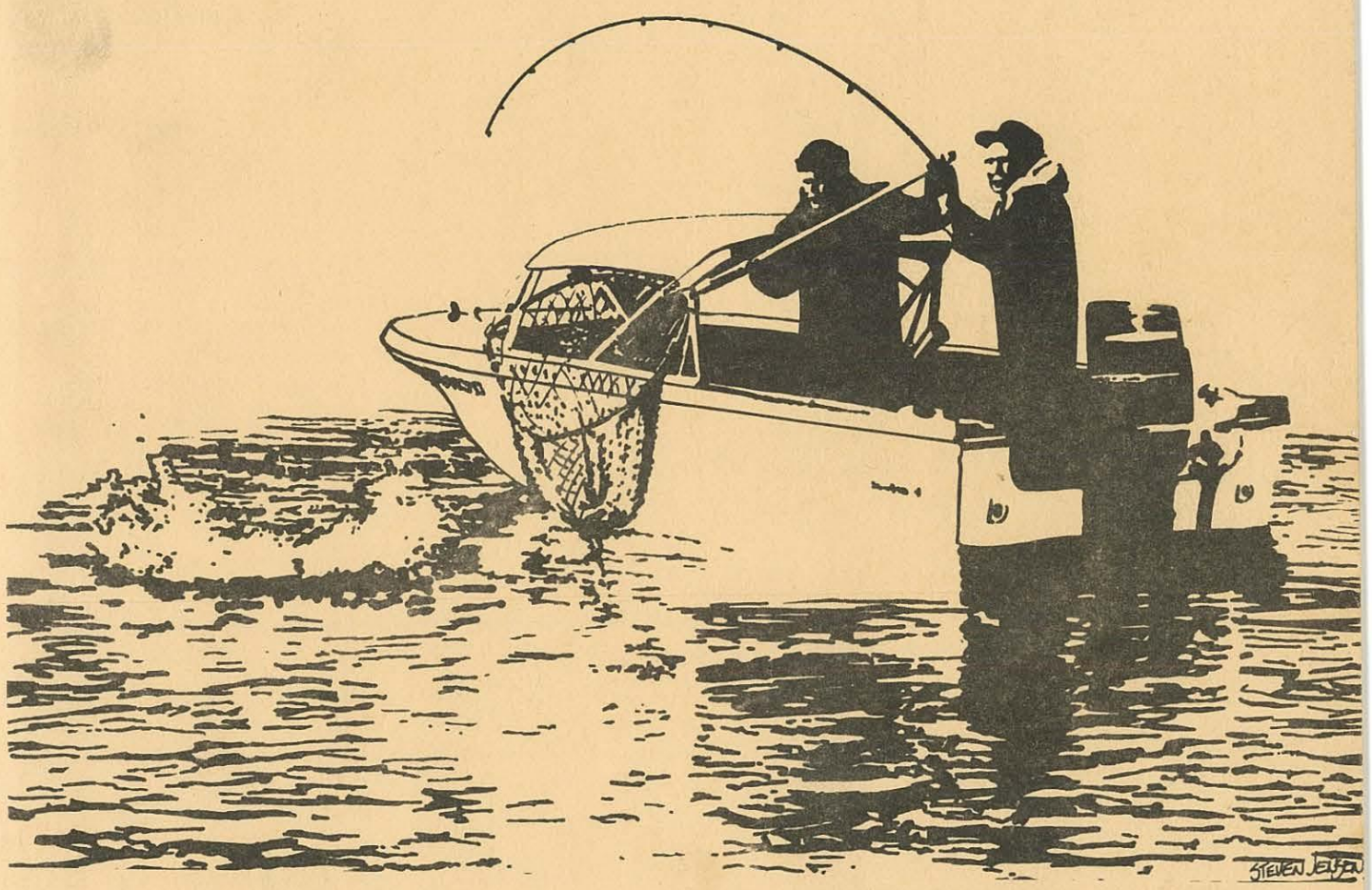
Kevin Bailey

Recreationally Important Marine Fishes of Puget Sound, Washington

by

Percy M. Washington, Fishery Research Biologist



NATIONAL OCEANIC ATMOSPHERIC ADMINISTRATION
National Marine Fisheries Service
Northwest and Alaska Fisheries Center
2725 Montlake Boulevard East
Seattle, Washington 98112

May 1977

Northwest and Alaska Fisheries Center Processed Report*

RECREATIONALLY IMPORTANT MARINE FISHES OF PUGET SOUND, WASHINGTON

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U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northwest and Alaska Fisheries Center
Resource Ecology and Fishery Management Division

*This report does not constitute a publication and is for information only. All data herein are to be considered provisional.

