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Fisrt Record of a Carangid Fish, *Trachurus murphyi* from New Zealand

Shigeyuki Kawahara, Yuji Uozumi
and Harumi Yamada

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Stephenson and Robertson (1977) confirmed two species of jack mackerels in New Zealand waters: *Trachurus declivis* and *T. novaezelandiae*. Both species are common in northern New Zealand waters, and only the former extends its distribution southwards to Stewart Island. Recently, a few unusually large jack mackerel were found among *T. declivis* caught in southern New Zealand waters. They seemed to be *T. murphyi*, which is known to occur only off Chile and Peru (Shaboneyev, 1980).

To clarify taxonomy and distribution of the unfamiliar jack mackerel, samples were collected during the Japan/New Zealand joint trawl survey by the R/V *Shinkai Maru* in 1986. The survey covered southern and eastern New Zealand waters excluding the Campbell Plateau. Specimens of the unfamiliar jack mackerel were compared with the description for *T. murphyi* by Berry and Cohen (1974) who reexamined the putative type specimen of Nichols (1920). Comparative specimens from Chile were also measured to supplement their description which is insufficient for proportional measurements. Methods for counts and measurements followed Berry (1968) basically. Fused scales at the posterior end of lateral line were not counted.

Finally, specimens of the unfamiliar jack mackerel were identified with *T. murphyi*, which is new to New Zealand waters. All the specimens are deposited at Far Seas Fisheries Research Laboratory (FSFRL).

Trachurus murphyi Nichols, 1920

(Japanese name: Chiri-ma-aji)

(Fig. 1)

Material examined. 10 specimens, 194 mm and 480–556 mm in standard length (SL), all caught with bottom trawl nets: FSFRL-EM210, EM211, EM213 and EM214, 47°09′S, 168°53′E, 118 m deep, 6 June 1986; EM221, 44°18′S, 176°02′E, 160 m deep, 28 June 1986; EM231–EM233, 43°47′S, 177°20′W, 199 m deep, 6 July 1986; EM128, 44°09′S, 175°47′W, 137 m deep, 7 July 1986; EM222, 43°32′S, 175°10′E, 162 m deep, 19 July 1986.

Description. Counts and proportional measurements of specimens from New Zealand are given in Table 1, along with those for comparative specimens from Chile and the description for *T. murphyi* by Berry and Cohen (1974).

Body elongate and slightly compressed. Eye moderate with well-developed adipose eyelid. Posterior edge of upper jaw extending to below anterior margin of eye. Minute teeth on jaws, vomer, palatines and tongue. Tip of pectoral fin extending to above two detached spines of anal fin. Scales on curved part of lateral line enlarged and scute-like. Dorsal accessory lateral line terminating below 2nd to 5th of dorsal soft ray.

Color in fresh: body dark blue dorsally, silvery-white ventrally. A black spot on upper posterior margin of opercle. Dorsal, caudal, and pectoral fins dusky. Pelvic fins pale. Anal fin pale anteriorly and dusky posteriorly.

Remarks. Specimens from New Zealand agreed well with the description for *T. murphyi* by Berry and Cohen (1974), and with the comparative spec-

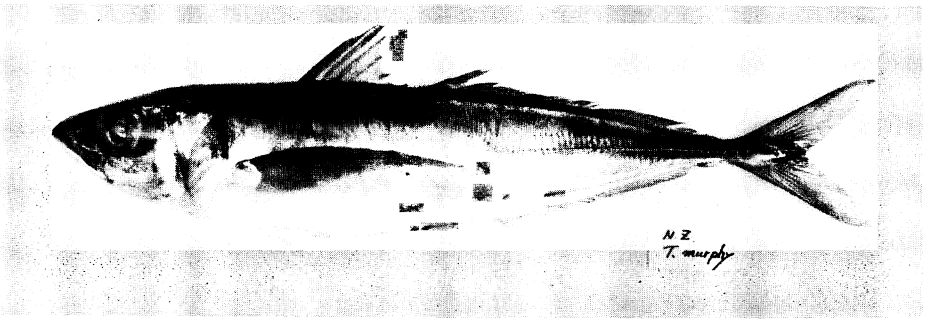

Fig. 1. *Trachurus murphyi* from New Zealand, FSFRL-EM128, 496 mm SL.

imens from Chile. Our specimens from both New Zealand and Chile had slightly lower height of lateral line scales in the curved part. We regard the difference as an intraspecific variation because Shaboneyev and Kotlyar (1979) observed such level of variation in the height of lateral line scales of *T. murphyi*. While there is a controversy whether *T. murphyi* is a species or a subspecies of *T. symmetricus* (Kotlyar, 1976), we adopted tentatively the former opinion in this paper. Finally, we concluded that the specimens from New Zealand are *T. murphyi*.

Aside from being known as one of the largest jack mackerels in the world, *T. murphyi* can be distinguished from the other two jack mackerels in New Zealand waters by having more lateral line scales. Our specimens from New Zealand range from 48 cm to 56 cm in SL except EM233 (19 cm). Although the maximum SL reported is 51 cm for *T. declivis* and 40 cm for *T. novaezelandiae* (Robertson, 1978; fork length is used in his paper), such large ones are rare.

