



**HAL**  
open science

## **Bycatch of sturgeons in Europe and proposed countermeasures; insights collected in the frame of an EU service contract to support the implementation of the Pan European Action Plan for Sturgeon.**

Eric Rochard, Anthony Acou, Alin Bădiliță, Niels Brevé, Sergiy Bushuiev, Steve Colclough, Alison Debney, Keith Dunton, Emre Fakioglu, Dewayne Fox, et al.

### **► To cite this version:**

Eric Rochard, Anthony Acou, Alin Bădiliță, Niels Brevé, Sergiy Bushuiev, et al.. Bycatch of sturgeons in Europe and proposed countermeasures; insights collected in the frame of an EU service contract to support the implementation of the Pan European Action Plan for Sturgeon.. Sturgeon week, INRAE EABX, Sep 2024, Cestas, France. <hal-04943468>

**HAL Id: hal-04943468**

**<https://hal.inrae.fr/hal-04943468v1>**

Submitted on 12 Feb 2025

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire HAL, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



HAL Authorization

Sturgeon week

Semaine des Esturgeons

2-6 sept. 2024 Cestas (France)



## Bycatch of sturgeons in Europe and proposed countermeasures

Insights collected in the frame of an EU service contract to support the implementation of the Pan European Action Plan for Sturgeon

Eric Rochard (coord.)

Anthony Acou, Alin Bădiliță, Niels Brevé, Sergiy Bushuiev, Steve Colclough, Alison Debney, Keith Dunton, Emre Fakioglu, Dewayne Fox, Jörn Gessner, Borislava Margaritova, Andy Moore, Simone Niedermüller, Beate Striebel



EUROPEAN COMMISSION  
DIRECTORATE-GENERAL  
ENVIRONMENT  
Biodiversity  
Nature Conservation



1. What are accidental bycatches of Protected Endangered and Threatened species (PETs)?
  - Legal definition and associated rules
  - How does it happen?
2. What do we know about sturgeon bycatch in North America?
  - Recommended measures
3. What is the situation in Europe?
  - Available information
  - Implemented measures
4. Our proposals

# Threatened species

- To decrease mortality
  - ⇒ Fishing ban
- Still accidental bycatch and associated mortalities
  - Discarding landing obligation (EU 2015-2020)
  - But prohibited species have to be released (species in appendices IV et V of habitats directive, 1992)
    - Mandatory recording of accidental bycatch (generally not implemented)

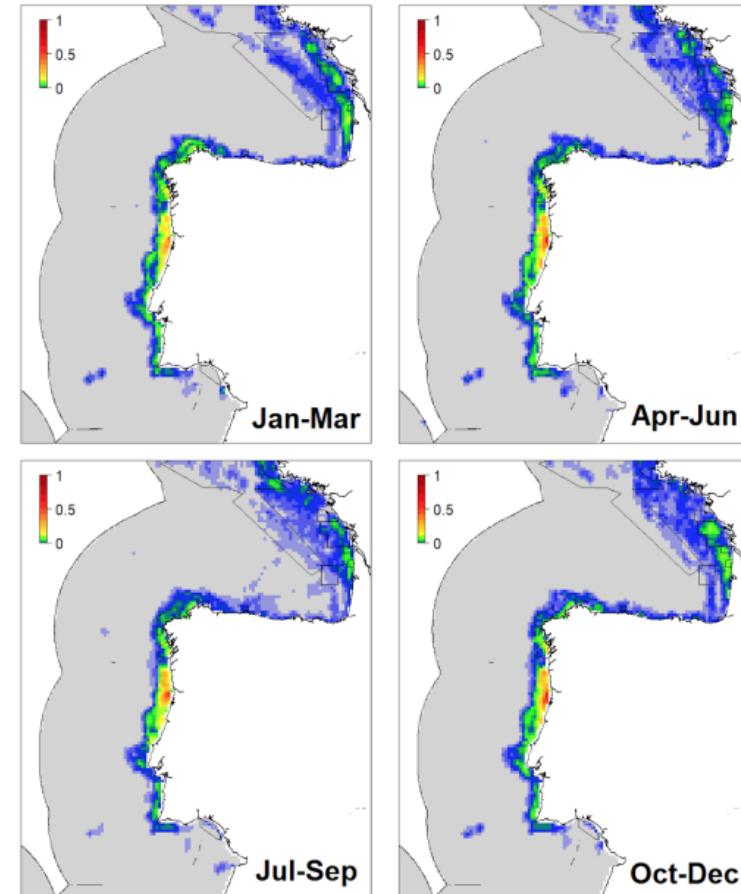


# How does-it happen?

- Overlap of a fishery zone and a Protected Endangered and Threatened species
  - Permanently
  - Seasonally
- And a fishing gear that can capture the PET species
  - => fishing risk analysis
    - Fishing effort distribution
    - PET species distribution
- **Pb!** For most PET species we lack of fishery independent data



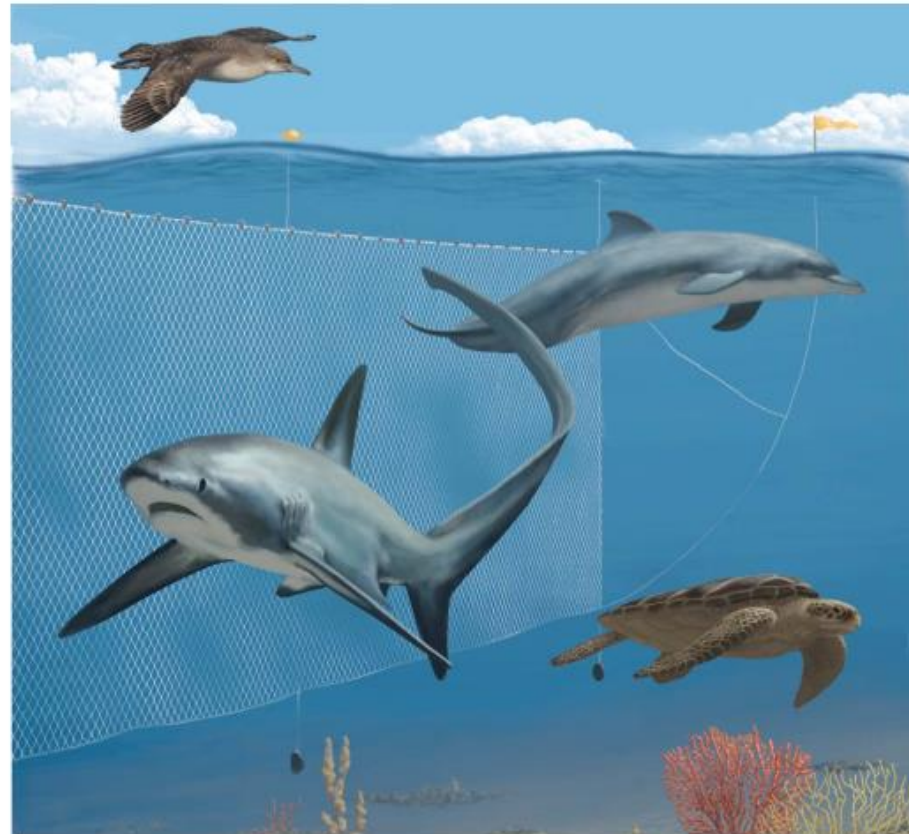
Gannet (*Morus bassanus*) and gillnets (Evans et al., 2021)



# STUDIES AND REVIEWS 101

ISSN 1020-9519

## INCIDENTAL CATCH OF VULNERABLE SPECIES IN MEDITERRANEAN AND BLACK SEA FISHERIES A REVIEW



## Roadmap for ICES bycatch advice on protected, endangered, and threatened species



ICES International Council for  
the Exploration of the Sea  
CIEM Conseil International pour  
l'Exploration de la Mer

HELCOM ACTION 

# Bycatch in Baltic Sea commercial fisheries: High-risk areas and evaluation of measures to reduce bycatch



Co-funded by the  
European Union

Biodiversity



2021

## Once on board?

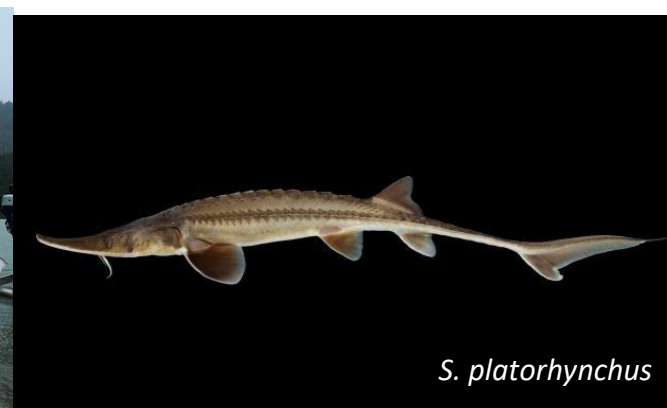
- Released and declared  
Alive.... injured....weak... dead
- Maintained on board => poaching (IUU), Agreement on Port State Measures (FAO, 2016)



1. What are accidental bycatches of Protected Endangered and Threatened species (PETs)?
  - Legal definition and associated rules
  - How does it happen?
  
