

Example Species Structure: FishWatch-AsiaPacific

WOLF HERRINGS Chirocentrus dorab Forsskål (1775) and C. nudus Swainson 1839

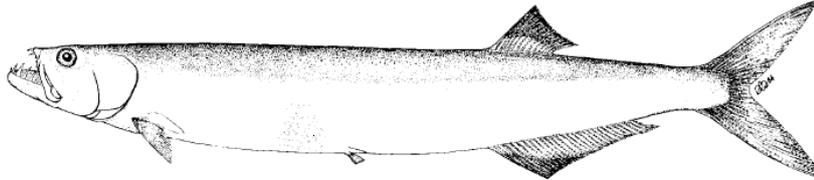
Family Chirocentridae, Order Clupeiformes

Phylum Chordata

Common names

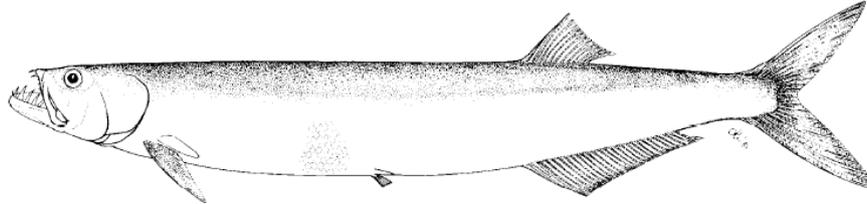
Chirocentrus dorab Forsskål 1775: dorab wolf herring (FAO, Australia), blackfin wolf-herring, parang-parang (Indonesia, Malaysia, Philippines), ikan parang (Malaysia), Nga Da Lwel (Myanmar), sego (Solomon islands), voivoi (Fiji)---<many names in FishBase Common Names database>

Comment [S1]: Not clear in fishBase which ones are the official common names. In case of Australia, the one given is the official common name.



- Chironcentrus nudus Swainson 1939: whitefin wolf herring (FAO, Australia), parang, parang-parang (Indonesia, Malaysia, Philippines), samak abu sayf (Saudi Arabia),...<many names in FishBase common names database>

Comment [S2]: ditto



Common group name wolf herrings. Only two species known in the genus.

DESCRIPTION

Wolf herrings are long, highly laterally compressed fishes in the same group as herrings, sardines, pilchards, sprats, shads and anchovies. Wolf herrings are common coastal fish from the western Pacific (Solomon Islands) to east Africa. They are often obvious to seafarers due to their habit of skipping, head up, across water surface. They are caught by coastal gillnets in Southeast Asia, South Asia, Middle East, Pacific Islands and

USES AND MARKETS

Mainly domestic markets. Little traded internationally. Many small bones but good quality meat. Sought after for use in derived seafood products such as fish balls and fish crackers where they are usually preferred to other species due to the flesh texture and taste.

Australia: used as bait for gamefishing.

Indonesia:

India: fetches good price in market; sold mostly in fresh condition at around Rs. 120 per kg; some dried

Malaysia: in fish balls (*sai-to, sai toh*) for use in soup, noodle dishes; in fish crackers (*keropok*); barbeque fish (*ikan bakar*).

Philippines:

Thailand:

Vietnam: used as fresh fish, canned, to make sushi, kipper style, dried and in fish sauce.

Pacific Islands:



Source: Best recipes, food, travel...Sai to fish balls in soup (Malaysia)

SHORT FACTS ON TRADE

- .
- The species are not well distinguished in official statistics, and some countries such as Vietnam, Myanmar and Bangladesh do not register landings although the species is landed.
- Stock assessments are not available.

NUTRITION FACTS

None

ARE WOLF HERRINGS SUSTAINABLY PRODUCED?

