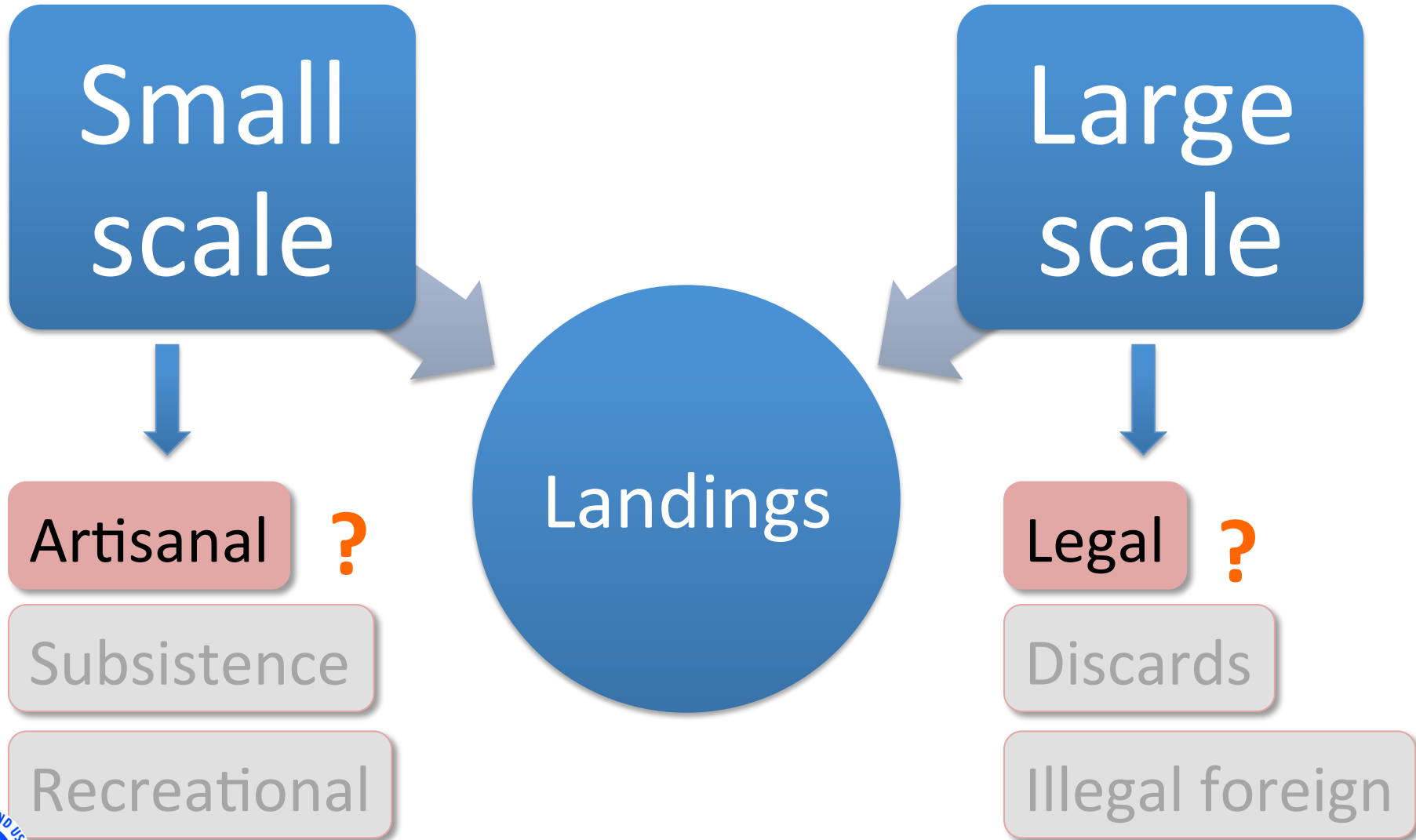
Admitting, the first step...

It is not a matter of wrong data, but a matter of:

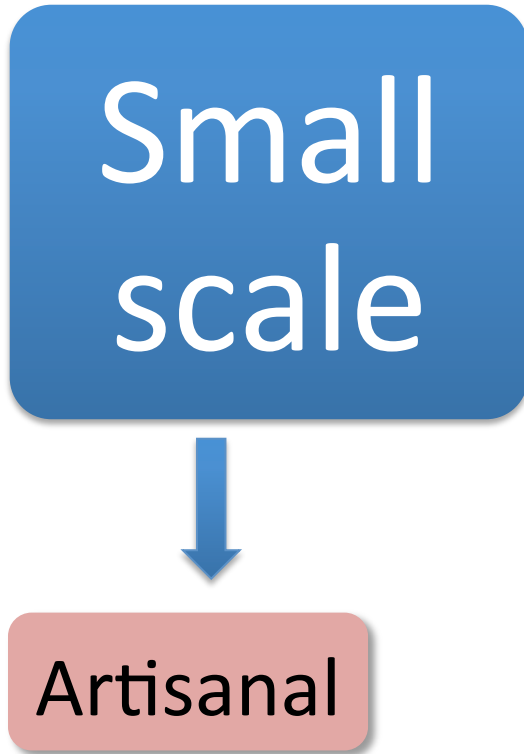
- Coverage;
- Inheriting past knowledge;
- Converting anecdotal evidence to numbers;
- Communicating the data;
- Transparency;
- And sometimes, just logic.



Catch reconstruction



Catch reconstruction



- Q: At what extent catches are under-reported?
- What baseline to use?
 - What is the under-reporting rate?