2. What do we know about sturgeon bycatch in North America?
  - Recommended measures

# Sturgeon bycatch in North America

- Several populations of anadromous and freshwater sturgeon
  - Endangered but still abundant
  - No more commercial fisheries in USA (Endangered Species Act)
    - Except for *Scaphirhynchus platyrhynchus* (Mississippi-Missouri basin)
  - Recreational fisheries authorized
    - According to local management plans, angling and spearing: *A. fulvescens*
    - Only in angling catch and release: *A. transmontanus*, *A. brevirostrum*
  - A few exceptions for first nations
- Incidental bycatch is an issue addressed in all sturgeon's management plans
  - Iteroparous and longliving species
    - High risk when mortality rates >6% (Boreman, 1997; ASMFC 2007)

*A. brevirostrum**A. oxyrinchus**A. medirostris**A. transmontanus**S. platyrhynchus**A. fulvescens*

- Corpus: 63 documents (36 published papers, 4 thesis, 20 reports, 3 conference papers, 1 online paper) (1982 - 2022)

North American Journal of Fisheries Management 16:24-29, 1996  
 © Copyright by the American Fisheries Society 1996

**Bycatch of Sturgeons along the Southern Atlantic Coast of the USA**

MARK R. COLLINS

South Carolina Department of Natural Resources, Marine Resources Research Institute  
 Post Office Box 12559, Charleston, South Carolina 29422-2559, USA

S. GORDON ROGERS

Georgia Department of Natural Resources, Coastal Resources Division  
 1 Conservation Way, Brunswick, Georgia 31523-8600, USA

THEODORE I. J. SMITH

South Carolina Department of Natural Resources, Marine Resources Research Institute

**Abstract.**—Information on incidental capture of shortnose sturgeons *Acipenser brevirostrum* and Atlantic sturgeons *A. oxyrinchus* in commercial fisheries was derived from four studies conducted in South Carolina and Georgia. In a Georgia study, 97 of 1,534 tagged juvenile Atlantic sturgeons and 12 of 551 tagged shortnose sturgeons were reported recaptured in commercial nets. Gill-net fisheries for American shad *Alosa sapidissima* accounted for 52% of Atlantic sturgeons and 83% of shortnose sturgeons recaptured, and the trawl fishery for shrimp *Penaeus* spp. was responsible for 39% of Atlantic sturgeon and 8% of shortnose sturgeon recaptured. In the other three studies, catch-per-unit-effort estimates for the American shad gill-net fishery varied from 0.003 to 0.137 sturgeons per 91.4 m of gill net per hour. Most Atlantic sturgeons were less than 150 cm in total length (juveniles), and most shortnose sturgeons exceeded 55 cm in total length (mature or nearly so). The ratio of shortnose to Atlantic sturgeons in the shad fishery bycatch increased with inland distance from the ocean. In a South Carolina study, 16% of 51 sturgeons captured incidentally in gill nets died outright and another 20% were injured.

*Atlantic States Marine Fisheries Commission*



*ASMFC Vision Statement:*

*Healthy, self-sustaining populations for all Atlantic coast fish species or successful restoration well in progress by the year 2015.*

**Special Report to the ASMFC Atlantic Sturgeon Management Board:**

**ESTIMATION OF ATLANTIC STURGEON BYCATCH IN COASTAL ATLANTIC COMMERCIAL FISHERIES OF NEW ENGLAND AND THE MID-ATLANTIC**

August 2007



A scientific summary  
 October 2017

SUPPORTING SCIENCE  
 AND COMMUNICATING  
 RESULTS.



**NEW STUDY TO HELP FISHERMEN AVOID ENDANGERED STURGEON**

Scientists can now predict the presence of Atlantic sturgeon with 88 percent accuracy based on environmental conditions and a new statistical model. This advance holds the potential to help fishermen continue to fish while avoiding an endangered species.

The challenge: Avoiding bycatch of endangered Atlantic sturgeon

The United States banned commercial fishing for Atlantic sturgeon in 1998, and in 2012 it declared five populations endangered or threatened. Threats include dredging, ship strikes, and power plant intakes, as well as catch by fishing vessels targeting other species, also known as incidental catch or bycatch.

Federal limits are expected soon on bycatch. If these limits are exceeded, it could trigger a suspension of fishing in a specific area, or of fishing with a certain gear type. One of the groups most likely to be affected by federal limits would be Mid-Atlantic gillnet fishermen, who target a range of species, including croaker, skates, and monkfish. Fishermen would like to avoid a suspension, along with the work involved in hauling aboard and releasing an Atlantic sturgeon, which can weigh up to 800 pounds.

A new solution: Predicting sturgeon location with environmental data

To help fishermen avoid sturgeon and keep fishing, scientists at the University of Delaware built a statistical model to predict the presence or absence of sturgeon based on environmental conditions. Their study (Greene et al. 2017) was recently published in the *ICES Journal of Marine Science*, with support from the Lenfest Ocean Program and in collaboration with Delaware State University.

The first step in this research was to gather data to identify conditions favorable to Atlantic sturgeon. The researchers used data from approximately 300 fish fitted with

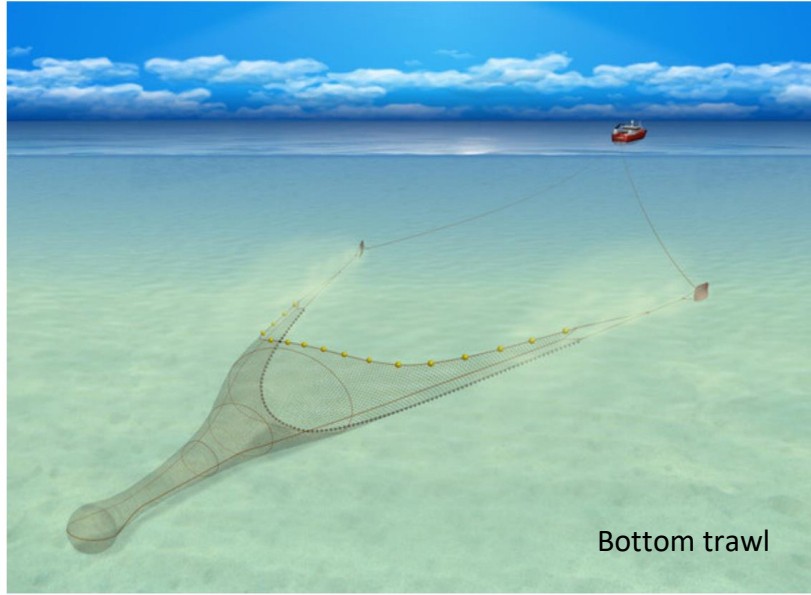
88%

The accuracy of a new method for predicting the presence of Atlantic sturgeon.

Cover photo: Atlantic sturgeon sampling off the coast of Delaware in the Atlantic Ocean. Activities authorized under NMFS Permit No. 14507-01. Courtesy of Delaware State University.