ABSTRACT

Thirty-four species of non-salmonid fishes were determined to be of recreational importance in Puget Sound, Washington. A review of the literature provided such information as local names, physical features used in their recognition, world and Washington state distribution, habitat, utilization, and size. Additional information on distribution of Puget Sound fishes, eating qualities, and baits and lures were gathered during NMFS-Marine Recreational Fisheries surveys (1973-76) and was added to provide a handy guide to recreational marine fishery resources.

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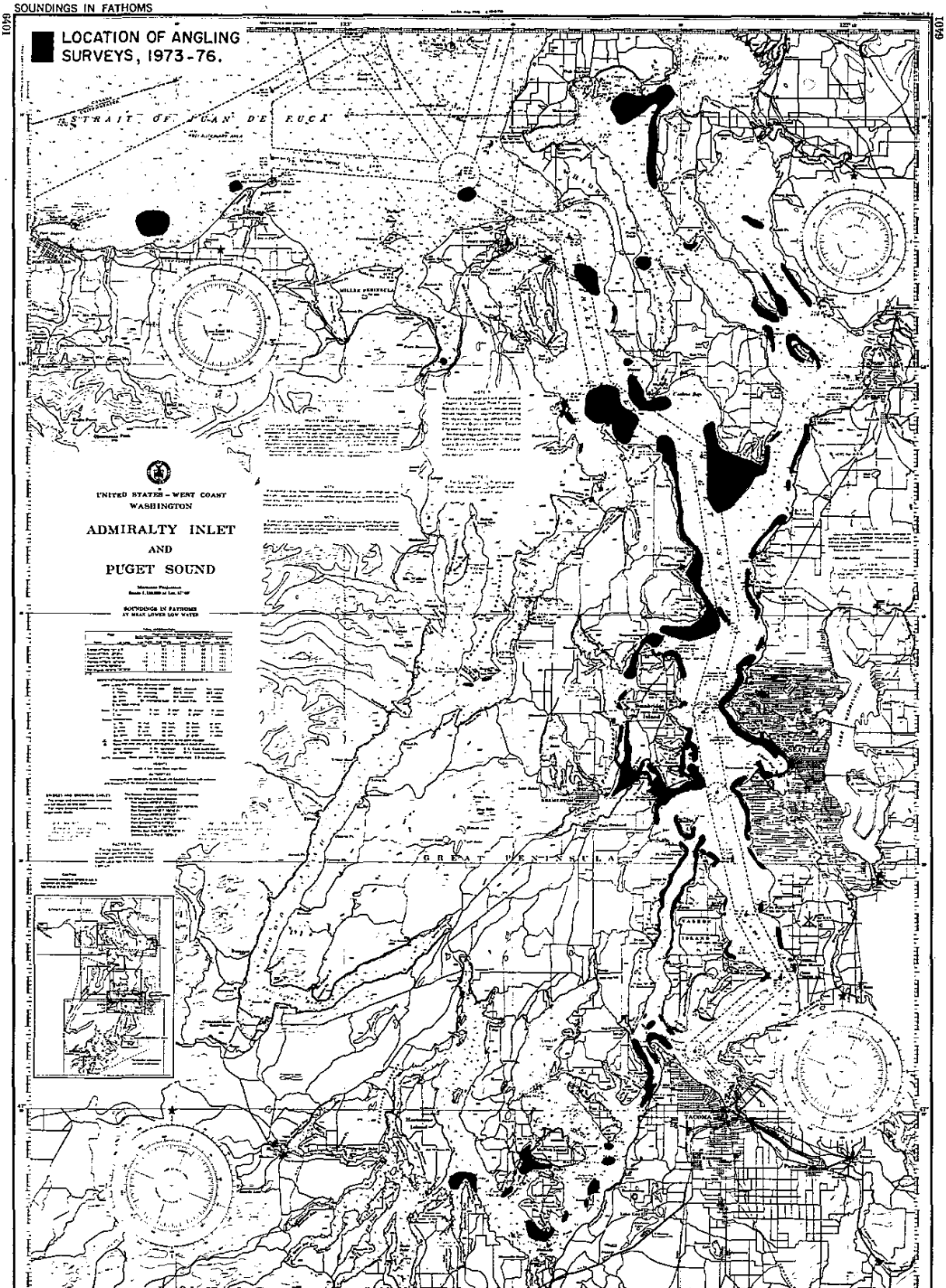


Figure A. Location of NMFS Marine Recreational Fisheries angling surveys in Puget Sound, Washington, 1973-76.

