



Deep-sea fisheries project



9th Scientific Committee Meeting of the North Pacific Fisheries Commission

Deep-water shark identification



NPFC CMM2023-14



North Pacific Fisheries Commission

CMM 2023-14

(Entered into force 26 July 2023)

(Note: paragraph 9 entered into force 1 January 2024)

CONSERVATION AND MANAGEMENT MEASURE ON SHARKS

The North Pacific Fisheries Commission (NPFC),

Recognizing the biological importance of sharks in the marine ecosystems as a key predatory species of the North Pacific Ocean, and the need to promote their long-term conservation;

Concerned with vulnerability of certain shark species to exploitation given their low biological

On-Board Record of Interactions with Sharks

9. A fishing vessel shall record, and maintain a record of, any shark catch in the Convention Area, to the extent possible by species, in its logbook on board the fishing vessel.
10. A Commission Member, or Cooperating non-Contracting Party, shall annually report all shark catches, to the extent possible by species, from their fishing vessels to the Secretariat.



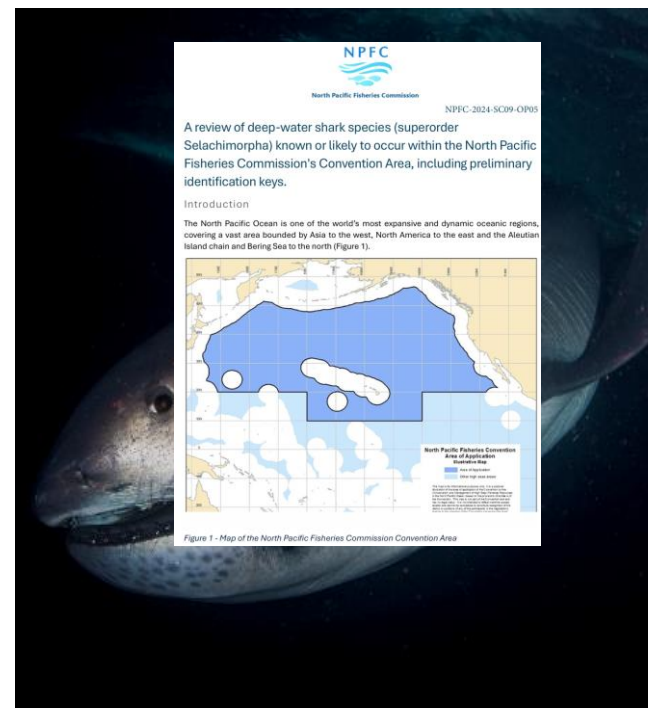
NPFC SC Nanaimo, 2023

In case I forget, Canada proposed the shark-jinning CMM in March 2023 and our delegation agrees that it applies to all sharks.
Janelle Curtis

NPFC SC decided that FAO DSF Project would assist and develop a draft key

Key - deepwater sharks

- Work to improve identification and reporting
- see NPFC-2024-SC09-OP05 (91 pages) and follow-up talk



coverage - deepwater sharks

Deep-water shark orders, families, and species documented in the North Pacific

- 76 species in North Pacific
- 25 species in CA

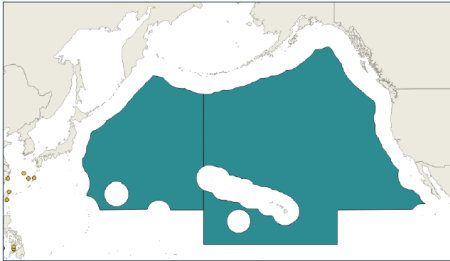
	Deep-water species in the North Pacific	Deep-water species in NPFC CA
Hexanchiformes		
Hexanchidae	3	1
Chlamydoselachidae	1	1
Lamniformes		
Mitsukurinidae	1	0
Odontaspidae	2	0
Pseudocarchariidae	1	1
Alopiidae	1	1
Carcharhiniformes		
Scyliorhinidae*	0	0
Pentanchidae	20	4
Pseudotriakidae	1	1
Squaliformes		
Dalatiidae	6	3
Etmopteridae	15	8
Somniosidae	6	3
Centrophoridae	7	0
Squalidae	9	1
Echinorhiniformes		
Echinorhinidae	2	1
Pristiophoriformes		
Pristiophoridae	1	0
TOTAL	76	25

Classical key - deepwater sharks

Species descriptions

Hexanchus nakamurai


The Bigeye Squalid Shark (*Hexanchus nakamurai*) has only been documented in the North Pacific along the western coast, south of Japan. Its presence in the western sectors of the CA of the NPFC is possible.