# Main gears concerned

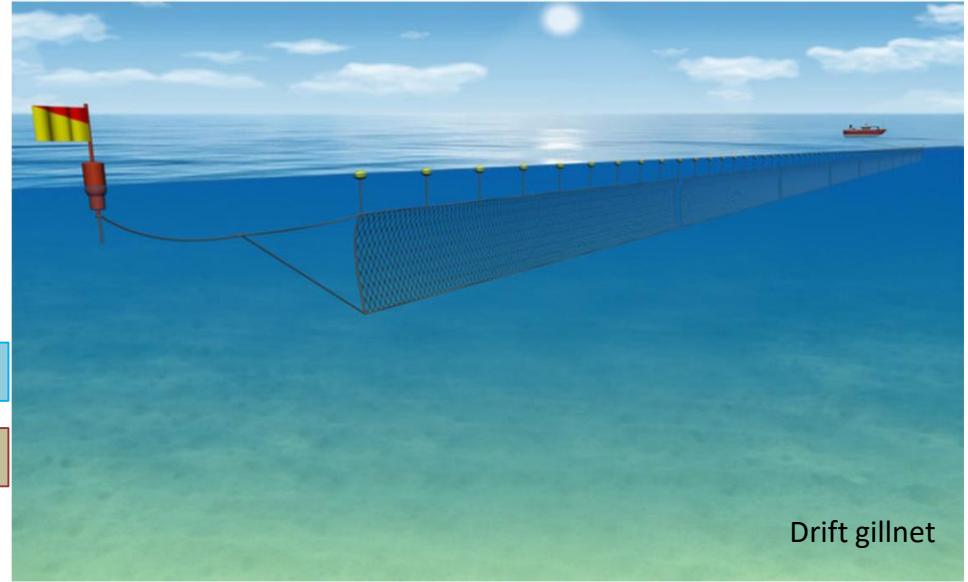
Sea



Bottom trawl

Sea

Estuary

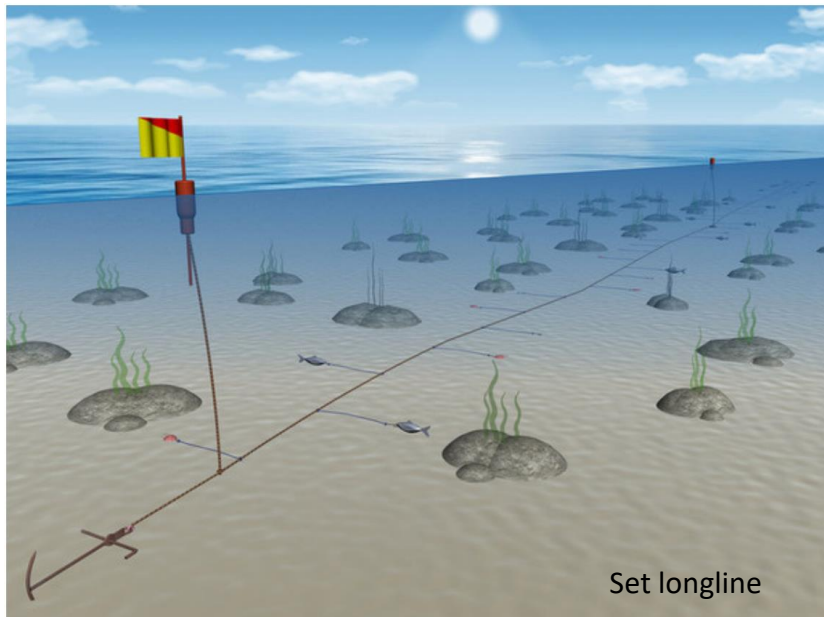


Drift gillnet

Sea

Estuary

River

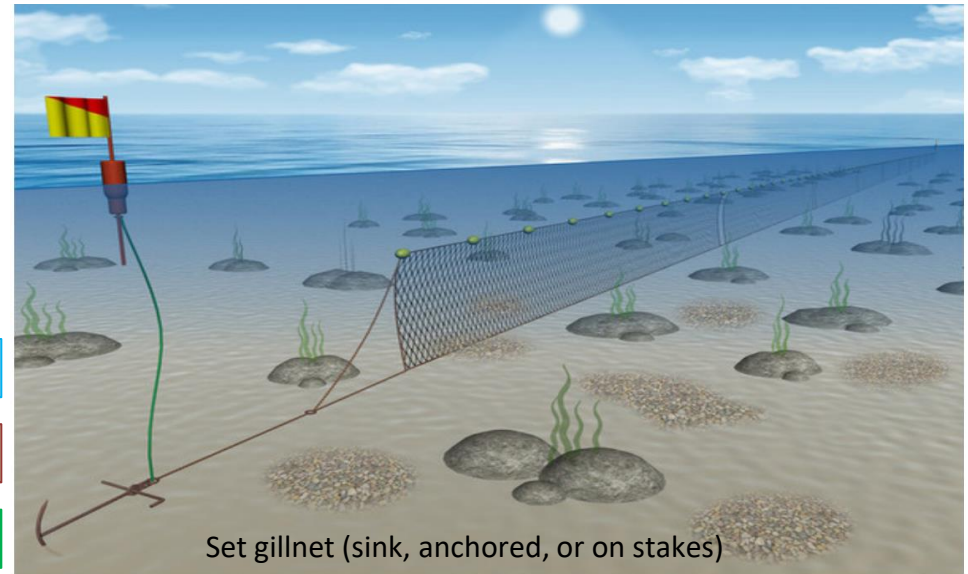


Set longline

Sea

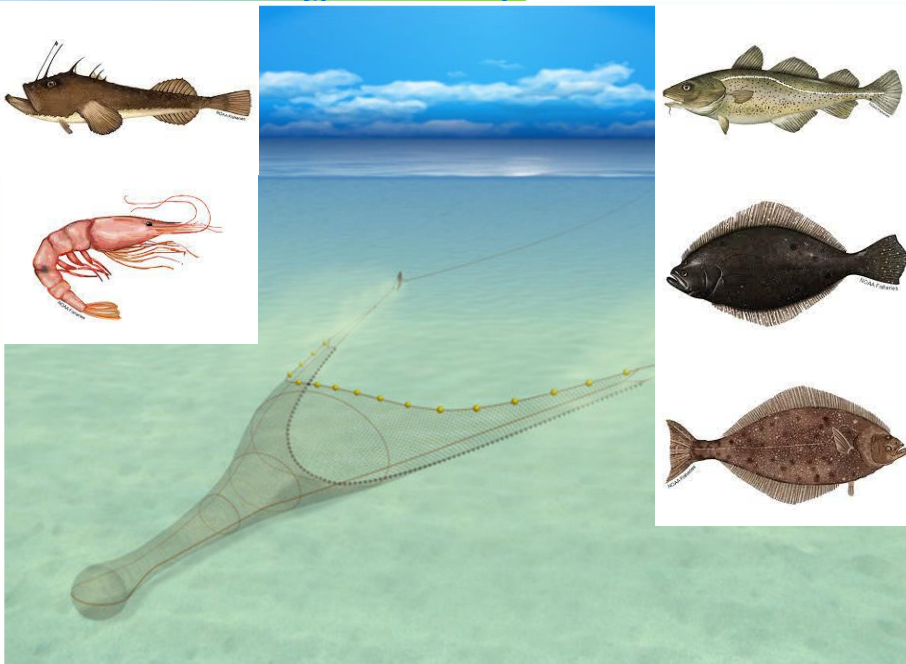
Estuary

River

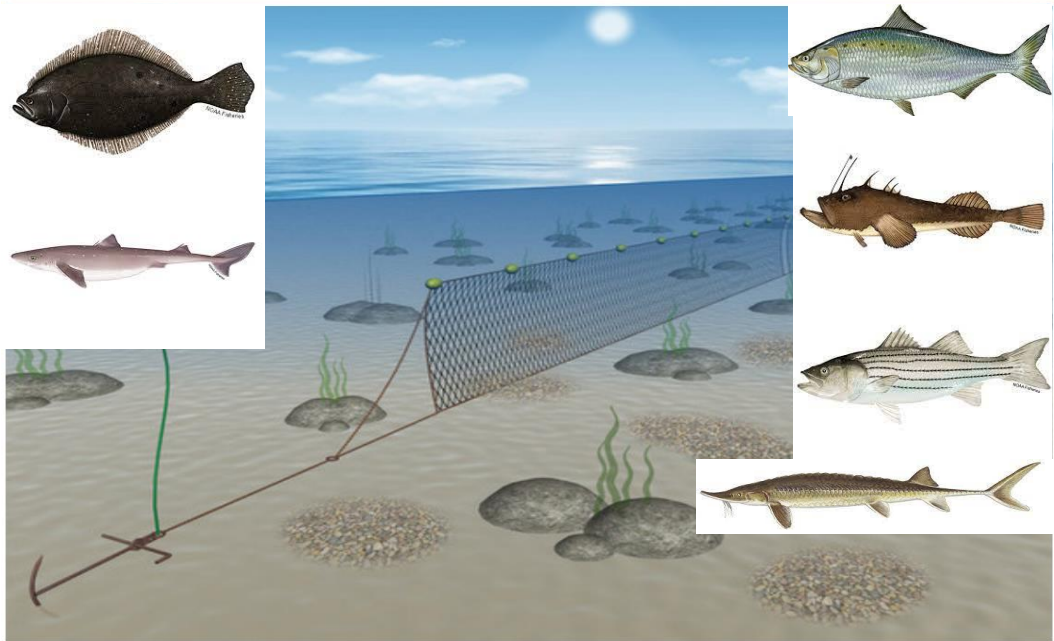
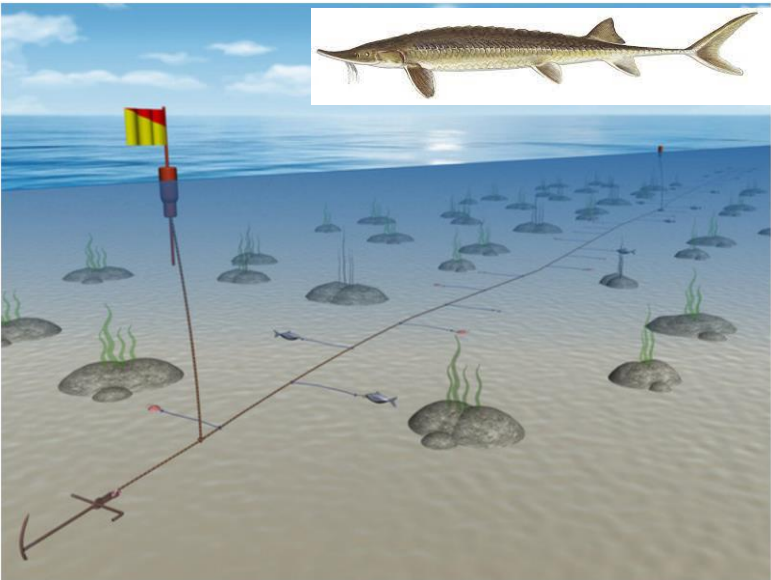
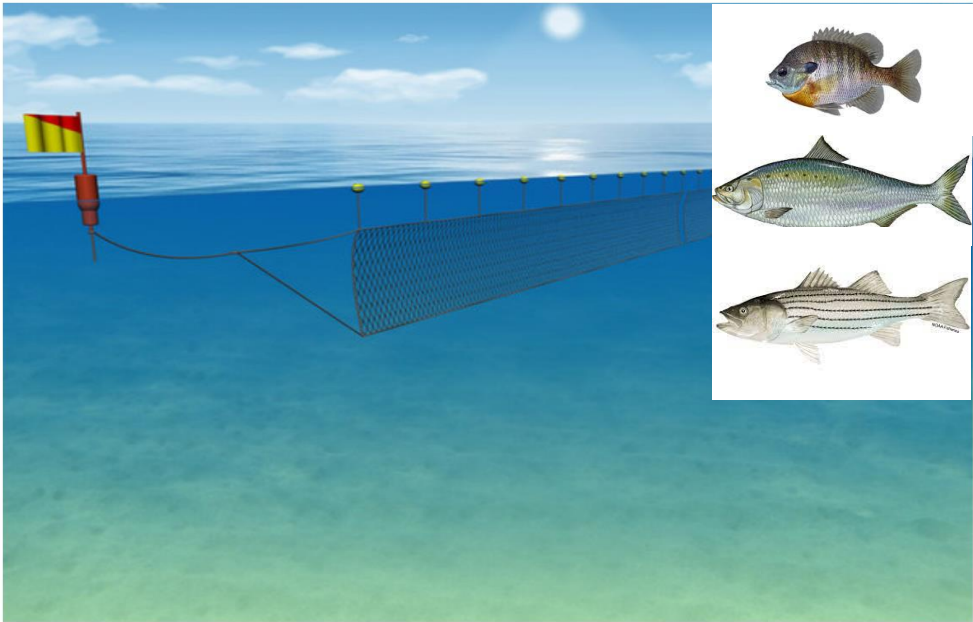


Set gillnet (sink, anchored, or on stakes)

© Seafish, 2021 He, 2023



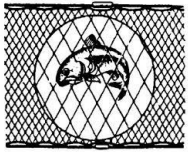
Main fisheries concerned



© Seafish, 2021 He, 2023



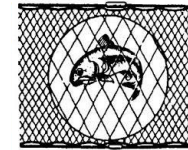
3800 *A. oxyrinchus*/yr (Sheperd et al., 2007)  
continental shelf Northeast US