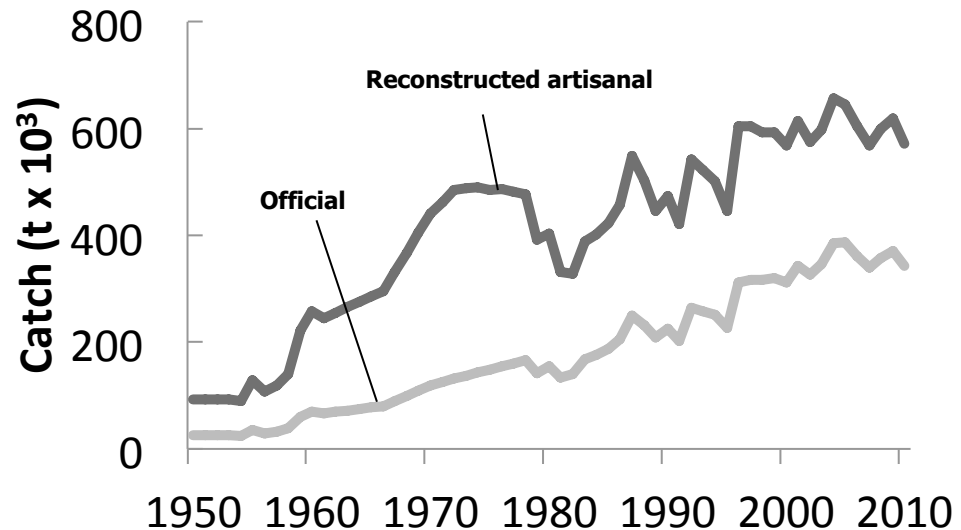
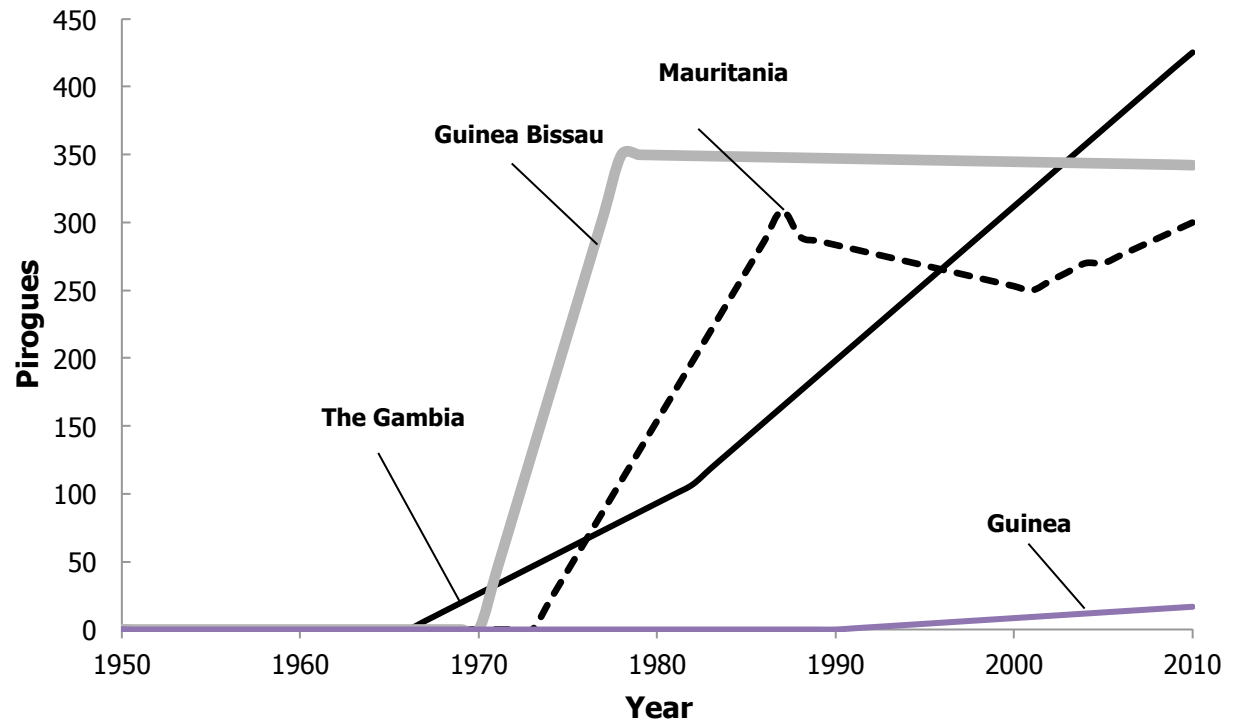


Figure showing baseline used for re-estimation and the re-estimated artisanal

Catch reconstruction



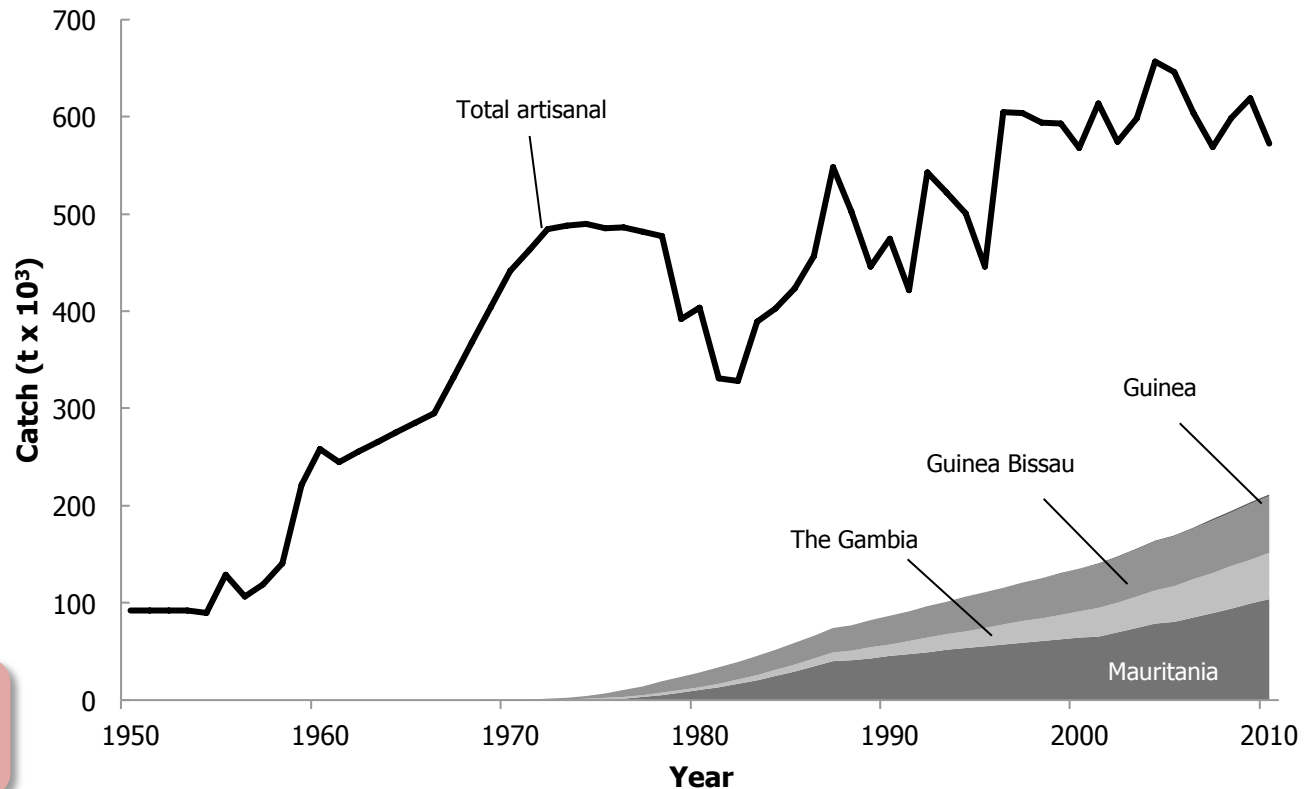
Migrations

Method:

Catch = **Number of Pirogues** X CPUE



Catch reconstruction



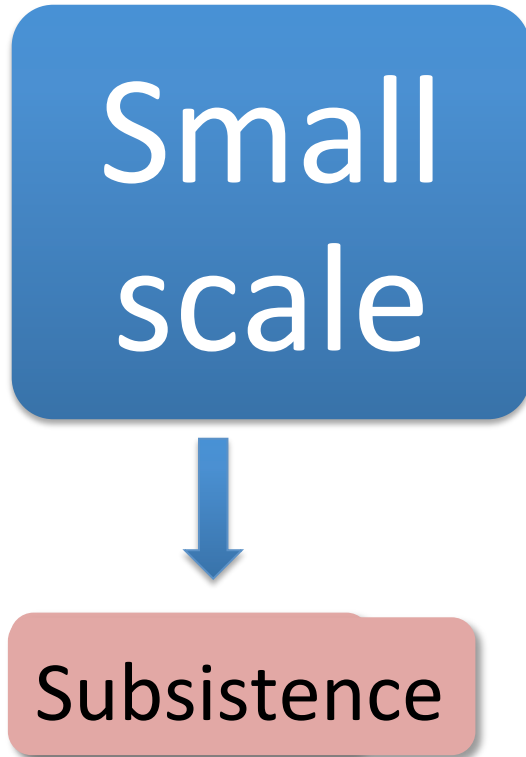
Migrations

Results:

Catches are increasingly taken from outside Senegal EEZ

Mauritania represents the bulk of the catch

Catch reconstruction



(1) Only collection of bivalves and other activities of women are considered

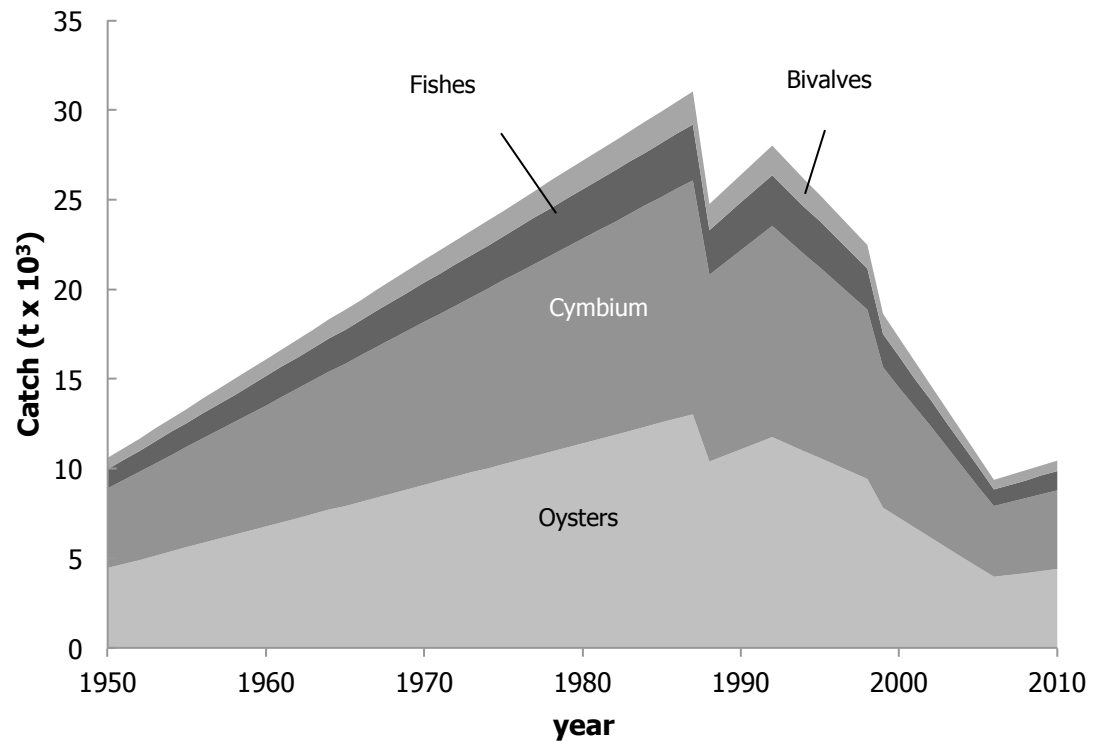
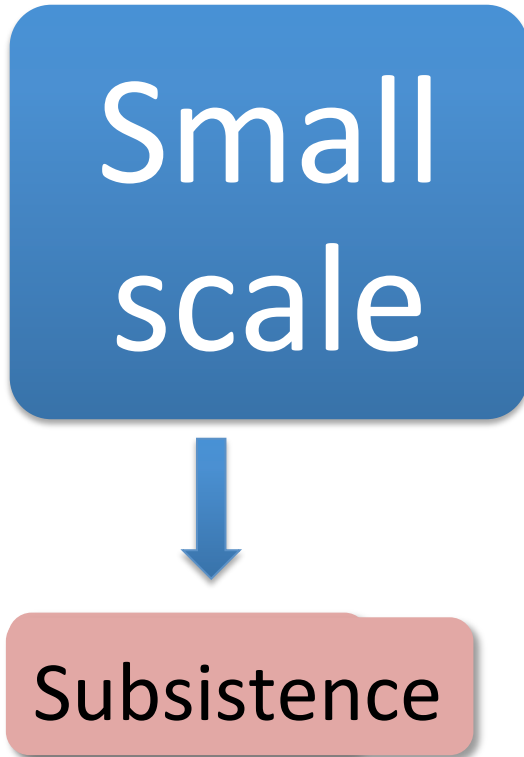
(2) Literature review of field work suggests this sector is not included in official reports

(3) Literature review documented 39 villages where this activity is operated

Method:

Subsistence catch = Number of fishers X Capture per fisher

Catch reconstruction



Results:

Shows an increase from 1950 to 1980, described in the literature

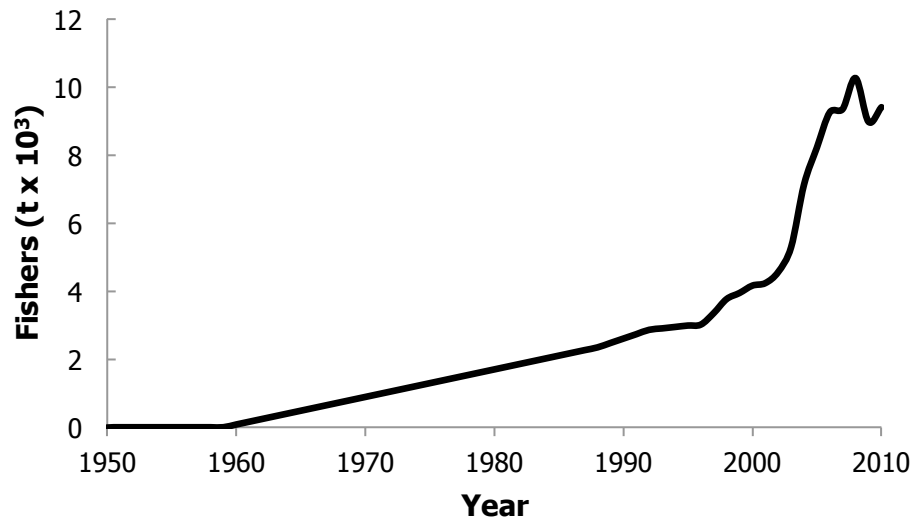
Catch reconstruction

Small
scale



Recreational

(1) The % of tourists going to Senegal for fishing exclusively was documented by Manel (2002), i.e., 4.2%