Wild harvest fishery:

<General overview>

<Country overviews>

Australia

- gamefish bait (rod and hook)
-

India

Indonesia

Malaysia

- Coastal gillnet fisheries in Malacca Straits, east coast peninsular Malaysia and off eastern Malaysia (states of Sarawak, Sabah)

Myanmar

Thailand

Vietnam <not recorded in statistics>

- *Chirocentrus dorab* caught throughout the year in small quantities. *C. nudus* caught only

in certain (unspecified) seasons and in small quantities (Nyuyen Huu Phung 2001)
1. Country page
State of the stock None available in any country.
Time trends in state of the stock None available in any country.
Aquaculture
None
Management <perhaps this could be a subhead under each of wild harvest and aquaculture sections?>
Wolf herrings are caught in multispecies fisheries, many small scale and serving local market needs. No management measures specifically directed to wolf herring in any country <needs checking>.
1. Country page
2.
....
Environmental effects of the fishery
1. Country pages if sufficient information, otherwise not
ARE WOLF HERRINGS TRADED FAIRLY?
Social and Economic Factors in the Supply Chain for Wolf Herrings
Throughout Southeast Asia, used in locally made fish products mainly produced in household or small local factory processes.
1. Malaysia
Source: blogs e.g., rainstorm <get link>, various newspapers.
Pre-production services None specific to wolf herrings
Production and harvest Coastal gillnets, trawls <link to Malaysia fishing gear><photo>
Post-harvest processing Sai-toh (fish balls), kerepok (parang fish crackers) and kerepok lekor (fish sausage???) production mainly conducted by small scale family businesses and household enterprises, especially on the east coast Peninsular Malaysia. Considered the most suitable species for each of these products and derived products priced above those of, e.g., shrimp and other fish species crackers.

Source: rainstorm blog. Small enterprise, Kelantan, Malaysia



Source: rainstorm blog. Parang keropok (wolf herring fish cracker – fried and unfried)

Sales and marketing

Local advertising. Within country sales important, e.g., through local stalls and packaged in city stores and markets.

Photo: M. Williams: Roadside keropok lekor stalls, Terengganu Malaysia



Gender equity issues

Most labour in household production and small enterprises is provided by women; women usually tend roadside stalls. Number employed unknown.



Source: rainstorm blog. Kelantan: women packing keropok (fish crackers) for sale.

Trade and market regulations

None, little traded internationally

Certificates

None. Product identified as from 'parang' or 'parang parang' fish.

2. Vietnam

...

***Chirocentrus dorab* (Forsk., 1775)**

Vietnamese Name. Cá rựa, Cá lanh

Good meat but too many fine bones, usually used as fresh fish, canned, to make sushi, kipper syle, or dried.

***Chirocentrus nudus* Swainson, 1839.**

Vietnamese Name: Cá rựa hàm dài, Cá lanh hàm dài

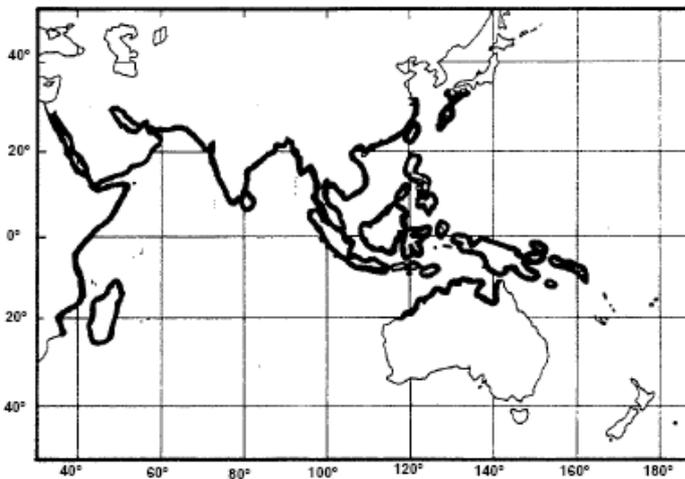
Good meat, used as fresh fish, canned, to make sushi, kipper style, dried and also to make fish sauce.