500 *A. oxyrinchus*/yr (Eyler et al., 2006)  
continental shelf Northeast US



288-664 *A. medirostris*/yr (Richerson et al., 2022)  
US West Coast groundfish fisheries



50 *S. albus*/yr (Bettoli et al., 2009)  
Mississippi river

± 0 *A. medirostris*/yr (Fisheries and  
Oceans Canada, 2016) West coast



≈ 280 *A. oxyrinchus*/yr (Stein et al., 2004)  
continental shelf Northeast US



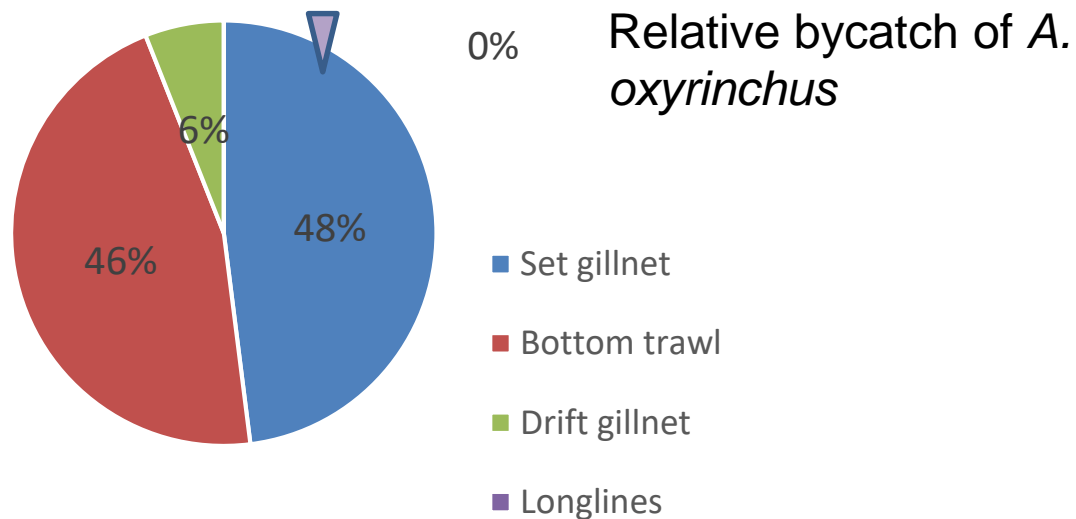
2500-7900 *A. oxyrinchus*/yr (Sheperd et al., 2007)  
continental shelf Northeast US



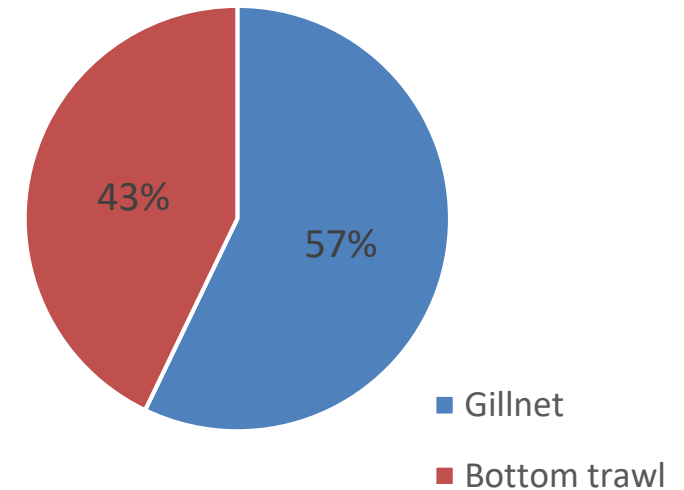
(37-60% *A. brevirostrum* spawning run, Altamaha River  
(Bahn, 2010))

200-622 *A. brevirostrum*/yr (Bahn, 2010) Altamaha river  
(Georgia) shad fishery