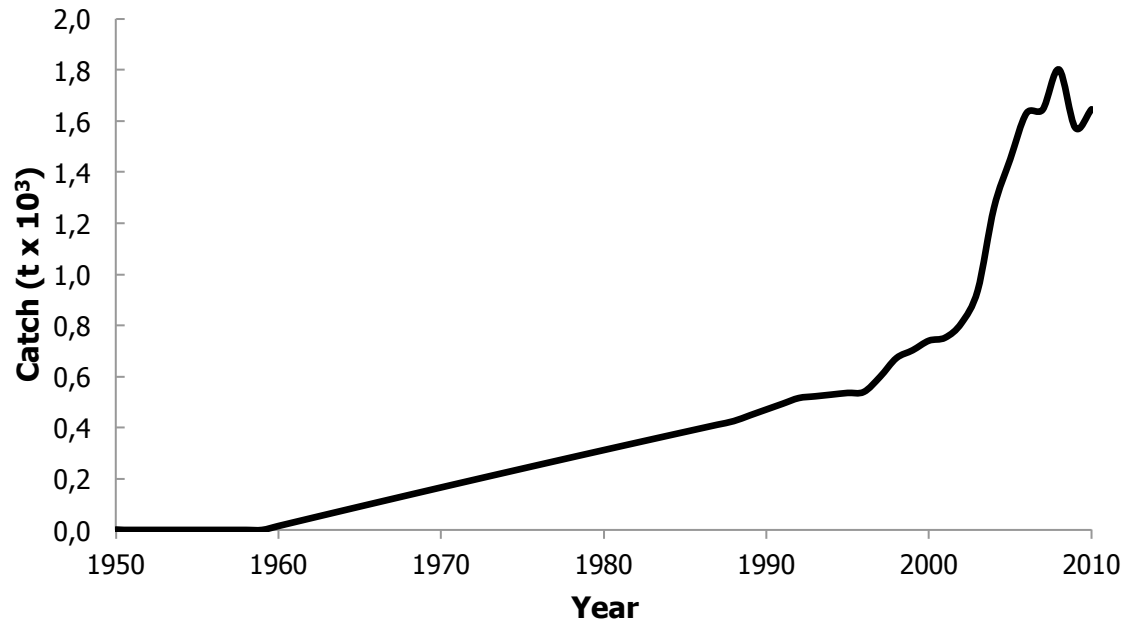
Catch reconstruction

Small
scale

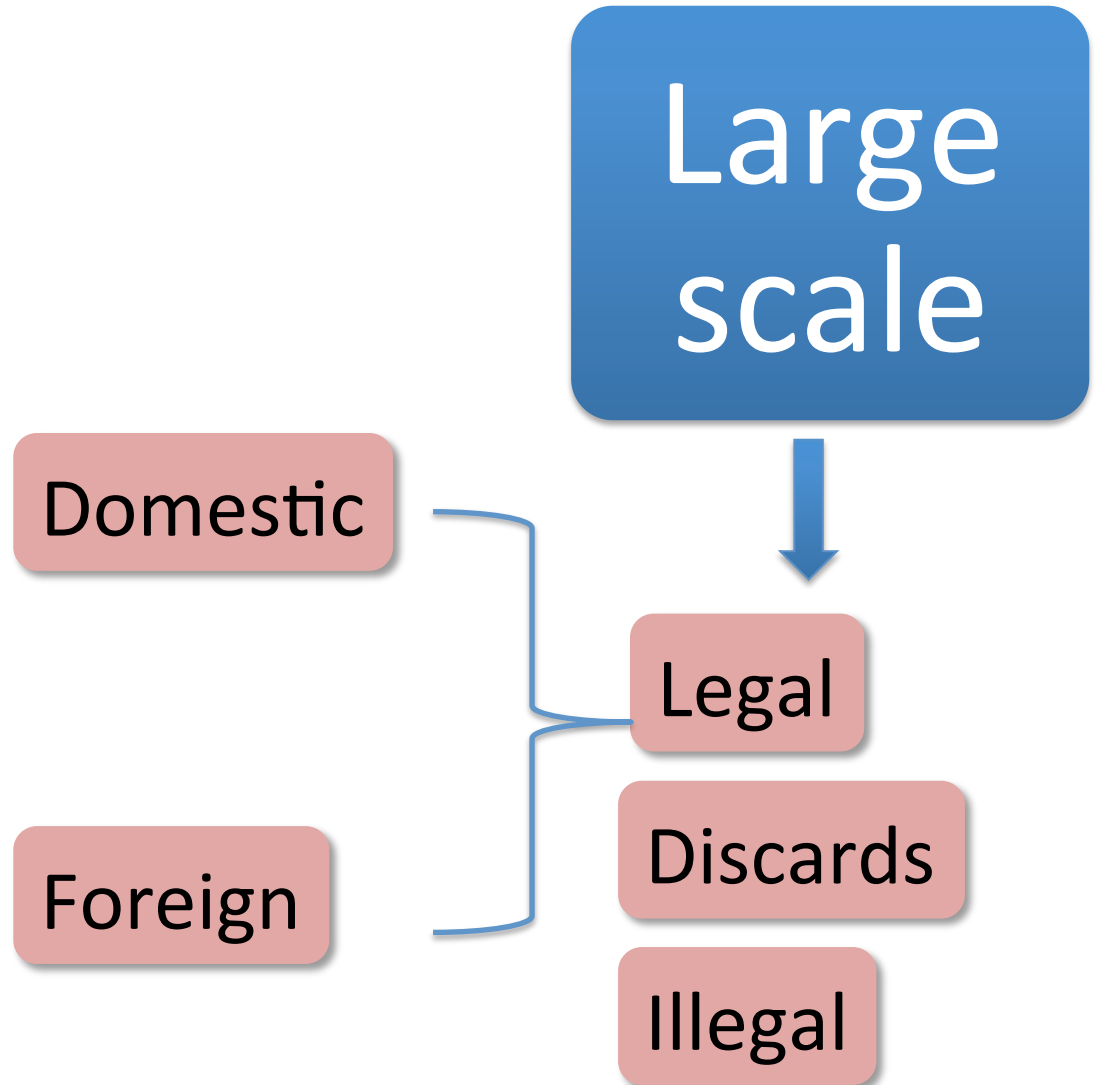


Recreational

(1) A minimal CPUE was estimated **at 35 kg per day**, to a maximum of 300 kg per day (per tourist). Minimum is used here, **for 5 days** of fishing.



Catch reconstruction



Catch reconstruction

Large scale

- (1) Retrace the effort data
- (2) Retrace fishing trips data
- (3) Calculate CPUE

