STURGEON IDENTIFICATION GUIDE
Identification of Sturgeon Species

This guide was designed to support the identification of sturgeon species that can be found in the Danube and the Black Sea. It describes seven sturgeon species - one of them an exotic species popular in aquaculture - and three hybrids. The guide also offers detailed features that can be used to differentiate between the species.

The primary goal of this guide is to help law enforcement officials identify sturgeon species they may encounter through their work.

WHAT IS A STURGEON?

Sturgeons and paddlefishes, also referred to scientifically as Acipenseriformes, are a group of ancient fish originating more than 200 million years ago. They migrate mostly in order to spawn and live in freshwater, coastal waters and seas of the Northern Hemisphere. According to the IUCN*, 23 of the 27 species are on the brink of extinction, being thus the most critically endangered group of species on Earth.

*International Union for Conservation of Nature
Sturgeons have quite unique features:

Depending on the species, smaller scutes can also be found in between the rows of the larger scutes, behind the dorsal fin and along the anal fin, which can be a very important characteristic for differentiation.

- **Five rows of bony scutes:** one row along the back, two along both sides, and two on the belly
- **Two nostrils on the snout:** If a fish has only one nostril, it is most likely from aquaculture.
- **Four barbels in front of the mouth:** either closer to the mouth or closer to the tip of the snout
- **A heterocercal tail:** meaning the upper lobe of the tail fin is longer than the lower lobe
- **Either a round or a pointed snout with the mouth sitting on the bottom of the head**
**Beluga** (*Huso huso*)

- The color is steel grayish-blue.

With adult individuals, the side scutes are the colour of the body and number around 40-50.

- The mouth is very big, crescent shaped and reaches the edges of the head. It protrudes forwards, not downwards.

- The barbels are flat and fimbriated.

Young individuals usually have a characteristic black spot on the top of the snout and whitish scutes.

*Regarding the differences with the hybrid Beluga x Sterlet see relevant page*
NOTES:

Beluga

Length: approx. **2.8 m** (max. 7.2 m)
Weight: up to **300 kg** (max. 1 571 kg)

Photos: © Rosen Bonov, Jiri Bohdal, Hannes Greber
The Sterlet differs from the Stellate Sturgeon by the number of side scutes (the Stellate Sturgeon has up to 38, the Sterlet over 55) and the coloring (contrasting black and white for the Stellate Sturgeon, whitish-brown for the Sterlet). For the hybrid Sterlet x Stellate Sturgeon see the relevant page. The Ship Sturgeon has the same number of side scutes, but its snout is short and snub. The Siberian Sturgeon has no white edges on its fins.
NOTES:

Sterlet

Length: no more than **1.2 m**
Weight: **3-4 kg** (max. 16 kg)

Photos: © Stoyan Mihov
Russian Sturgeon \((Acipenser gueldenstaedtii)\)

- Short and snub snout
- Single, large scutes, around 25-40
- The coloring is greyish-blue or brownish-yellow with contrasting white scutes
- The barbels are closer to the tip of the snout than to the mouth
- It differs from the Ship Sturgeon by the number of side scutes – it has no more than 40, while the Ship Sturgeon has over 50.

Adult female from the Danube near Belene, Bulgaria (around 130 cm in length)

Main image: young of the year, Danube, Bulgaria
Russian Sturgeon

Length: approx. 2 m (max. 236 cm)
Weight: 20-30 kg (max. 115 kg)
The Stellate Sturgeon differs from the Sterlet by the number of the scutes (the Stellate Sturgeon has under 38, the Sterlet over 55) and by the coloring (it is contrasting black and white, compared to the whitish-brown Sterlet).

*Regarding the hybrid Sterlet x Stellate Sturgeon see the relevant page*
 NOTES:
Stellate Sturgeon

Length: approx. 1-1.2 m (max. 2 m)
Weight: 20-50 kg (max. 100 kg)

Photos: © Stoyan Mihov, Rosen Bonov
Ship Sturgeon (*Acipenser nudiventris*)

It differs from the Sterlet by the short, snub snout. It has 50-60 lateral scutes - more than the Russian Sturgeon which has up to 40. Other characteristic features are the continuous lower lip, the large and high first back plate which forms a steep profile with the head.

The snout is short and round

The side scutes are small, around 50-60

The mouth does not reach the edges of the round snout

An adult male from the Danube in Serbia, July 2004

A young individual, from aquaculture, Caspian origin, May 2018
Ship Sturgeon

*Ship Sturgeon is considered extinct in the Danube and the Black Sea.*

Length: no more than **2.2 m**

Weight: **80 kg** (max. **120 kg**)

Photos: © Stoyan Mihov, Hannes Greber
Atlantic Sturgeon \((Acipenser sturio)\)

- The snout is wide, slightly pointed.
- The side scutes are very large, 22-36.

Behind the anal fin there are two rows of large scutes. The rest of the Danube species have only one row, which might not even be visible (on the circle image – the same place as at the Sterlet).