INTRODUCTION

While numerous marine species have been the object of intensive recreational fisheries along the California coast, few have received much attention from anglers in the Puget Sound region. Here, salmonids alone have the undivided attention of anglers--that is, until recently. In addition, of the 45 or so species in the Sound that may be of potential interest to anglers, few other than salmon are the target of Puget Sound commercial fisheries. Possibly for these reasons relatively little has been known in Puget Sound of the commercially lesser-important rockfishes and numerous other "bottom" fish species. That, however, is also changing. The Washington Department of Fisheries, the University of Washington, Fishery Research Institute, and the National Marine Fisheries Service have all given added emphasis to studies on marine fishes of potential recreational value. For example, a National Marine Fisheries Service (NMFS) program, begun in 1973, has now added considerable information on the relative abundance, distribution, and life history of the marine fish species of recreational importance.

This report constitutes a compilation of data on Puget Sound marine fishes of potential interest to anglers. Included is information on relative abundance, distribution, and life history of bottomfish species (as well as charts which inform the reader where to find them), compiled from MNFS survey records and from a review of fishery publications. In this report (for the purpose of brevity), Puget Sound is defined as the marine waters inside or east of a line drawn from Partridge Point on Whidbey Island to Point Wilson on Quimper Peninsula, and south of a line drawn from Strawberry Point on Whidbey Island to Utsalady Point

on Camano Island, and includes Possession Sound, Port Suzan, Saratoga Passage, Admirality Inlet, and Hood Canal (none of which have been included in the classical description of Puget Sound).

The term "known distribution" on the distributional charts is used simply as the known presence of a particular species in the designated locations. Under "Washington Distribution" in the text can be found covering information for other Washington State waters. A chart (Figure A) is provided to acquint the reader with the location and extent of NMFS Surveys; however, the only information available from the records for other surveys was the location of capture.

Author subjectivity was the main reason for species inclusion in this listing of recreationally important bottom fish. Sharks and skates, while of interest elsewhere, were not included due to the relatively high (by U.S. Food and Drug Administration standards) metal content of dog fish (the major shark in Puget Sound) and relatively low abundance of skates. Anadramonus species of salmonids, as well as sturgeon and shad which are anadramous rather rhan truly "marine" species also excluded. Granted, numerous salmonids spend a considerable portion of their life histories in marine environs; however, they have been extensively covered in numerous other works, including Haw and Buckley 1971, which deals primarily with salmon angling but does not touch on some of the species covered in this paper. Anchovy, herring, and the smelts as well as numerous other marine species are not dealt with in this paper due to the fact that capture usually entails dip netting or snagging, as these species are seldom taken on hook and line.

A number of guides for fishermen, divers, and fish viewers published within the past 6 years have a considerable overlap in content. All have in common that they include some of the same species and cover vast areas which include Puget Sound. During the course of our investigations, the one item that we found in these guides that has stood out most is the dissimilarities between Puget Sound and other coastal waters of the west coast of the United States and Canada. These dissimilarities include habitat, depth distribution and growth of certain species as well as the faunal composition of the area.

Common and scientific names are those provided by the American Fisheries Society (Bailey et al. 1970). A phylogenetic listing of the families and an alphabetical listing of names of species is given in Table 1. For each fish family a general statement is included which gives information on the family and methods I have successfully used to catch them. Information on baits and lures are included with each species. A plate with the photographs of each species in that family (in black and white due to the prohibitive costs of color reproduction) is included along with a description in the text under the heading "Recognization".

In addition, such topics as habitat, utilization (both commercial and recreational), size, (in pounds and inches with metric equivalents) eating qualities and literature cited and additional references are included for each species. These were added in hopes of making this a more complete reference work for Puget Sound anglers as well as others interested in fish and fishing.