Notes on Species Identification by Fishery Observers or Non-Experts

The identification of this shark to genus is very easy, thanks to its distinctive morphology and unique features. Identification to species is easy although there is a potential for misidentification with the closely related *Hexanchus griseus*. The characters used to distinguish these two species are macroscopic and non-experts are likely to be able to identify them with relative ease. No records from the ABNJ. Given its distribution just outside the CA, it is expected that most *Hexanchus* records are of *H. griseus*.

Overall, the likelihood of accurate species identification is high and the species should be included in an ID tool at the species level, with notes on its distribution outside the CA.



Two types of dichotomous keys

Key to Squaliformes families (classical key for taxonomists or trained scientists/observers)

- 1a.** Teeth similar in both jaws, oblique, blade-like, with single smooth-edged cusp, without cusplets; caudal fin without subterminal notch..... **Squalidae**
- 1b.** Teeth dissimilar in both jaws, with prominent single cusp, possibly flanked by lateral cusplets; caudal fin with subterminal notch..... **2**

Key to Squaliformes families, genera and species that occur or are likely to occur in the CA of NPFC (adjusted for users with limited training)

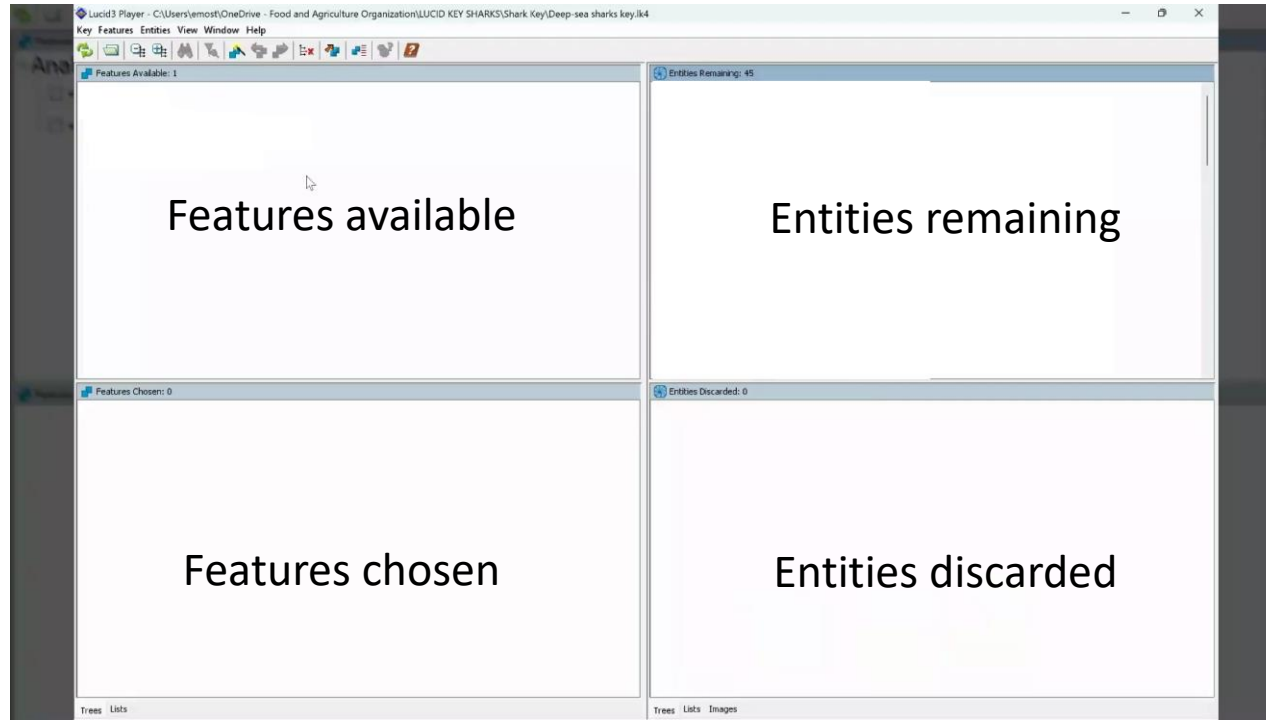
- 1a.** Caudal fin without a subterminal notch..... **Squalidae (Squalidae unid.)**
- 1b.** Caudal fin with a subterminal notch..... **2**