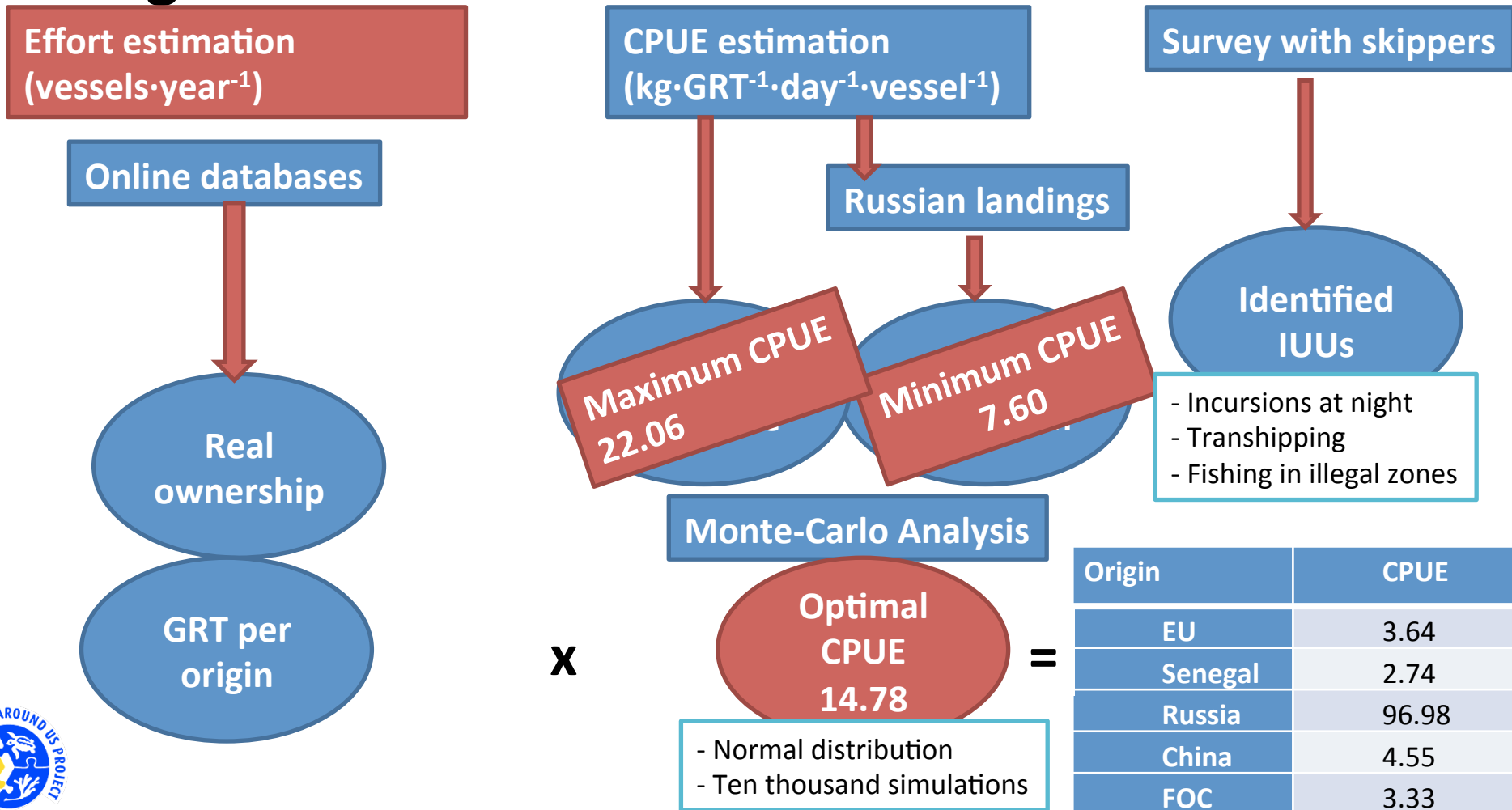
Catch = Effort x CPUE

- (4) Used literature discard rates to estimate discards



Catch reconstruction

Large scale



Catch reconstruction

Large scale Legal

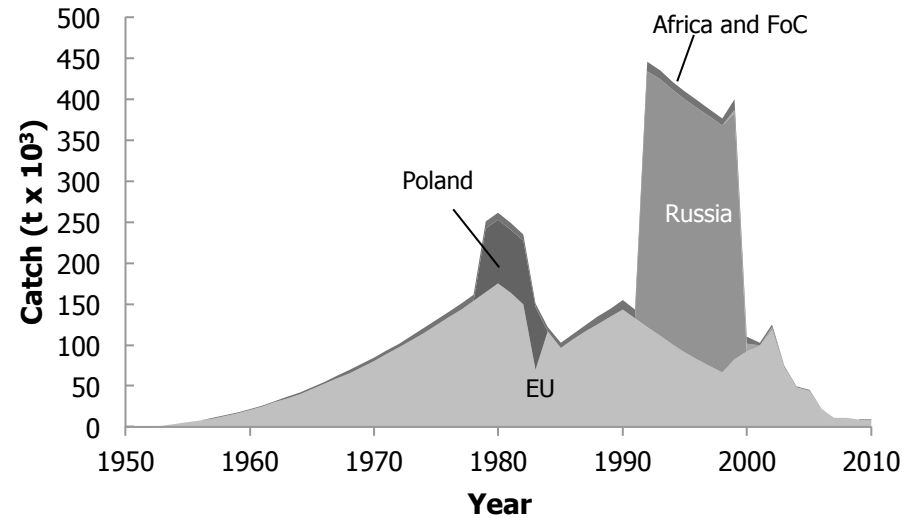
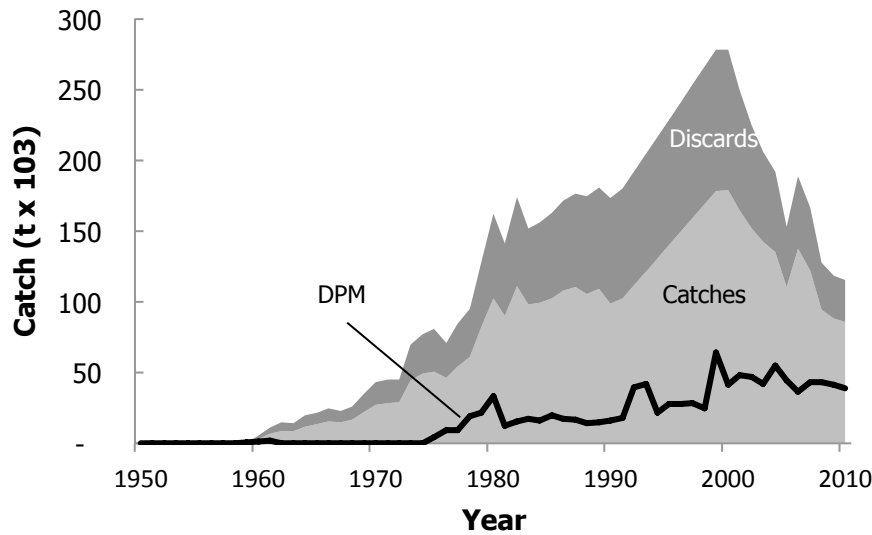


Figure showing reconstructed industrial domestic (left) and foreign (right) catches

Catch reconstruction

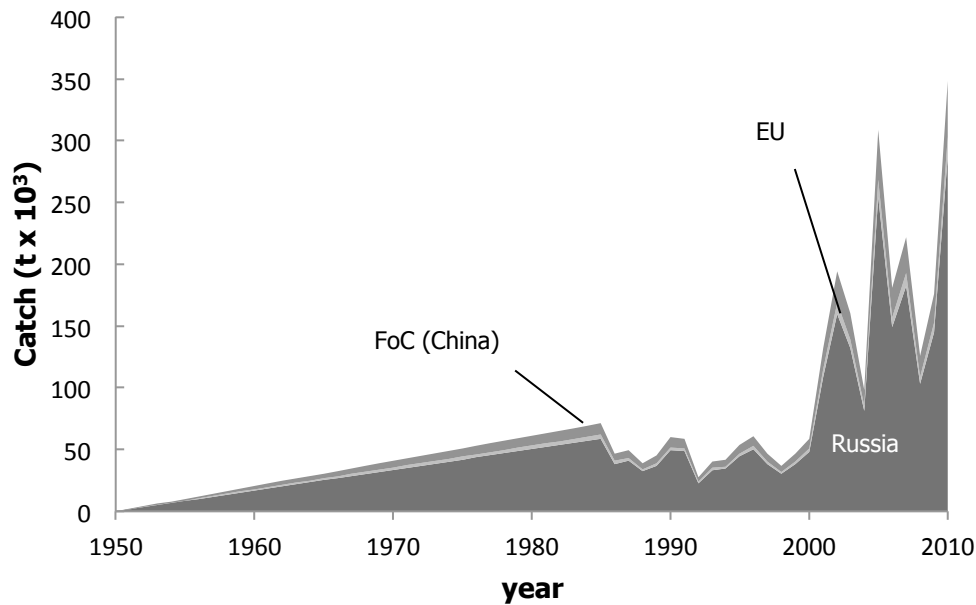


Figure showing illegal catches by origin from Senegal.

Large
scale



Legal

Discards

Illegal foreign

Catch reconstruction

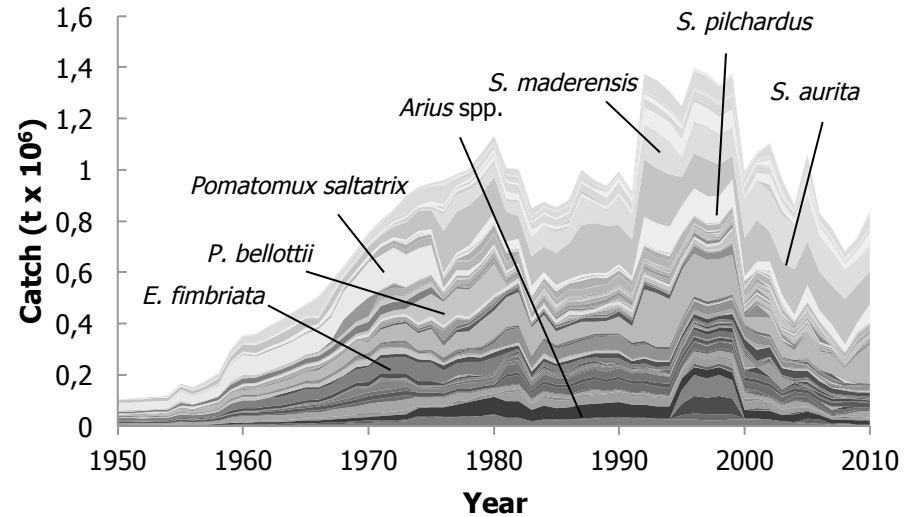
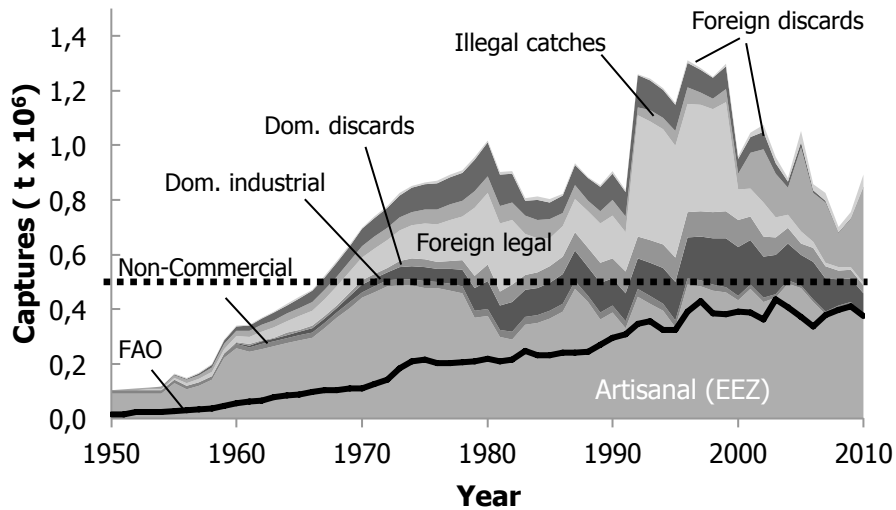


Figure showing total catches by sector (left) and by taxon (right) from Senegal

Impacts on the artisanal fishery

- Does the industrial fleet have a direct impact on artisanal fisheries?
- Does artisanal over-capacity impact industrial fleets?
- Are there adaptive strategies?