GLOSSARY OF TERMS

Anadromous: a fish that spawns in fresh water and lives a portion of its life history in marine waters.

Anal fin: fin(s) between anus and tail along the mid ventral surface.

Anterior: front, toward the head.

Anus: vent of digestive tract.

Band: coloration oriented vertically or Dorso-ventrally, bar.

Barbel: a fleshy appendage usually on the head, whisker.

Blind side: the bottom, white, or non-eyed side of the flat fishes (sanddabs and flounders).

Caudal Fin: tail, Figure

Caudal Pedunele: extreme posterior portion of body that supports the caudal fin. Figures

Chicken: a reference to a Pacific halibut less than 40 pounds.

Dorsal: related to the back.

Dorsal fin: fin(s) between the head and the tail along the mid dorsal surface.

Eyed side: the top, colored, or eyed side of flat fishes.

Flap: a fleshy skin extention.

Gill cover (operculum): Flap protecting gills.

Jigging: a method of fishing which entails the repeated raising and lowering of the rod tip which correspondingly raises and lowers an artificial lure or lure bait combination.

Juvenile: developmental stage at which young fish resembles adult but has not yet matured.

Larva(l): developmental stage of young fish which does not resemble the adult (may include a yolk sac).

Lateral line: sensory organs on the sides which take the form of porelike openings in a series of modified scales.

Lower Jaw: (Mandible) the lower boney parts of the mouth.

Mooch: a method of fishing in which bait movement is attained by the actions of current, wind, and/or waves on a boat.

Nape: portion of the head/dorsal surface posterior to the eyes.

Ovoviviparous: the retention of fertilized eggs in body of the female where they develop to or almost to hatching; no real placenta is formed.

Posterior: rear, toward the tail.

Ray(s): (Fin rays) - fin support that can be branched and/or jointed (soft rays) or sharp and rigid (spinous or hard rays).

Spine: a sharp, rigid, protuberance on the head or body of some fish.

Stripe: coloration oriented on the anterior-posterior axis, or horizontally.

Upper jaw: (Maxillary) all or part of upper boney mouth part, usually with teeth.

Ventral: under surface, belly.

Vermiculated coloration: irregular, worm track like coloration.

Viviparous: producing live young (instead of eggs), term loosely applied to ovoviviparous species also.

Table 1.--A listing of the common and scientific names of the recreationally important marine fish other than sharks, rays, salmonids, and smelt in Puget Sound, Washington (Delacy et al. 1972; Buckley 1967, 1968, and Buckley and Satterthwaite 1970).