New style digital key

1. Classical keys are not used properly by observers (most of the time)
2. Most observers jump to page xx and match up a photo with the specimen
3. A digital key can be made from a classical key
4. A digital key can combine 1 and 2, and is more natural to use



New style digital key



4 panes on a screen



Features Available: 1

Anal fin

- ☐  Present
- ☐  Absent





Features Chosen: 0

Entities Remaining: 45

Hexanchiformes


Hexanchidae

  Heptranchias perlo

  Hexanchus griseus

  Hexanchus nakamurai

Chlamidoselachidae (Frisled sharks)


 Chlamydoselachus sp. (Frisled shark)

Echinorhiniformes (Bramble sharks)

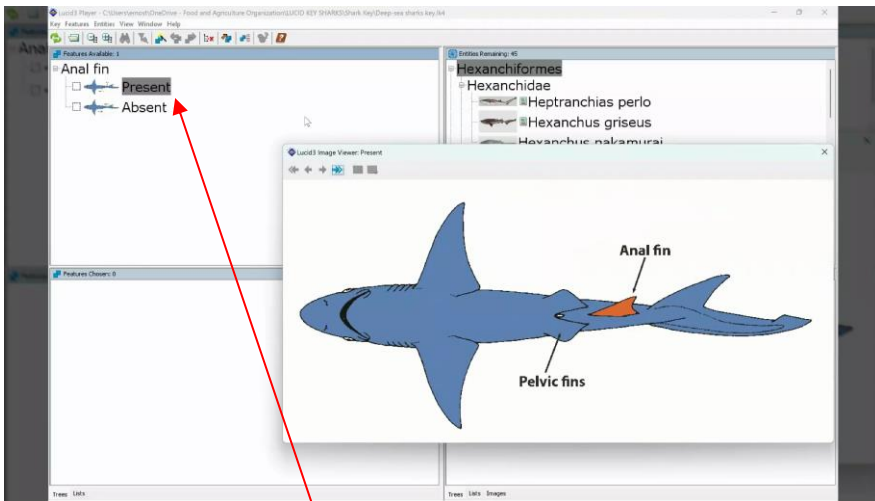
 Echinorhinus brucus (Bramble shark)

Squaliformes (Dogfish sharks)

Squalidae (Dogfish sharks)

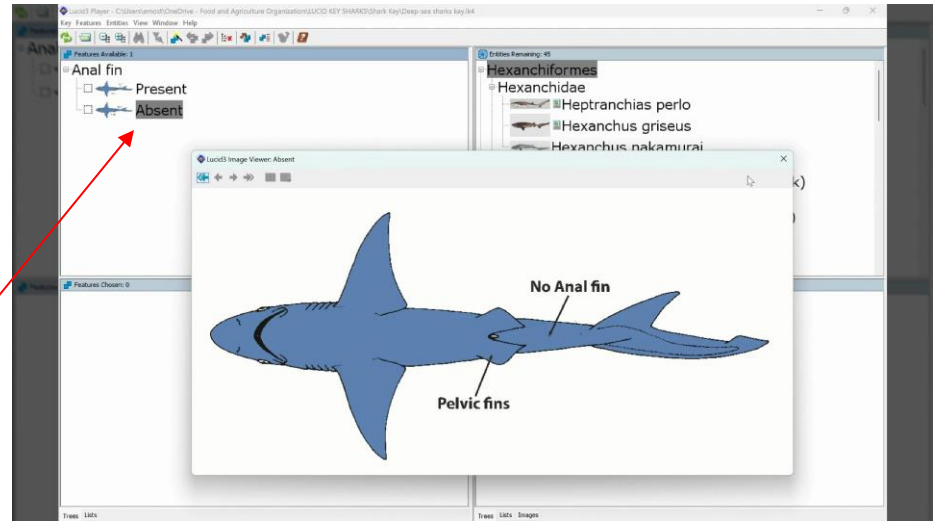
 Squalus sp.