Impacts on the artisanal fishery

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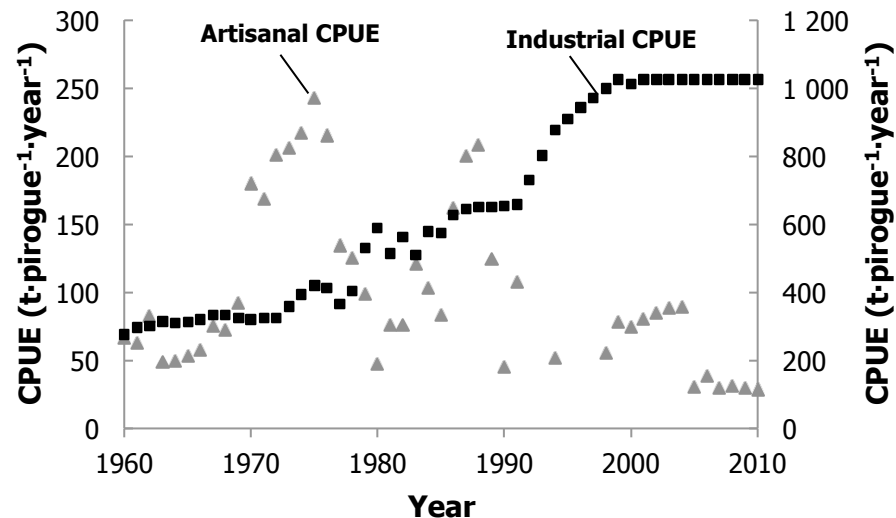


Figure showing the changes in artisanal and industrial CPUEs in Senegal.

Impacts on the artisanal fishery

- Does the industrial fleet have a direct impact on artisanal fisheries?

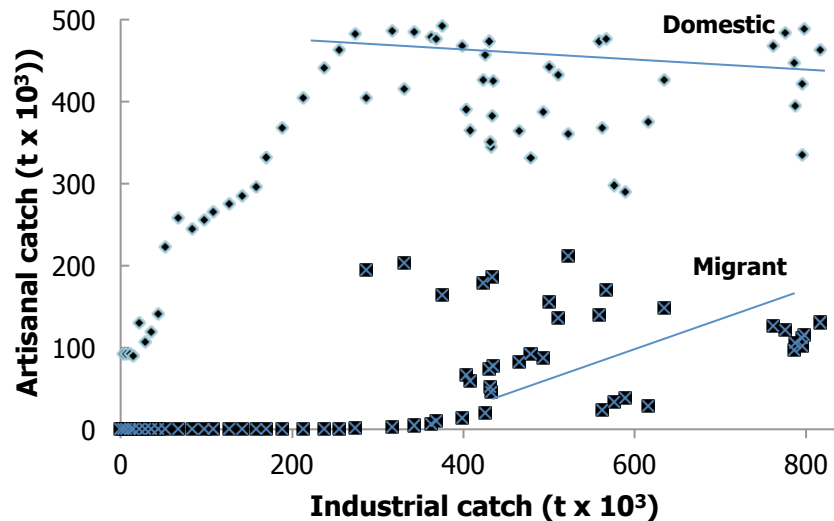


Figure showing the relationship between Artisanal fisheries and industrial catches.

Impacts on the artisanal fishery

- **Does the industrial fleet have a direct impact on artisanal fisheries?**
- **Does artisanal over-capacity impact industrial fleets?**
- Are there adaptive strategies?

Impacts on the artisanal fishery

- **Does the industrial fleet have a direct impact on artisanal fisheries?**
- **Does artisanal over-capacity impact industrial fleets?**
- **Are there adaptive strategies?**

Adaptive strategies- solutions?

- An artisanal fisher *“I fish more elsewhere ... There are too many boats here.”*
- **How did they get there?**

Adaptive strategies- drivers?

- Pirogues evolved into a new species



Fabrice Moustic

1950



Defap

1960



2000s



2000s

Adaptive strategies- drivers?