Codfishes and hakes - Gadidae

Pacific cod, Gadus macrocephalus

Pacific hake, Merluccius productus

Tom cod, Microgadus proximus

Walleye pollock, Theragra chalcogramma

Surfperches - Embiotocidae

Shiner perch, Cymatogaster aggregata

Striped seaperch, Embiotoca lateralis

Pile perch, Rhacochilus vacca

Rockfishes - Scorpaenidae

Brown rockfish, Sebastes auriculatus

Copper rockfish, Sebastes caurinus

Greenstriped rockfish, Sebastes elongatus

Yellowtail rockfish, Sebastes flavidus

Quillback rockfish, Sebastes maliger

Black rockfish, Sebastes melanops

Bocaccio, Sebastes paucispinis

Canary rockfish, Sebastes pinniger

Redstripe rockfish, Sebastes proriger

Yelloweye rockfish, Sebastes ruberrimus

Sablefishes - Anoplopomatidae

Sablefish, Anoplopoma fimbria

Greenlings - Hexagrammidae

Kelp greenling, Hexagrammos decagrammus

Whitespotted greenling, Hexagrammos stelleri

Lingcod, Ophiodon elongatus

Sculpins - Cottidae

Red Irish Lord, Hemilepidotus hemilepidotus

Pacific staghorn sculpin, Leptocottus armatus

Cabezon, Scorpaenichthys marmoratus

Lefteye flounders - Bothidae

Pacific sanddab, Citharichthys sordidus

Righteye flounders - Pleuronectidae

Arrowtooth flounder, Atheresthes stomias

Petrale sole, Eopsetta jordani

Flathead sole, Hippoglossoides elassodon

Pacific halibut, Hippoglossus stenolepis

rock sole, Lepidopsetta bilineata

English sole, Parophrys vetulus

Starry flounder, Platichthys stellatus

C-O sole, Pleuronichthys coenosus

Sand sole, Psettichthys melanostictus

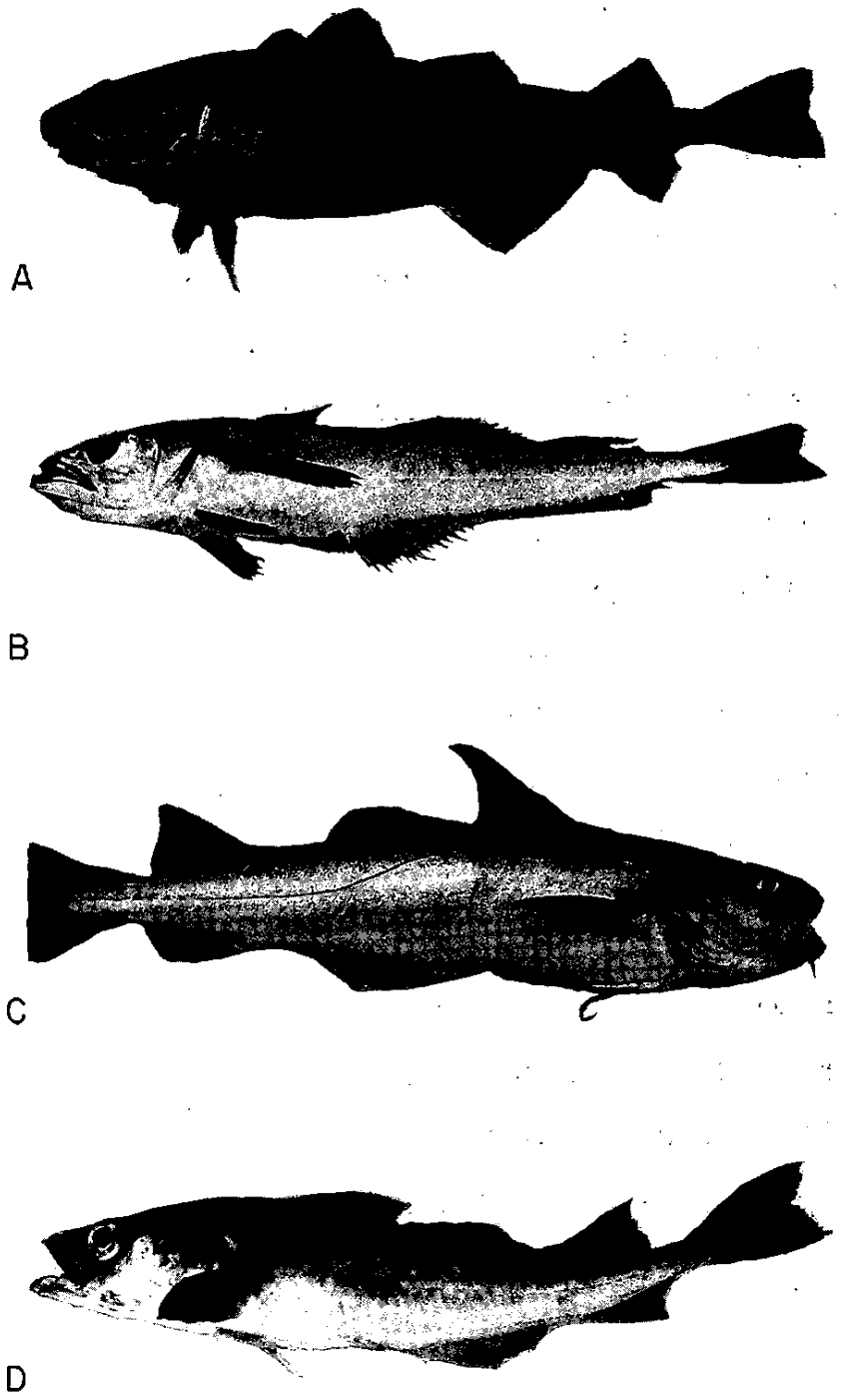


Figure 1 Photographs of (A) Pacific cod; (B) Pacific hake; (C) Pacific tomcod; (D) walleye pollock.