Entities Discarded: 0



Anal fin present

Anal fin absent



Lucid3 Player - C:\Users\emost\OneDrive - Food and Agriculture Organization\Lucid KEY SHARKS\Shark Key\Deep-sea sharks key.lk4

Key Features Entities View Window Help

Features Available: 4

- Anal fin
 - ☒ Present
 - ☐ Absent
- Number of dorsal fins
 - ☒ 1
 - ☐ 2
- Number of gill slits
 - ☐ 5
 - ☒ 6
 - ☐ 7
- Body shape

Features Chosen: 3

- Anal fin
 - ☒ Present
- Number of dorsal fins
 - ☒ 1
- Number of gill slits
 - ☒ 6

Entities Remaining: 6

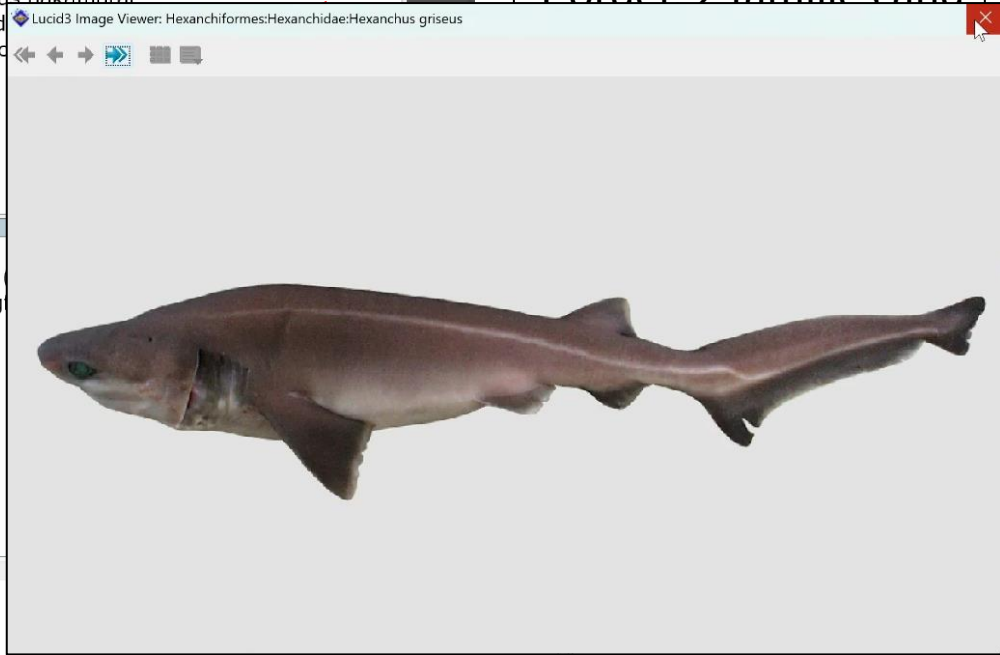
- Hexanchiformes
 - Hexanchidae
 - Hexanchus griseus
 - Hexanchus nakamurai
 - Chlamidoselachidae
 - Chlamydoselachus

Entities Discarded: 39

- Hexanchiformes
- Echinorhiniformes
- Squaliformes (Dogfish)
- Carcharhiniformes
- Lamniformes

Trees Lists Images

1 order 2 families and



Click 3 features photo and image comes up with some key features (not shown here)



Food and Agriculture
Organization of the
United Nations



General Fisheries
Commission for
the Mediterranean



The Common Oceans Deep-sea fisheries project brings together a global partnership dedicated to advance responsible deep-sea fisheries management and biodiversity conservation in areas beyond national jurisdiction (ABNJ). Funded by the Global Environmental Facility (GEF), led by the United Nations Food and Agriculture Organization (FAO), and executed by the General Fisheries Commission for the Mediterranean (GFCM), it works in collaboration with the seven deep-sea RFMOs, private sector, national and international organizations.

IN COLLABORATION WITH:



PARTNERSHIP FOR SUSTAINABILITY AND BIODIVERSITY
IN THE OCEAN AREAS BEYOND NATIONAL JURISDICTION