During the survey, *T. murphyi* was caught on the continental shelf south of South Island, on Mernoo and Veryan Banks of Chatham Rise, and around the Chatham Islands. These locations are in and around the Subtropical Convergence which passes from south-west of New Zealand, northeastwards along the east coast of South Island and eastwards along the Chatham Rise

Table 1. Counts and proportional measurements of *Trachurus murphyi* from New Zealand and Chile, compared with those by Berry and Cohen (1974). * Two detached spines excluded.

Characters	Specimens from New Zealand	Comparative specimens from Chile	Description by Berry and Cohen (1974)
Number of specimens	10	10	17
Standard length (mm)	194, 480–556	263–536	94–552
Counts			
Dorsal fin rays	VIII-I, 32–35	VIII-I, 30–35	VIII-I, 30–36
Anal fin rays	II-I, 28–30	II-I, 26–30	II-I, 27–31
Pectoral fin rays	i, 21–23	i, 20–22	—
Pelvic fin rays	I, 5	I, 5	—
Lateral line scales (curved+straight)	51–54+44–52 =95–106	49–56+43–54 =93–106	51–56+41–50 =94–106
Gill rakers (1st arch; upper+lower)	16–19+43–46 =60–65	16–18+41–46 =58–63	15–18+42–45 =58–63
Proportional measurements (‰ of SL)			
Body depth	178–223	193–216	205–240
Body width	110–135	114–149	—
Caudal peduncle depth	26– 31	26– 31	—
Head length	256–289	263–293	—
Upper jaw length	93–108	95–108	—
Snout length	78– 88	79– 89	—
Eye diameter	51– 67	54– 68	80–91 (<30 cm), 63 (>40 cm)
Snout to origin of 1st dorsal fin base	328–371	331–365	—
Snout to origin of 2nd dorsal fin base	501–531	498–538	—
Snout to origin of anal fin base*	584–639	591–624	—
Snout to pectoral insertion	262–304	273–293	—
Snout to pelvic insertion	306–356	306–333	—
Length of 1st dorsal fin base	160–183	161–182	—
Length of 2nd dorsal fin base	397–423	388–416	—
Length of anal fin base*	308–339	309–331	—
Length of pectoral fin	255–313	260–312	302–321 (>18 cm)
Length of pelvic fin	105–129	99–137	—
Height of lateral line scales (curved)	40– 46	40– 47	46– 56
Height of lateral line scales (straight)	43– 57	43– 50	48– 57

(Heath, 1985). Jack mackerels have not been reported from more southern areas such as the Campbell Plateau. On the other hand, *T. murphyi*, especially such large ones, have not been found from northern New Zealand waters. So, it seems that *T. murphyi* is distributed on the continental shelf and banks along the Subtropical Convergence in southern and eastern New Zealand waters.

Recently, similar large jack mackerel were caught in the open sea of the South Pacific, 40°S to 48°S and 125°W to 145°W, by drift gill nets (A. Yatsu, Japan Marine Fishery Resource Research Center, pers. comm.). Bailey (1987) also reported that juvenile jack mackerel, tentatively identified as *T. murphyi*, were found in the stomachs of albacore caught in the central South Pacific (36°S to 42°S and 148°W to 165°W). It is expected that *T. murphyi* is distributed over the huge area in the South Pacific between New Zealand and Chile.

Comparative material examined. 10 specimens from Chile, 263–536 mm in SL, all caught with mid-water trawl nets in open sea except for EL154 caught with a bottom trawl net: EL154, 40°41′S, 74°15′W, 200 m deep, 28 Dec. 1977; EM102, 39°07′S, 78°47′W, 110 m deep, 20 July 1983; EL887, 40°00′S, 78°45′W, 240 m deep, 22 July 1983; EM229 and EM230, 40°23′S, 78°50′W, 180 m deep, 28 June 1986; EM158–EM162, 40°44′S, 80°08′W, 260 m deep, 15 July 1986.

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(Far Seas Fisheries Research Laboratory, 5-7-1 Orido, Shimizu 424, Japan)

チリマアジのニュージーランドからの初記録

川原重幸・魚住雄二・山田陽巳

ニュージーランド水域からはミナミマアジ *Trachurus declivis* とニュージーランドマアジ *T. novaezelandiae* の2種類のマアジがこれまで報告されている．1986年の日本・ニュージーランド共同のトロール調査で，チリ・ペルー沖にのみ分布するとされるチリマアジ *T. murphyi* が漁獲された．本種はより多くの側線鱗を持つことでニュージーランドに分布する他の2種類のマアジと区別できる．また，世界中のマアジ類のなかで最も大型となることが知られており，得られた標本の多くも他の2種類のマアジの最大体長を越えた．今回の調査で南島南方の大陸棚，チャタム海膨上の浅み，及びチャタム島周辺で漁獲されたことから，本種は南島の南からチャタム海膨上にかけて形成される亜熱帯収束線に沿って分布すると考えられる．最近，同一種と思われるマアジが南太平洋の外洋域で採集されており，本種がニュージーランドからチリにかけての広大な水域に分布している可能性が高い．

(424 静岡県清水市折戸 5-7-1 遠洋水産研究所)