- Pirogues evolved into a new species



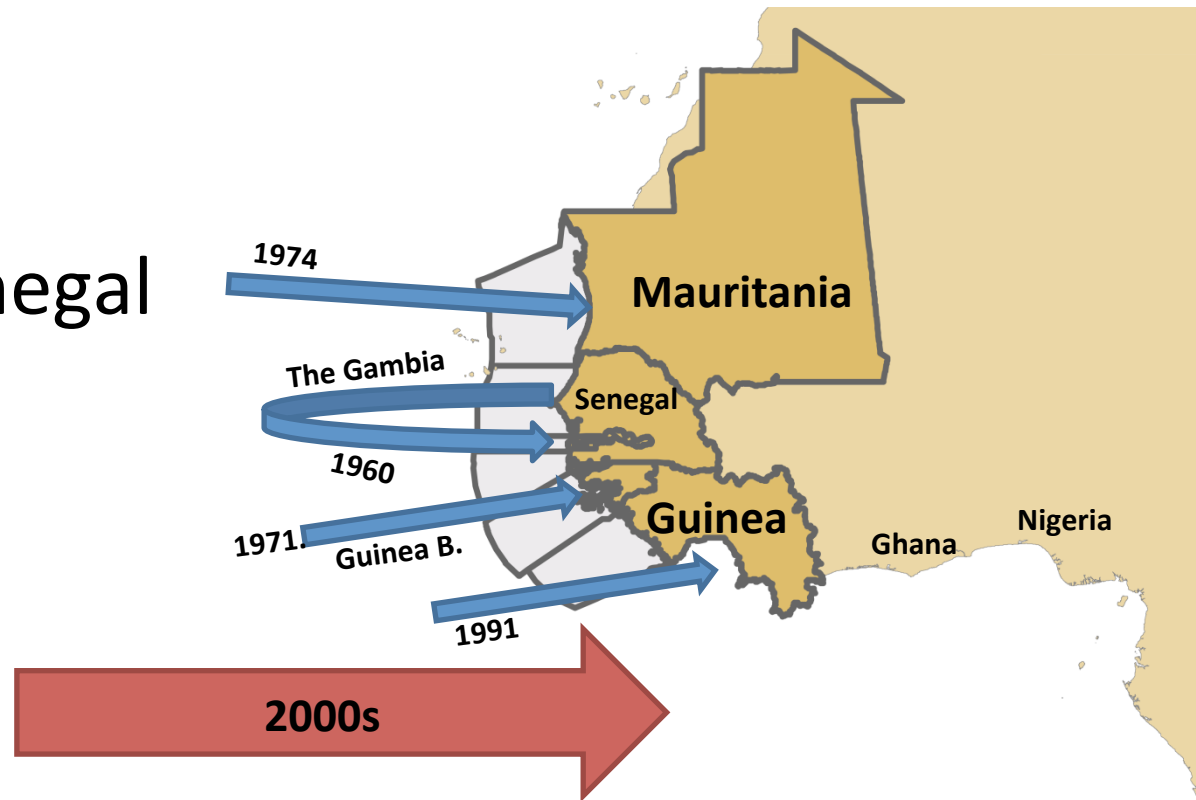
= 470 x



This can feed 12,653 people annually

Adaptive strategies- drivers?

- Pirogues evolved into a new species
- Pirogues adopted a migration strategy
 - Short visits
 - Large catches
 - Landings in Senegal



Adaptive strategies- drivers?

- Pirogues evolved into a new species
- Pirogues adopted a migration strategy

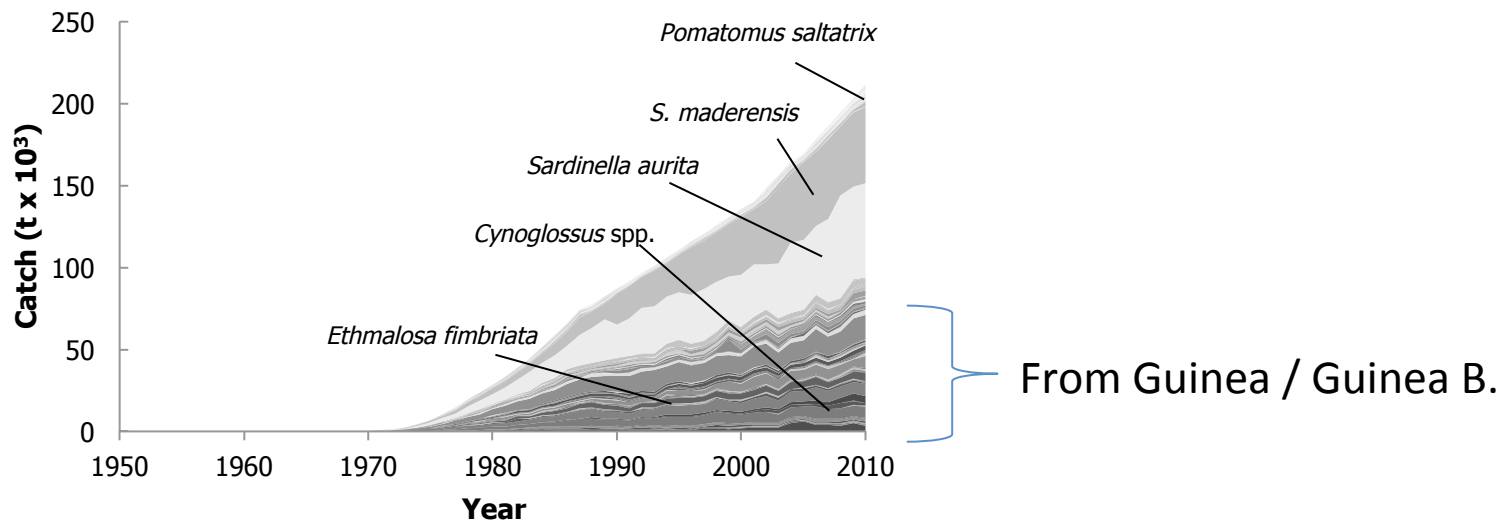


Figure showing the catch composition of artisanal migrant fishers catches.

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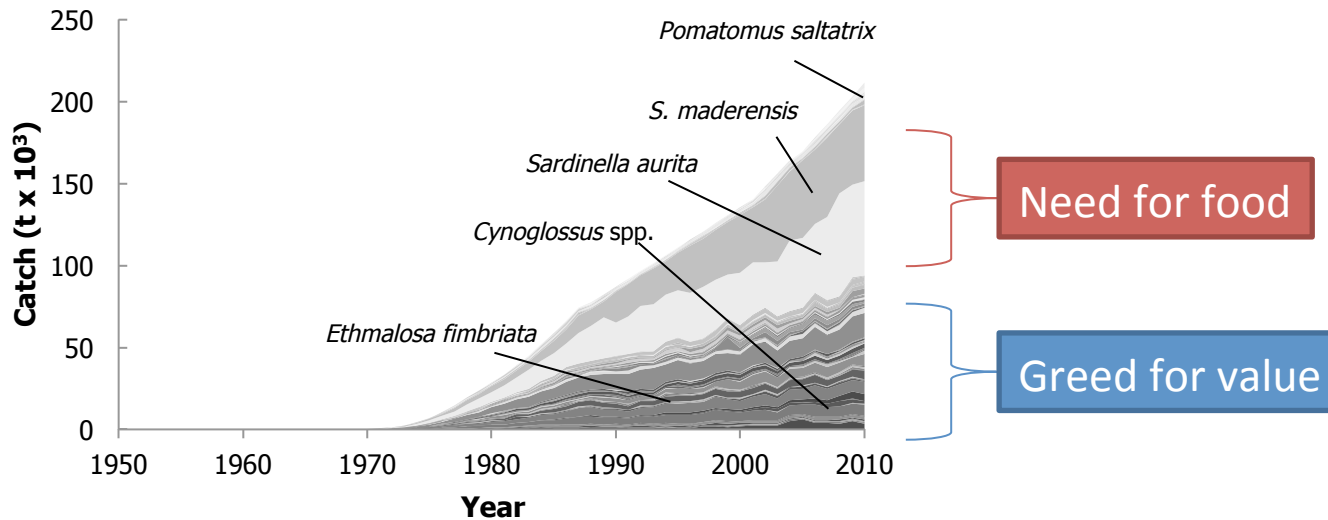


Figure showing the catch composition of artisanal migrant fishers catches.

Conclusions

- Increasing competition, over-exploitation, rapid fleet development led to the birth of a new fleet species;
- Highly frequent migrations led to expanding the scope of conflicts to other countries;
- The need to supply local markets is replaced by the greed for higher value;
- The greedy aspect pushes fishers south, global warming pushes species North: a dead end?

Thank you!

