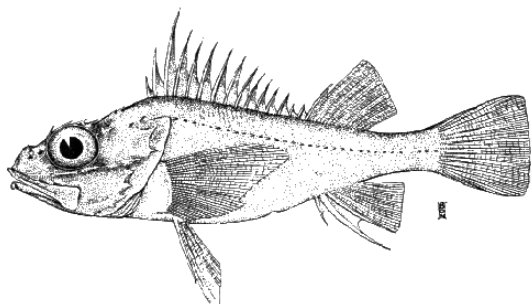


Sebastolobus alascanus



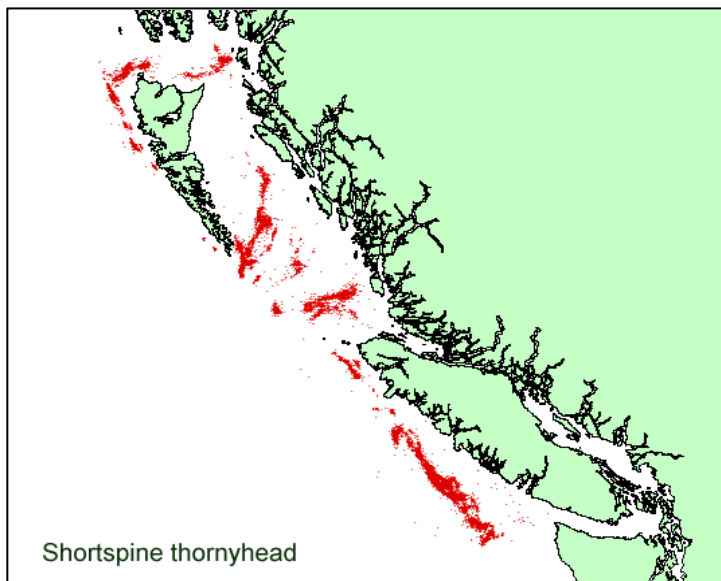
Sebastolobus altivelis

Thornyheads (Shortspine and Longspine) British Columbia Coast

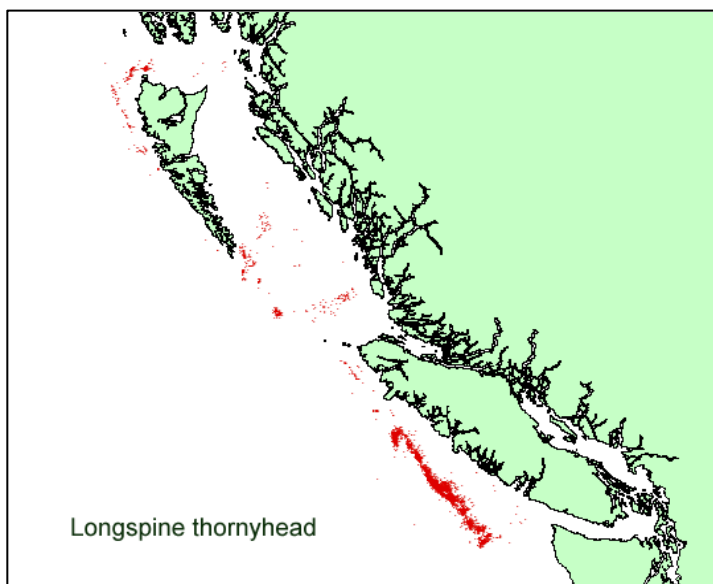
Background

Longspine thornyheads (*Sebastolobus altivelis*) and shortspine thornyheads (*S. alascanus*) are increasingly important commercial species since the early 1980s in the British Columbia trawl fishery. The largest catches are taken in deep waters off the southwest coast of Vancouver Island. The two species overlap in distribution and have similar appearances. Unlike many other rockfish species, thornyheads are not found in aggregated schools but instead exhibit a more uniform distribution over soft sediments. They are often found near rocks or other high-relief structures.

Longspine thornyheads occur from the southern tip of Baja California to the Aleutian Islands at depths of 370 to 1,600 metres. Shortspine thornyheads are found from northern Baja to the Bering Sea and as far as the Commander Islands, north of Japan, at depths of 90 to 1,460 metres. Shortspine thornyheads migrate into deeper water as they increase in size but this behaviour has not been observed for longspines.



Shortspine thornyhead



Longspine thornyhead

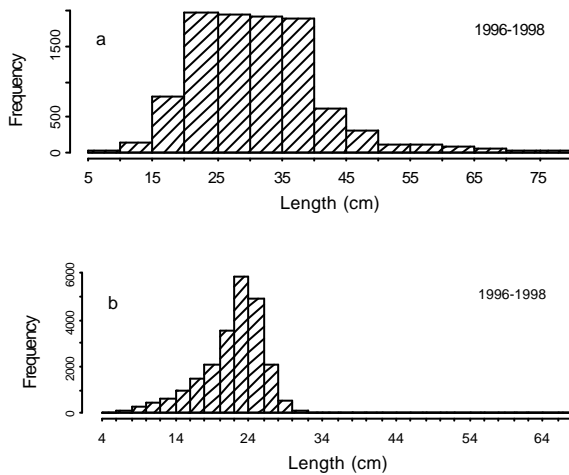
Canadian trawl catch locations of thornyhead in British Columbia, 1996-98.

Adult longspine thornyheads can reach lengths of around 35 cm while shortspines can reach lengths of 70 cm or more. Shortspines are difficult to age but are thought to reach ages of at least 62 and possibly more than 100 years. Longspines are not as difficult to age and have been estimated to reach ages of approximately 50 years.