CODS

The fishes in this family, Gadidae, are true cods and quite common in the waters of Puget Sound. Included in this group are walleye pollock, Pacific hake, tomcod, and Pacific cod. Tomcod and Pacific cod are regarded highly by experienced anglers who know quality foodfish. Pollock is of lesser value, and hake is regarded as a nuisance to anglers.

The fishes in this family will readily take a trolled or drift mooched bait; however, jigged artificials are a vastly superior way of catching them.

Pacific cod, Gadus macrocephalus
Pacific hake, Merluccius productus
Pacific tomcod, Microgadus proximus
Walleye pollock, Theragra chalcogramma

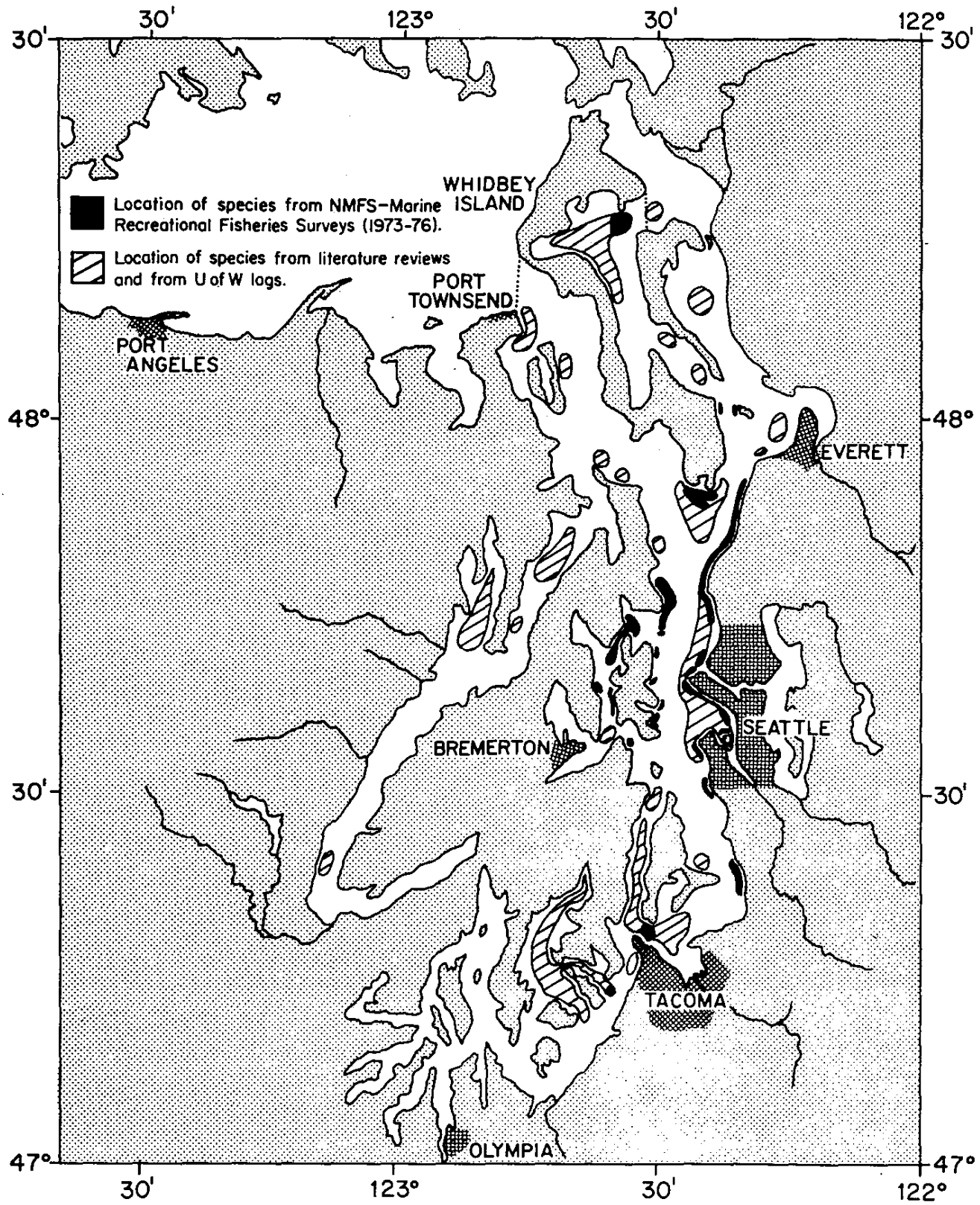


Figure 2 Known distribution of Pacific cod, Gadus macrocephalus, in Puget Sound.