(Nugyen Huu Phung 2001)

BIOLOGY AND ENVIRONMENT

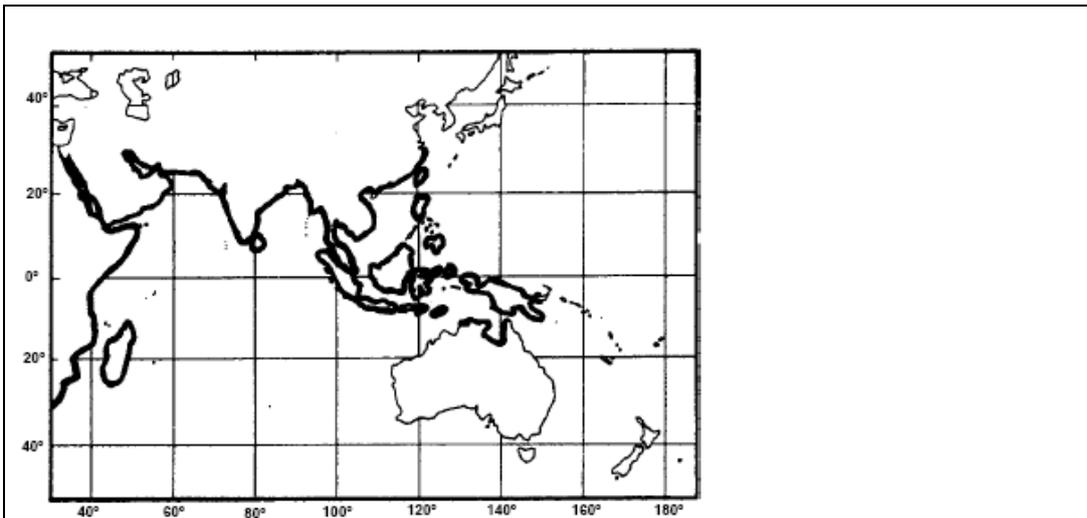
Geographic range and countries

Chirocentrus dorab: Throughout warmer coastal waters of the Indo-Pacific, from Arabian Gulf, Red Sea, east African coast south to Durban, eastward to Japan, Philippines and south to northern Australia. East to Solomon Islands, New Caledonia (FishBase), Fiji (Rawlinson et al 1994). Records may also include *C. nudus* (Whitehead 1985).



Map: Whitehead 1985

Chirocentrus nudus: similar to and often not distinguished from that of *C. dorab*. Records from Mombasa, India (east and west coasts), Sri Lanka, the Indo-Australia archipelago and Guangzhou (Canton) (Whitehead 1985).



Map: Whitehead 1985.

Habitat (both species, apparently throughout range)
Pelagic, inshore including estuaries, lagoons

Life span
13 yrs (*C. nudus*, India) (Luther 1985a)

Food (both species)
Specialized nekton (swimming/floating) feeders, exclusively on fish, fish eggs and larvae (Blaber et al 1990, Ali et al 1993).

Growth rate
Females faster growing than males; fished mainly ages 4-6 yrs (*C. nudus*, India, SE region 1970s?) (Luther 1985a)

Max size
C. nudus (India): females 83cm, males 67cm. (1970s?).

Reaches maturity
SE India 36-37cm TL for females (both spp); 22-23 cm males (*C. nudus*); 27-28 cm *C. dorab*..

Reproduction
SE India, 1970s? *C. nudus* spawns once per year, *C. dorab* approx. twice per year

Spawning season
SE India <differs between spp – details to be added – annual cycle for *C. nudus*; year round for *C. dorab*>

Spawning grounds
SE India: In more oceanic waters of Gulf of Mannar (both spp)

Migrations
Not known

Predator/prey interactions
Predators of other fish, eggs, fish larvae; preyed on by sharks (FishBase ref)

Commercial or recreational interests
Highly commercial and fished throughout range. In Australia, used as bait for gamefishing; in Solomon Islands, used as live tuna bait

Ecosystem role
Not known. High trophic level predator. <Check Silvestre et al re abundance shifts>

CATCH/PRODUCTION STATISTICS <will need database links>

Total Asia-Pacific:
- 2006 (FAO): 75,312 t (both wolf herring species) <to be updated to 2007>
- Max landings 1950-2007: <to be added>

India:

<ul style="list-style-type: none"> - 2007 (FAO): 25,641 t - Max. landings 1950-2007: 30,818 (1990) <p>Indonesia:</p> <ul style="list-style-type: none"> - 2007(FAO): 23,160 t - Max. landings 1950-2007: 41,832 (2003) <p>Iran:</p> <ul style="list-style-type: none"> - 2007 (FAO): 4837 - 6,302 t (2005) <p>Malaysia:</p> <ul style="list-style-type: none"> - 2007 (FAO) 4,864 t - Max. landings 1950-2007: 6,464 (1986) <p>Pakistan:</p> <ul style="list-style-type: none"> - 2007 (FAO): 1203 t - Max. landings 1950-2007: 5625 t (1977) <p>Philippines:</p> <ul style="list-style-type: none"> - 2007 (FAO): 327 t - Max landings 1950-2007: 9,933 t (1990) <p>Singapore:</p> <ul style="list-style-type: none"> - 2007 (FAO): 61 t - Max landings 1950-2007: 900t (1960s) <p>Thailand:</p> <ul style="list-style-type: none"> - 2007 (FAO): 10,311 t - Max landings 1950-2007: 15,987 (1995) <p>Vietnam <not recorded in statistics></p> <p>Pacific Island Countries</p>
SCIENTIFIC RESEARCH AND DEVELOPMENT
1. Country pages if sufficient information, otherwise not
LINKS
www.fishbase.org
REFERENCES <could all be stored in a reference database and linked to reference in text on various pages>
<p>Ali, T.S., A.R.M. Mohamed and N.A. Hussain 1993. Trophic relationships of the demersal fish assemblage in the northwest Arabian Gulf, Iraq. <i>Asian Fisheries Science</i> 6:255-264.</p> <p>Blaber, S.J.M., D.A. Milton, N.J.F. Rawlinson, G. Tiroba and P.V. Nichols 1990 Diets of lagoon fishes of the Solomon Islands: Predators of tuna baitfish and trophic effects of baitfishing on the subsistence fishery. <i>Fish. Res.</i> 8:263-286.</p> <p>Luther, G. 1985a. Age and growth of the fishes of the genus <i>Chirocentrus</i> Cuvier. <i>J. mar.biol. Ass. India</i> 27:50-67.</p> <p>Luther, G. 1985b. Studies on the biology and fishery of the fishes of the genus <i>Chirocentrus</i> Cuvier I. <i>Taxonomy. Matsya</i> 11: 46-55.</p> <p>Luther, G. 1985c. Studies on the biology and fishery of the fishes of the genus <i>Chirocentrus</i> Cuvier IV: Reproduction. In: P.S.B.R. James (Ed.) <i>Recent Advances in Marine Biology. To-day and Tomorrow's Printers and Publishers, New Delhi</i>, pp. 439-514.</p> <p>Nguyen Huu Phung (2001) <i>Fauna of Vietnam</i>, Vol. 10. Science and Technics Publishing House, Hanoi, Vietnam, 330p.</p> <p>Rawlinson, N.J.F., Milton, D.A., Blaber, S.J.M., Sesewa, A., and Sharma, S.P. 1994. A survey of</p>

the subsistence and artisanal fisheries in rural areas of Viti Levu, Fiji. ACIAR Monograph No. 35, 138p.

Whitehead, P.J.P. 1985. FAO species catalogue. Vol. 7. Clupeoid fishes of the world (suborder Clupeoidei). An annotated and illustrated catalogue of the herrings, sardines, pilchards, sprats, shads, anchovies and wolf-herrings.

LESSONS LEARNED FROM DEVELOPING PILOT SPECIES PRESENTATION

1. **Data availability – LOW:** despite ubiquity of species and its desirability in the market, few studies available. Series of studies by G. Luther in India are the exception and reveal the differences between the species. Extent of differences in biology across range not known. Extent to which biological characteristics e.g., age and size at maturity, have changed since some of the earlier studies were done is not known. Little is available on fishing gears used.
2. **Network of experts?** Appear to be few current experts. G. Luther has retired. Others need to be sought also.
3. **Grouped or single species presentation?** The two species should be **grouped** because they are caught and marketed in indistinguishable ways. Only *Chirocentrus dorab* is recorded in the FAO statistics, and in some countries, e.g., Vietnam, not even that species. Catches are certainly mixed throughout the range.
4. **Country differences:** Wolf-herrings appear to be valued for their flesh throughout their range and are used in different forms and products in different countries. Supply chains not studied but at least some countries are likely to have specialized supply chains due to the specialty uses of the fish, e.g. Malaysia. Different country presentations needed for market use due to the country differences.