NorthEast Fisheries Observer Program (NEFOP) data for bycatch along Long Island, NY (1989-2013) (Dunton et al., 2015)



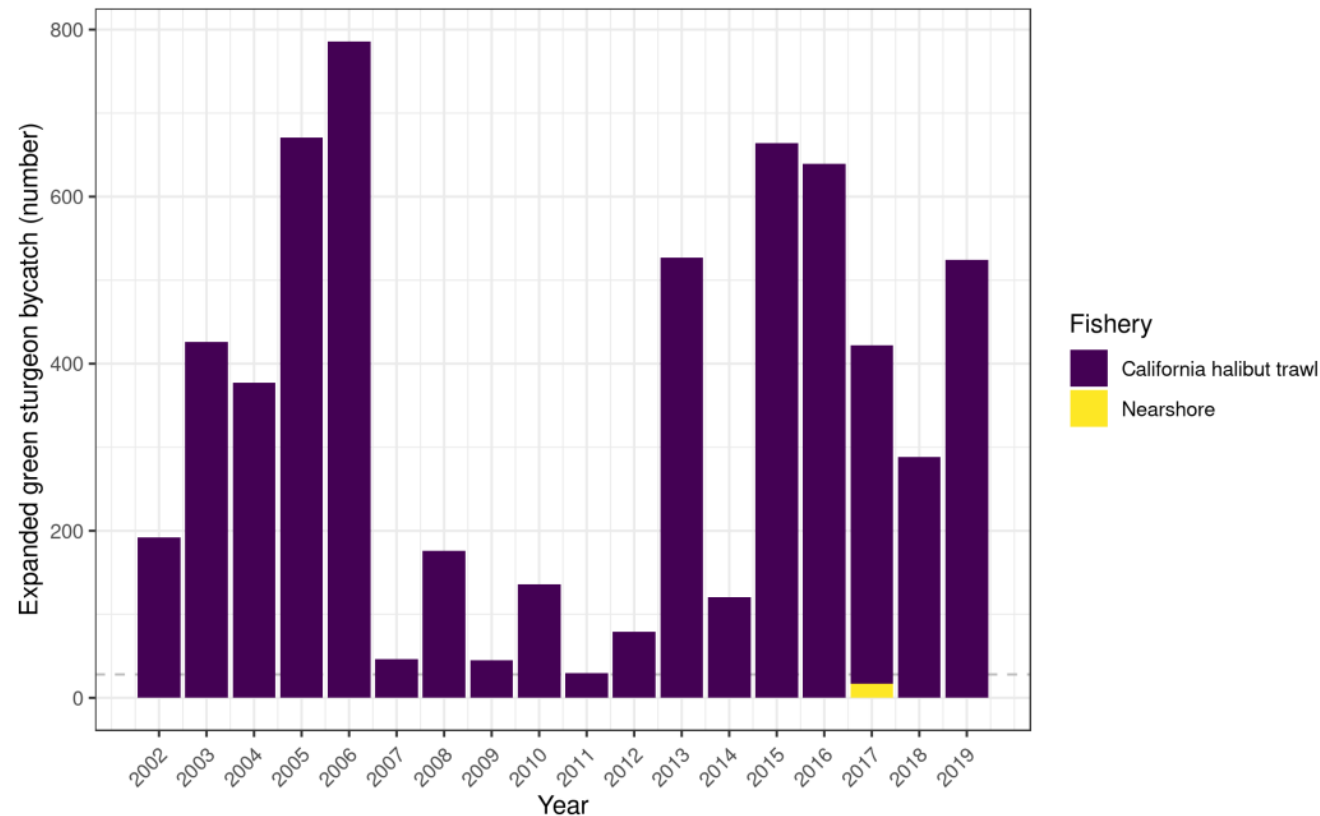
Altamaha river and estuary (Georgia) (Collins et al., 1996)



- Several gears involved
- Bycatch according to target species, gear type and local fishing effort!

## Very high interannual variability

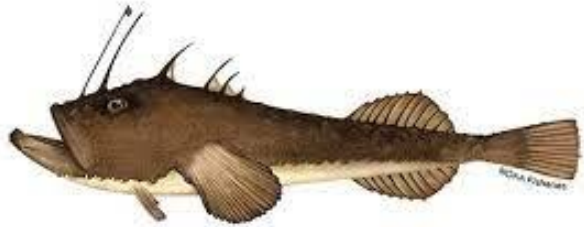
- According precise location of fisheries and fishing effort
- Depending on the local abundance of sturgeon, the more sturgeon there are, the more accidental catches.



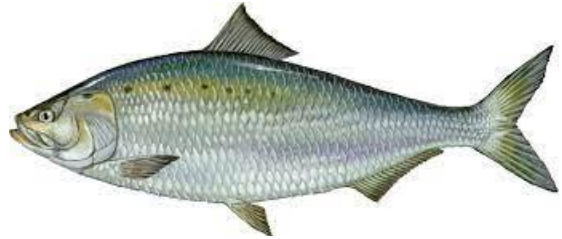
A. *medirostris* bycatch from halibut fishery (Richerson et al,2021)



*A. oxyrinchus*, 1989-2000, the whole US Atlantic coast



The highest number of accidental bycatch (7975 ind.) when targeting *Lophius americanus*



The highest rates of captures

- 3kg *A. oxyrinchus*/ 100 kg *Alosa sapidissima*



- 16kg *A. oxyrinchus* /100 kg *Morone saxatilis*

(Stein, 2004)

# Available data (N= number of data sets)

## Immediate mortality median % (min, max)

- Bottom trawl 1% (0-5) (N=8)
- **Set gillnet 13% (0-47) (N=19)**
- Drift gillnet 10% (0-10) (N=3)
- Hook and line 0% (0-3) (N=3)
- Gillnet scientific surveys 2% (0-6) (N=5)



## Delayed mortality

- Bottom trawl 6-26% (Beardsall et al., 2023; Doukakis et al., 2020)
  - Set gillnet 46%
  - Drift gillnet 0%
  - Angling 3%
- (Robichaud et al., 2006)
- Angling (catch and release) 0% (Struthers et al., 2018 ; McLean et al., 2020)

- High variability according to region and fisheries
- These figures are much disputed

*“The NCDMF does not believe the proposed listing is informed by the best available scientific and commercial information. The NCDMF presents the availability of new data that differ from data presented during the 1998 status review as well as the 2007 Status Review Report (SRR) for the Atlantic sturgeon Carolina DPS. A summary of data that support our position is shown below and additional detailed data are attached.” (Daniel, 2010)*



North Carolina Department of Environment and Natural Resources  
Division of Marine Fisheries  
Dr. Louis B. Daniel III  
Director

# Recommended measures in US advisory documents

- Permanent closure of some fisheries (ASMFC TC, 2006)  
e.g. American shad ocean drift net fishery, spiny dogfish fishery
- Favour gears that causes few catches and mortality
- Temporary and localised closures, for all gears or only certain gears (ASSRT, 2007; Bahn et al., 2012; Dunton et al., 2010; Hoos et al., 2019; Melnychuk et al., 2017).  
e.g. trawling in coastal zones in summer, delaying the opening of the shad fishery (Bahn et al., 2010, 2012)
- Favour practices inducing limited mortality  
Limited the gillnet soak time (Bales, 2019; Talmage et al., 2022)  
No survival with soak time > 24h, especially when high T°C (He & Jones, 2013)  
Limited speed and duration of trawling tows
- Implementing a bycatch quota (Hoos et al., 2019; Byrd & Pensinger., 2022)
- Concept and test modified gears inducing lower bycatch (Fox et al., 2013; Trice, 2013; He & Jones, 2013)  
Unlikely, in some areas, they can increase bycatch of other PET species (Armstrong et al., 2011)  
e.g. with modified set gillnets less bycatch of *A. oxyrinchus* but more bycatch of harbour porpoises (Fox et al., 2011)
- Inform fishers of the risk of accidental bycatch

# Informing fishers of the risks of accidental bycatch



Predictions Model Details Climatologies

This product is developed for mature Atlantic Sturgeon using historic telemetry observations matched to date, bathymetry, and sea surface temperature and ocean color from NPP-VIIRS satellite. There are five regions (Delaware River, Upper Delaware Bay, Middle Delaware Bay, Lower Delaware Bay, and Atlantic Ocean) and each of them is divided into 5 meter depth bins.