Pacific cod, Gadus macrocephalus

Local Names: True cod, gray cod, cod, Alaska cod.

Recognition: Three separate dorsal fins (first rounded); the anus is located ventrally below the second dorsal; "whisker" barbel below lower jaw is as long as or longer than diameter of eye. Brown to gray on back. Numerous brown spots and vermiculated coloration on back and sides.

Distribution: Common from southern California to Alaska.[2, 3]

Washington Distribution: Very common in almost all marine waters of this state. [1/] Polnell Point Holmes Harbor, Possession Point, Port Madison, Port Orchard, Rich Passage, Dalco Passage, and Hale Passage are very good areas.

Habitat: Occurs over a wide variety of bottom types (generally mud-silt or sand) from shallow (in this regard our data differ from Somerton and Murray 1976) to deep water. During winter months, forms large spawning schools; at times found off bottom.

Utilization: Important in commercial catch; 1-2 million pounds are landed annually from Puget Sound. Eagerly sought by a growing number of sport anglers in Washington.

Size: To 39 inches.[2] Usually smaller (to 28 inches--71.3 cm) in Puget Sound, but individuals over 10 pounds are not uncommon.

Eating Qualities: Excellent--firm white flesh; 3-7 pound individuals highest quality and less parasitized. Highly recommended in recipes for (1) fish and chips, (2) poached fish, (3) steamed fish, and (4) smoked fish.

Baits and Lures: Herring, jigs, rubber worms.

Literature cited:

1. DeLacy, Miller and Borton 1972. 2. Hart 1949, 1973. 3. Miller and Lea 1972. 4. Somerton and Murray 1976.

Additional References:

1. Alderdice and Forrester 1971. 2. Alverson 1960. 3. Alverson, Pruter, and Ronholt 1964. 4. Andriashev 1937. 5. Barraclough, Robinson, and Fulton 1968. 6. Cobb 1927. 7. Fish. Res. Board Canada 1966. 8, 9. Forrester 1964a, b. 10. Forrester and Ketchen 1955. 11. Grinols 1965. 12. Hart 1949. 13. Haw and Buckley 1971. 14. Kennedy 1970a. 15, 16, 17. Ketchen 1961, 1964, 1970. 18. Larkin and Richer 1964. 19. Matsubara 1955. 20. Moiseev 1953. 21. Nikol'skii 1954. 22. Okada 1955. 23, 24, 25. Phillips 1951, 1953, 1958. 26. Pinkas 1967. 27. Popov 1933. 28. Rass 1953. 29. Schultz and Welander 1935. 31. Schmidt 1950. 32, 33. Thompson 1962, 1963. 34. Wilimovsky, Peden and Peppar 1967.