Atlantic Sturgeon differs from the Beluga by the smaller mouth.
Atlantic Sturgeon

Atlantic Sturgeon is considered extinct in the Danube and the Black Sea.

Length: usually 2 m (max. 5-6 m)
Weight: up to 120 kg (max. 600 kg)

NOTES:
The young hybrid differs from the parental Sterlet by the scutes on the head, which, like the young Russian Sturgeon, end with a spike.

Snout more elongated than in Russian Sturgeon

The skin on the back is rough, with many small scutes, similar to Russian Sturgeon

The side scutes are large, numbering 40-45 (Sterlet has over 55, Russian Sturgeon up to 40)

2-4 protuberances („buttons“) on the underside of the snout as the Sterlet; the barbels are closer to the tip of the snout than in Sterlet

Hybrid Sterlet and Russian Sturgeon (Acipenser ruthenus x Acipenser gueldenstaedtii)
Hybrid Sterlet and Russian Sturgeon

Photos: © Stoyan Mihov, Borislava Margaritova
Hybrid Beluga and Sterlet ("Bester")
(Huso huso x Acipenser ruthenus)

The hybrid’s mouth is large and crescent shaped, but it differs from that of the Beluga as it does not reach the edges of the head.

Side scutes are smaller than in Beluga

Elongated snout similar to that of the Sterlet

A 120-cm individual from aquaculture, Austria, May 2018

The Bester has the bulky and robust appearance of Beluga. The hybrid’s side scutes are 50-52, the Sterlet’s number over 55, the Beluga’s – around 40-50

The hybrid’s mouth is large and crescent shaped, but it differs from that of the Beluga as it does not reach the edges of the head.
NOTES:
Hybrid Beluga and Sterlet ("Bester")
Hybrid Sterlet and Stellate Sturgeon
(*Acipenser ruthenus* x *Acipenser stellatus*)

The side scutes are around 40-50 (with the Stellate Sturgeon they number under 38, with the Sterlet over 55).

The hybrid is greyish-brown like the Sterlet but has small white scutes between back and side scutes, like with the Stellate Sturgeon.

**Sterlet** – the snout is narrow, triangular, relatively short, and has 2-4 “buttons” (red arrow). The barbels reach the upper lip.

**Hybrid** – the snout is very long, narrow and triangular, it has 1-2 “buttons”. The barbels do not reach the upper lip (see red line).

**Stellate Sturgeon** – the snout is very long and wider at the tip. Does not have “buttons”. The barbels do not reach the upper lip.

The snout is longer and thinner than in Sterlet.

Wild specimen of the Danube River near Vetren, Bulgaria, July 2018
NOTES:
Hybrid Sterlet and Stellate Sturgeon

Photos: © Stoyan Mihov
The body and head shape are similar to those of the Sterlet. Main differences are the dark, brown skin and bony scutes in the same color. The Sterlet has white side scutes and white edges on the fins, while with the Siberian Sturgeon the fins are the same dark color. It differs from the Beluga in the shape and size of the mouth.

An individual from aquaculture, Austria 2018

Siberian Sturgeon \textit{(Acipenser baerii)}

- Side scutes: around 40-55, same color as the skin
- The body is dark, blackish-brown; there is no distinct difference between the coloring on the side of the abdomen and the back
- Fins have no white edges; the first ray is dark
- No protruding "buttons" under the snout
- The mouth does not reach the edges of the head
Siberian Sturgeon

*Siberian Sturgeon is native to the Lower Danube area, but popular in aquaculture.*

Photos: © Hannes Greber
This brochure was produced as part of the LIFE project “Sustainable protection of lower Danube sturgeons by preventing and counteracting poaching and illegal wildlife trade” (LIFE FOR DANUBE STURGEONS, LIFE 15 GIE/AT/001004), implemented by WWF in Austria, Bulgaria, Romania, Serbia and Ukraine, together with the Danube Delta Biosphere Reserve Authority in Romania and IZW Leibniz Institute for Zoo and Wildlife Research in Germany.

For more information: www.danube-sturgeons.org

Author: Stoyan Mihov, Wildlife and Freshwater Chief Expert at WWF Bulgaria
Editor: Jutta Jahrl
Graphic design: Boyan Petkov
Published by WWF

WWF and project partners gratefully acknowledge funding support from the European Commission. All content and opinions expressed in this publication are solely those of WWF and project partners.

© 2018 WWF. All rights reserved. The photographs and the texts must not be reproduced or copied in electronic or any other way, nor proliferated without the prior approval of the author and the publisher.
More than 55

6 sturgeon species
are native to the Danube, with 2 assessed as extinct

23 of the 27 sturgeon species worldwide are on the brink of extinction

7 organisations from 6 countries team up to take care of a better protection of sturgeons as part of the “LIFE for Danube Sturgeons” project

Side scutes are an indication for a Sterlet

WWF in numbers

Working to sustain the natural world for people and wildlife

together possible . panda.org