## Encounter Risk:

Green = Low Risk Yellow = Medium Risk Red = High Risk

Date Selected  
2023-10-24

1 Day Forecast for  
2023-10-25

2 Day Forecast for  
2023-10-26

3 Day Forecast for  
2023-10-27



Select a Date to Update Plot

2023-10-24

Breece, M. W., D. A. Fox, D. E. Haulsee, I. Wirgin, and M. J. Oliver. 2017. Satellite Driven Distribution Models of Endangered Atlantic Sturgeon Occurrence in the Mid-Atlantic. ICES Journal of Marine Science fsx187.

Contact: Molver@udel.edu, and Mwbrece@udel.edu University of Delaware 700 Pilottown Road Lewes, DE 19958, or Ed.hale@state.de.us Delaware Division of Fish and Wildlife 3002 Bayside Drive Dover, DE 19901

This information is also available on our website

# Informing fishers of the risks of accidental bycatch



## Atlantic Sturgeon Risk of Encounter

Predictions Model Details Climatologies

This product is developed for mature Atlantic Sturgeon using historic telemetry observations matched to date, bathymetry, and sea surface temperature and ocean color from NPP-VIIRS satellite. There are five regions (Delaware River, Upper Delaware Bay, Middle Delaware Bay, Lower Delaware Bay, and Atlantic Ocean) and each of them is divided into 5 meter depth bins.

forecast warnings for selected data.

### Encounter Risk:

Green = Low Risk Yellow = Medium Risk Red = High Risk

Date Selected  
2024-08-23

1 Day Forecast for  
2024-08-24

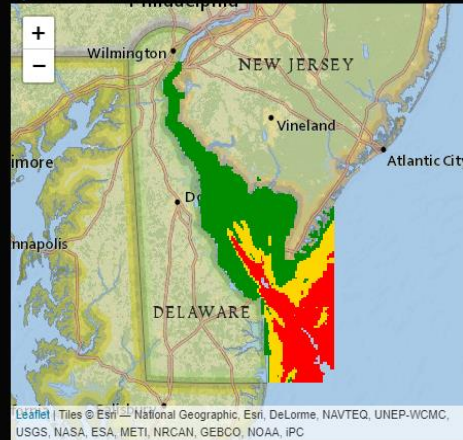
2 Day Forecast for  
2024-08-25

3 Day Forecast for  
2024-08-26

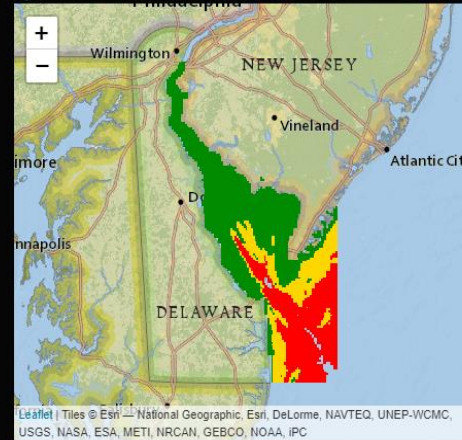
Flyer

Error: An error has occurred. Check your logs or contact the app author for clarification.

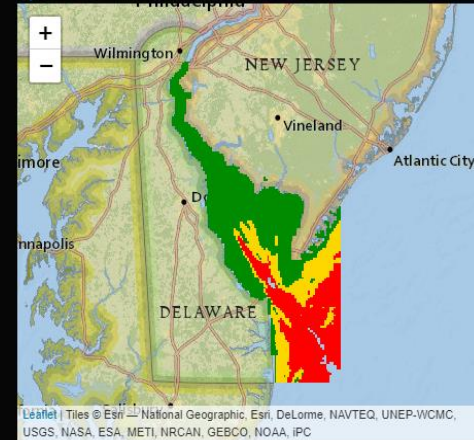
Flyer



Flyer



Flyer



Select a Date to Update Plot

2024-08-23


Breece, M. W., D. A. Fox, D. E. Haulsee, I. Wirgin, and M. J. Oliver. 2017. Satellite Driven Distribution Models of Endangered Atlantic Sturgeon Occurrence in the Mid-Atlantic. ICES Journal of Marine Science fsx187.

Contact: Moliver@udel.edu, and Mwbreece@udel.edu University of Delaware 700 Pilottown Road Lewes, DE 19958, or Ed.hale@state.de.us Delaware Division of Fish and Wildlife 3002 Bayside Drive Dover, DE 19901

This information is also available on our website

1. What are accidental bycatches of protected Endangered and Threatened species (PETs)?
  - Legal definition and associated rules
  - How does it happen?
2. What do we know about sturgeon bycatch in North America?
  - Recommended measures
3. What is the situation in Europe?
  - Available information
  - Implemented measures

Corpus: 24 documents (12 published papers, 1 PhD thesis, 6 reports, 4 conference papers and one book section) (1997-2024)



УДК 574.51.6:597.21.5(026.04)477.7 DOI <https://doi.org/10.47143/1684-1557/2021.1.01>

**МОРСЬКИЙ  
ЕКОЛОГІЧНИЙ  
ЖУРНАЛ**

**ПРИЛОВ НЕЦІЛЬОВИХ ВИДІВ ПРИ ТРАЛОВОМУ ПРОМИСЛІ  
В ПІВНІЧНО-ЗАХІДНІЙ ЧАСТИНІ ЧОРНОГО МОРЯ**

**Бушует С.Г.** – к.б.н., с.н.с.  
ДУ «Інститут морської біології Національної академії наук України»  
bsg1956@gmail.com


**Гулак Б.С.** – аспірант  
Одеський національний університет імені І.І. Мечникова  
gulak.bogdan94@gmail.com

**Снігіров С.М.** – к.б.н., с.н.с.  
Одеський національний університет імені І.І. Мечникова  
snigirev@tc.net.ua

**Чащин О.К.** – к.б.н., с.н.с.,  
експерт, проєкт «BlackSea4Fish»  
alchashchin@gmail.com

SOFIA UNIVERSITY "ST. KLIMENT OHRIDSKI",  
FACULTY OF BIOLOGY,  
DEPARTMENT OF GENERAL AND APPLIED HYDROBIOLOGY

SOFIA UNIVERSITY  
ST. KLIMENT OHRIDSKI



Borislava Kostadinova Margaritova

Study of the spawning and feeding habitats of  
the sturgeons in the Bulgarian section of the  
Danube River

SYNOPSIS  
of a dissertation

For the awarding of an educational and scientific degree "Doctor"  
in professional direction 4.3 Biological Sciences  
Specialty "Hydrobiology"

Sofia, 2022

Received: 19 February 2018 | Revised: 3 January 2019 | Accepted: 8 January 2019  
DOI: 10.1111/jai.13871

STURGEON PAPER

WILEY Applied Ichthyology

**Migration patterns and survival of stocked Atlantic sturgeon  
(*Acipenser oxyrinchus* Mitchill, 1815) in Nemunas Basin, Baltic  
Sea**

Saulius Stakėnas<sup>1</sup> | Andrej Pilinkovskij<sup>1,2</sup>

# 8 Sturgeon species in Europe

In 78 rivers and all European marine areas

## 1 freshwater species

Sterlet *Acipenser ruthenus*

## 2 euryhaline species

Adriatic sturgeon *Acipenser naccarii*

Ship sturgeon *Acipenser nudiventris*

## 5 anadromous species

Atlantic sturgeon *Acipenser oxyrinchus*

European sturgeon *Acipenser sturio*

Russian sturgeon *Acipenser gueldenstaedtii*

Stellate sturgeon *Acipenser stellatus*

Beluga *Huso huso*





“The world’s migratory species of animals are in decline, and the global extinction risk is increasing” (CMS February 2024)

Sturgeon more critically endangered than any other group of species (IUCN, 2010)

# 8 Sturgeons species in Europe

Legally strictly protected in their distribution area (international and national legislation)



- European sturgeon *Acipenser sturio* ↓
- Russian sturgeon *Acipenser gueldenstaedtii* ↓
- Ship sturgeon *Acipenser nudiventris* ↓
- Stellate sturgeon *Acipenser stellatus* ↓
- Beluga *Huso huso* ↓
- Adriatic sturgeon *Acipenser naccarii* ↑

Commercial fisheries banned in all European countries



Sterlet *Acipenser ruthenus* ↓

Angling still legally permitted in some upstream areas of the Danube



Atlantic sturgeon *Acipenser oxyrinchus*

Commercial fisheries banned in all Baltic countries

(Baltic)