The length at which 50 % of the fish are sexually mature

is about 23 cm for shortspines and 16 cm for longspines. Both species reach 50 % maturity at approximately 12 years. Both species spawn in the spring and produce a jellied egg mass consisting of between 20,000 to 450,000 eggs. The egg mass floats to the surface where final development and hatching occurs. The larval and pelagic juvenile phases last 18-20 months for longspine thornyheads and 14-15 months for shortspines. Juvenile longspines settle on the continental shelf slope at depths of 600 to 1,200 metres, while juvenile shortspines settle at depths of approximately 100 metres then migrate into deeper water as they grow.

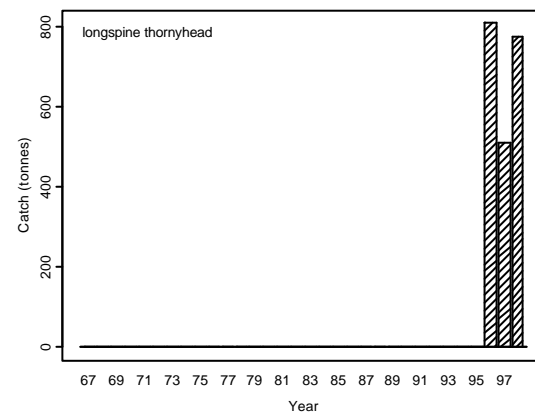
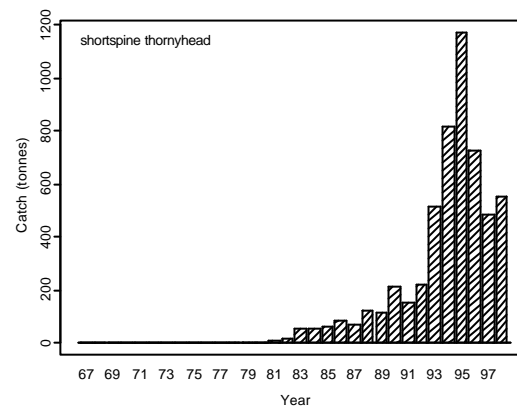
Thornyheads are considered a specialty fish, used whole for ceremonies and frozen for high-end users in Japan. Fish quality is essential and the short (3-day) holding time, combined with limited port access, previously made fishing for thornyheads uneconomical and impracticable. With the increase in frozen at sea (FAS) technology within the trawl fleet and the implementation of individual vessel quotas, fishermen can now specialize in these species without forgoing other fishing opportunities. The price for fresh thornyheads in 1999 was approximately \$0.80-\$1.30/lb and up to \$4.00/lb for FAS fish, intensifying directed fishing effort.



Frequency distributions in B.C. of (a) shortspine thornyhead length: sample size = 10,080 (99% observer, 1% port landings), minimum = 6 cm, maximum = 80 cm, mean = 32 cm; and (b) longspine thornyhead length: sample size = 22,963 (100% observer), minimum = 5 cm, maximum = 68 cm, mean = 22 cm.

The Fishery

Longspine and shortspine thornyheads are taken almost exclusively by trawl gear. Longspines, considered to be tolerant of low oxygen levels, are found in deeper water than shortspines and are fished primarily off the west coast of Vancouver Island at depths of between 700 and 1,000 metres. Shortspine thornyheads are fished along the entire coast in waters between 150 and 550 metres deep. The coastwide trawl catch of thornyheads has increased more than 10-fold since the mid-1980s, spurred by foreign market demand.



Coastwide Canadian trawl catch of longspine and shortspine thornyhead from 1967 to 1998. Prior to 1996, shortspine and longspine catch statistics were combined. Data for 1998 are not complete.

On the west coast of Vancouver Island, longspine thornyheads account for more than 70 % of the total thornyhead catch, mainly due to the availability of deep-water trawl locations.

Catches have been steadily increasing in recent years, however, recent analyses indicate a possible decline in catch per unit effort in this area. Biomass indices in the neighbouring U.S. regions to the south have been declining. Throughout the rest of the coast, longspine thornyhead catches are relatively minor.

Catches in Goose Island, Mitchell's, and Moresby Gullies of Queen Charlotte Sound and Hecate Strait, consist almost entirely of shortspine thornyheads (about 90 %). Catches declined between 1996-97 but these declines may reflect the change in management that coincided with the introduction of individual vessel quotas (IVQs) in 1997.

Trawlable grounds off the west coast of the Queen Charlotte Islands are limited by severe topography and catches are relatively low. Shortspine thornyheads make up almost all of the thornyhead catch possibly due to the lack of deep-water trawl sites. However, it is also possible that deepwater trawling for longspines may increase in this area if it becomes economically feasible. Declines in catches between 1996 and 1997, are likely due to changes in management brought about by the IVQ system.

Resource Status

Recent downward trends in catch per unit effort have highlighted the need for a more comprehensive assessment of these species. However, accurate catch-at-age data have been unavailable due to the difficulty in obtaining reliable age data by methods now in use. Additionally, research surveys have never focused on thornyhead stocks but have peripherally assessed these species while targeting the more traditional commercial stocks like Pacific ocean perch.

Outlook

Quantitative biomass surveys have not been conducted for thornyheads and there is much uncertainty regarding stock status. Downward trends in catch per unit effort suggest that current

levels of harvest may be too high, at least in some areas of the coast.

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ISSN 1480-4913 (for English series)

ISSN 1480-4921 (for French series)

La version française est disponible à l'adresse ci-dessus.



Correct citation for this publication

DFO, 1999. Thornyheads (Shortspine and Longspine) British Columbia Coast. DFO Science Stock Status Report A6-12 (1999).