# Sturgeon bycatch, available information

## Very limited in Europe

- Data bases developed in North East Atlantic within the French and German National Action Plans

Partnership with fishers' national organisation

Voluntary declarations from fishers

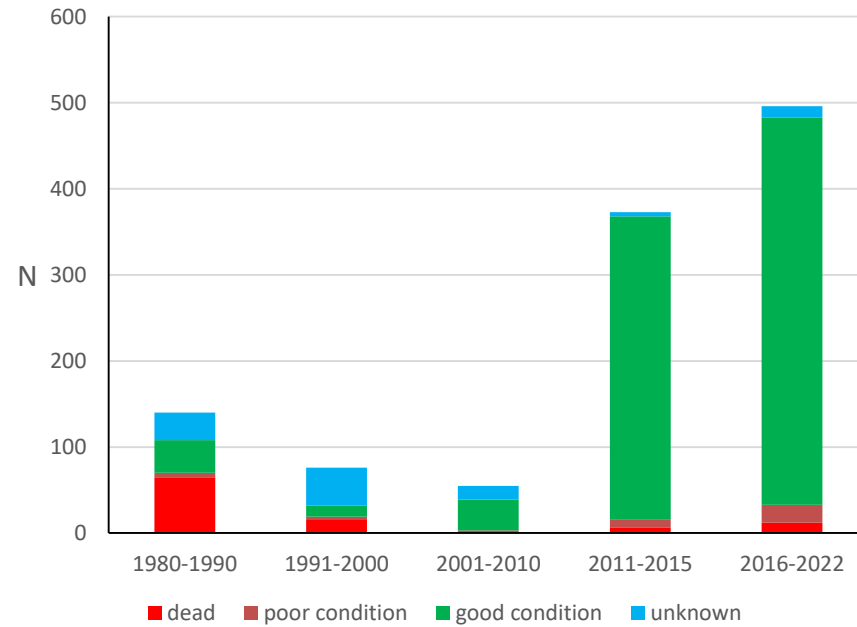
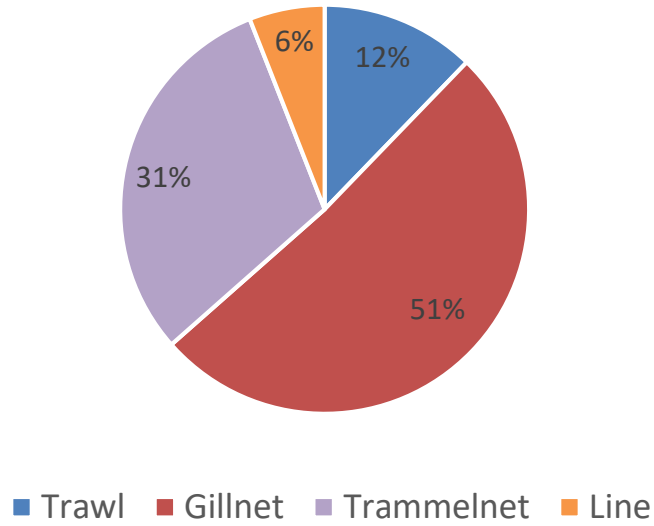
Mainly large mesh gears targeting groundfish (e.g. monkfish, sole, skates, flounder, spiny dogfish), but also (sea bass, meagre, sea bream)



Information via a dedicated website and through a network of contacts



# STURWILD France 1980-2022 N=1148 events



Immédiate mortality: 7%

- Lines 0% ✓
- Gillnets 4% ✓
- Trammel nets 8% ✓
- Bottom trawls 22% ✗



- Voluntary declarations, what do they represent?
- High increase after the arrival of stocked individuals in marine areas (released 2007-2014)
- Drastic decreasing during the last years, reasons?

# The number of sturgeon by-catch declared

## A combined response of several factors:

1. The abundance of sturgeon at sea, which mainly depends on the strength of the cohorts (huge increase after stockings of 1,7M ind. 2007-2014)  
Same catchability of all sizes?
2. The areas frequented and the gear used to target fish  
We postulate it has not changed during the study period  
Fishers are always reluctant to provide the location of the bycatch
3. Tagged fish are overrepresented in declarations  
Tag induces a different behaviour of the fishermen, a certain protection...
4. The interest in cooperation of the fishers  
As the species is locally rare but fishers not aware about its status => **very low**  
As the species is rare but fishers informed => **increase with awareness effort**  
It decreases with the time, it is crucial to regularly repeat awareness campaigns  
When the local abundance increase, even with informed fishers => **decrease with lassitude**  
When there is a conflict between fisheries administration and fishers => **drastic decrease** even when no direct link with sturgeon conservation

# Sturgeon bycatch, available information

Fishers are globally proud and happy to contribute



...at je een steur te-  
Nederlandse wate-  
reels groter. Vaak  
kweekt exotische  
al voor de tuis-  
toot of plas zijn  
r ook de zeldza-  
Europese steur  
getroffen. Het  
in levert waar-  
op.  
r trekvis met  
sch bedreig-  
tamer wordt  
al symbool  
zoals zalm,  
e voor hun  
g zowel de  
g hebben.  
nstroms  
De jonge  
de rivier  
tijd in de  
n vervol-  
vinden op  
kken in  
er weer  
nggen.

...g en 1  
meldi  
maxi  
van d  
en ze  
links  
Boer  
en de  
(Foto

...ral  
te-  
a,  
t

# Sturgeon bycatch, available information

## Mortalities due to lack of compliance with regulations



North East Atlantic 2011

### Sturgeon caught off Newhaven offered to Her Majesty the Queen

While out fishing from Newhaven in East Sussex, on his boat Bounty Hunter RX 448, fisherman Daniel Rathbone was somewhat surprised to see a 14kg sturgeon in his net. reports John Periam.

'I have been fishing here most of my life and this was very much a first for us. My crew Pat O'Gorman and Stefan Bryant were as surprised as I was, when we saw this head looking at us from the net.

'Back on shore we took it to local fish wholesaler MCB Seafoods at Newhaven where Mike Bish suggested we offer it to Her Majesty the Queen. Her office responded with grateful 'no', but suggested it could be sold, and the money given to charity.'



PAGINA 11

Vangst GO 26 voor IJmuiden

### Forse steur voor de consumptie

IJMUIDEN – Vorige week vrijdag werd op de afslag van IJmuiden een forse steur ter verkoop aangeboden. De vis werd gekocht door de firma Gebr. Bakker, in commissie voor horecagroothandel ISPC.

Lokker was het een unieke vangst voor de lokatie: 30 mijl ten westen van IJmuiden. Gebr. Bakker betaalde 17,84

de kilo. ISPC (met twee vestigingen in Nederland en twee in België) heeft de vis tentoongesteld in Gent, waarna de vis opgegeten

wordt. Of er kaviaar in de vis zat is nog niet bekend. De vis was dicht aangevoerd en mocht van de koper niet gestript worden.

Steuren kunnen tot zes meter lang worden. Zo lang was het door de GO 26 van Lokker gevangen exemplaar zeker niet, maar met zeker een meter lengte en een gewicht van 33 kilo mocht de vis er zijn. Bijzonder aan de primitief ogende vis is met name de uitstekende bek omringd door zachte 'tanden', waarmee de vis wormen en andere bodemorganismen uit de grond graaft. De vis kwam vorige week donderdag in het net. Volgens schipper Gert

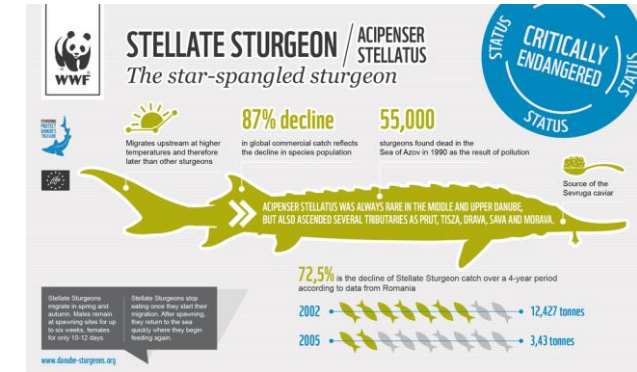
O.F 26-27 juin 2004

### Un esturgeon de 1,38 m et 14 kg à la criée

# Sturgeon bycatch, available information

## Several initiatives around the Black Sea

- From fisheries observers on board, Bushuiev et al. (2020; 2021; 2022) assessed sturgeon bycatch in the sprat fishery, using midwater pelagic trawls.
  - This type of fishery was not considered of high risk for sturgeon.
  - The whole fishery bycatch 400 ind/yr, mainly young stellate sturgeon caught in shallow water
  - Individuals were released alive

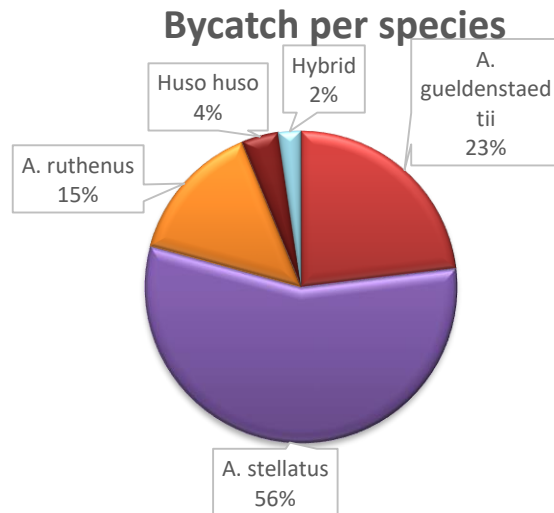


# Sturgeon bycatch, available information

## Several initiatives around the Black Sea



- Training organised in Bulgaria to involve fishers in monitoring
  - How to handle and release sturgeon safely
  - Using mobile phone to send pictures of bycatch



Registered sturgeons as by-catch per sturgeon species in the Bulgarian sections of the Danube River and the Black Sea for the period 2018 – 2021 (according to data from fishermen) © WWF Bulgaria

# Sturgeon bycatch, available information

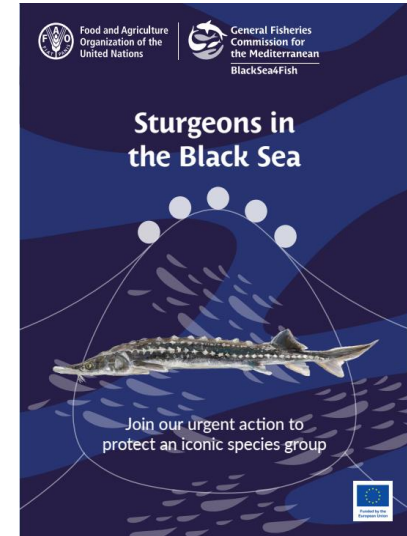
## Several initiatives around the Black Sea

Studies looking at sturgeon bycatch from different fisheries along the southern Black Sea coastal zones (Zengin et al., 2010; Özdemir & Erdem, 2011; Özdemir et al., 2023)

Resolution GFCM/44/2021/5 on the mitigation of fisheries impacts for the conservation of sturgeons in the Black Sea establishes the need for a pilot project

Creating a network of scientific experts and raising awareness on the conservation status and critical issues related to the marine part of the sturgeon life cycle  
Collate all information available on species biology, distribution and interactions with marine fisheries in consultation with national authorities and the network of scientific experts.

Cover an integrated analysis of all the information gathered towards identifying potential management and technical measures for the marine part of the sturgeon life cycle.



# Sturgeon bycatch, available information

## Some fisheries impose higher risks than others

- From a North American and an European review of available information
  - Sturgeon can be caught by trawls, gillnets, fyke nets and lines
  - Higher rates of bycatch when fisheries overlap the sturgeon distribution
    - Low depth (<20 m)
    - Brackish waters and estuaries (e.g. shad fisheries)
  - Safe handling of fish is crucial for their survival when released
  - Set gillnets induced the higher mortality rates (immediate + delayed)
    - Increased by soaked time and high water temperature
  - Lines induce very low sturgeon mortality rates

# Sturgeons interactions with fisheries

Reminder: when targeting other fish species, fishers may accidentally catch a PET species. It happens and it will happen!  
=> They have to release it safely, if they don't, it is poaching and it is illegal!

1. Bycatch occurs in almost all fisheries
2. No mandatory official monitoring of the bycatch of Habitat Directive appendices II and IV species is implemented
3. Available information about sturgeon bycatch in Europe derives from recovery initiatives which assess, record
4. Information is voluntary and therefore limited
5. Low abundance results in low numbers of encounters, resulting in underestimation of risks

1. What are accidental bycatches of Protected Endangered and Threatened species (PETs)?
  - Legal definition and associated rules
  - How does it happen?
2. What do we know about sturgeon bycatch in North America?
  - Recommended measures
3. What is the situation in Europe?
  - Available information
  - Implemented measures
4. Our proposals

# Recommendations



## Involving fishers in sturgeon conservation

- Awareness campaigns are efficient tool to inform them about sturgeons, their situation, legal status, conservation actions
  - This allows their knowledge of the species to be taken into account
  - Their involvement in the sturgeon monitoring in Bulgaria is an interesting example of what can be done.
  - Flyers and stickers in local language are necessary
- Involvement of professional organisations is helpful as partner in conservation actions



# Recommendations

## Involving fishers in sturgeon conservation

- Provide them useful tools to voluntarily declare accidental sturgeon bycatch (website, logbook, ad hoc form)
- Provide recognition for the efforts they do

OK Sturio

DECLARATION DE CAPTURE DE POISSON OU CRUSTACE MARQUE

POISSON : ESTURGEON

OR

COORDONNEES : 47° 40'

LONGITUDE : 12° 40'

POIDS : 1200g

MARQUES : Cernagef - zone N° 0400

LIEU DE PÊCHE : -

LATITUDE : -

LONGITUDE : -

HAUTEUR DE PÊCHE : -

TYPE DE PÊCHE : Filet grand mailage

NOM DU BATEAU : Le Senan

N° A QUARTIER : 01

NOM DU PATRON : GUYON Philippe

ADRESSE DU PATRON : Route de Grandcamp  
14520 PORT-EN-BESSIN HUPPAIN

JOINDRE OBLIGATOIREMENT LA MARQUE QUI RESTE AGREEE AU POISSON OU AU CRUSTACE CAPTURE.

Port-en-Bessin, le 25.09.2022

**Instructions to be followed in the event of an accidental catch:**

- Note** the date of the catch, the size and weight of the fish and the location (GPS or zone);
- If it has a marking,** leave it there and note the number;
- Release it with care;**
- Report the accidental catch** by contacting your regional centre.

Als u een **beschermde Europese steur** vangt:

1. Noteer lengte, gewicht, datum en locatie van de vangst
2. Als de steur een **merkteken** heeft: laat dit zitten en noteer het merknnummer
3. Maak een **foto** van de vis en het eventuele merkteken
4. **ZET DE STEUR TERUG IN HET WATER**
5. Meld de vangst via [steurwwf@gmail.com](mailto:steurwwf@gmail.com), Wageningen Marine Research of bel 06 22257387

Dank voor uw oplettendheid en hulp!



# Recommendations

## For Environment and Fisheries administrations

- Strengthen collaboration and harmonize conservation measures with neighbouring countries and regional bodies (e.g. GFCM and BSC, countries of the Atlantic region)
- Organise reporting of sturgeons accidental bycatch.
  - To know more about the situation and to be able to implement efficient measures
- Observers on board can improve data collection on sturgeon bycatch (e.g. sprat fishery)
- For larger vessels remote electronic devices are efficient tools

# Recommendations

## For Environment and Fisheries administrations

- Identify overlap between fisheries zones and sturgeon habitats
- Implement exclusion areas, permanent or temporary, not necessarily for all gears
  - Among others, existing Ecologically or Biologically Significant Areas (EBSAs) in the Black Sea used as sturgeons habitats (Danube Delta Marine Area, Northern part of the Caucasian Black sea Coast, and Kolkheti Marine Area) could be managed as Marine Protected Areas to avoid bycatch,

# Recommendations

## For research institutions

- Identify sturgeon habitats with fishery independent approaches
- Estimate the number of bycatch
  - Regionally (experimentations)
  - Globally (modelling with several assumptions on sturgeon distribution and fisheries distributions)

Thank you for your attention



Funded by  
the European Union



UNIVERSITÀ  
DEGLI STUDI  
DI PADOVA



Subcontractors:

PhD. Ralf Reinartz