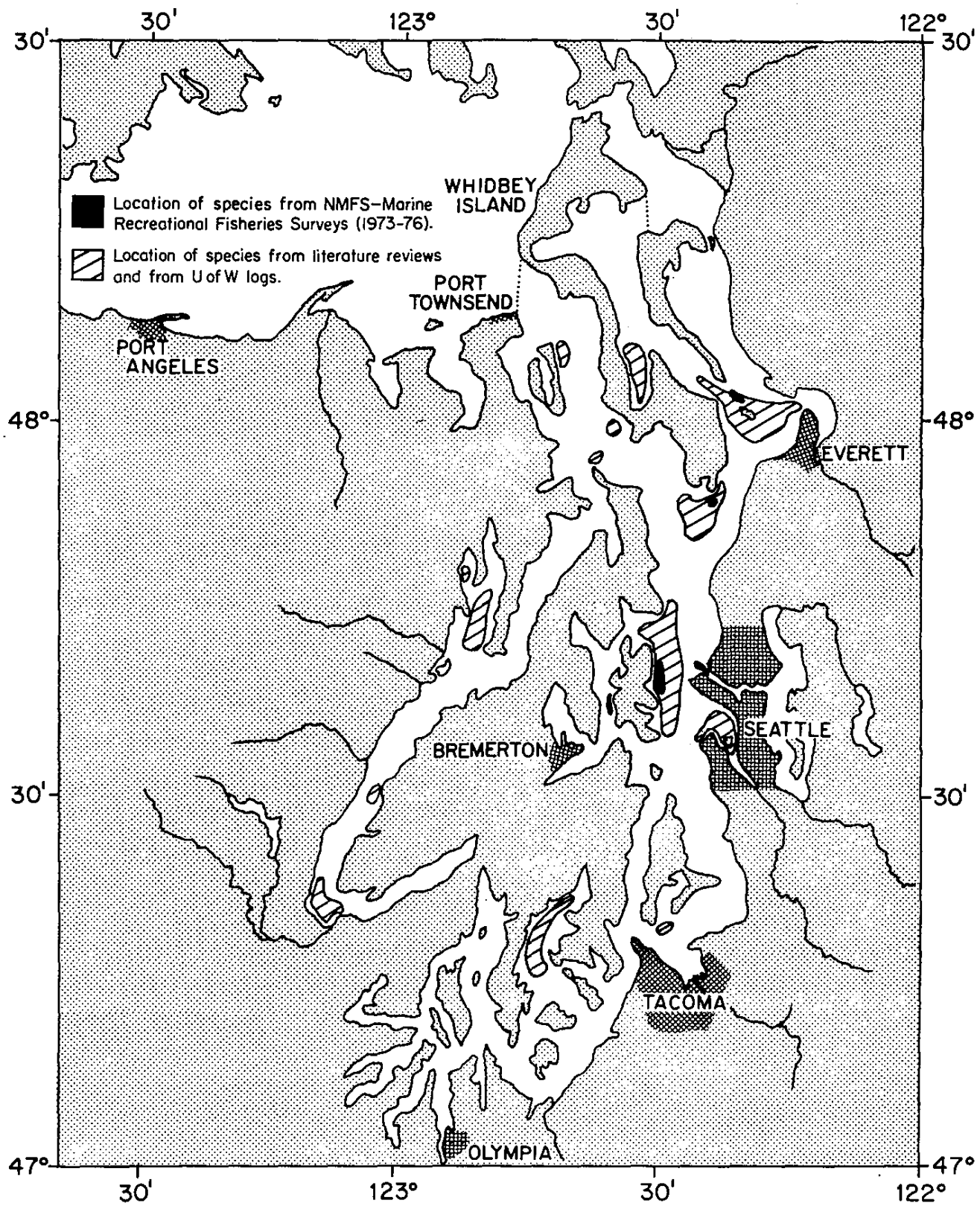


Figure 3 Known distribution of Pacific hake, Merluccius productus, in Puget Sound.

Pacific hake, Merluccius productus

Local Names: Silver cod, white fish, haddock, butterfish meldusa.

Recognition: Two dorsal fins with the second dorsal and the anal fin both long and notched. No "whisker" under the jaw. The mouth is large with sharp teeth. Dark or silvery gray on back. Black inside mouth.

Distribution: From Baja California to Alaska.[2, 3]

Washington Distribution: Common in south Puget Sound, the Seattle and Everett area, and Hood Canal. [1/] Very abundant in Port Susan during the winter. Found in much smaller numbers along the Strait of Juan de Fuca and San Juans. Puget Sound stocks are known to be discrete from coastal stocks.

Habitat: Usually found over a nonrocky bottom in moderate water depths. Often found well off bottom.

Utilization: A large commercial fishery exists during the winter around the Everett area. Almost all fish caught are used for animal food. Large foreign fleets take great numbers of hake annually off the coast of North America. Sold in Russia as fresh-frozen product. Caught, but not widely sought by anglers.

Size: To 3 feet along coast,[2] somewhat smaller in Puget Sound. Specimens to 27 inches (68.6 cm) have been collected in Puget Sound.

Baits and Lures: Herring, jigs.

Eating Qualities: Flesh is very soft if not cared for properly (bleed, eviscerate, and ice immediately). Smaller individuals with fewer parasites.

Literature cited:

1. DeLacy, Miller, and Borton 1972. 2. Hart 1973. 3. Miller and Lea 1972.

Additional References:

1. Ahlstrom and Counts 1955. 2. Alton and Nelson 1970. 3. Alverson, Pruter, and Ronholt 1964. 4. Barraclough 1967a. 5. Barraclough, Robinson, and Fulton 1968. 6. Best 1963a. 7. Conway 1967. 8. Ginsburg 1954. 9. Gotshall 1969. 10. Grinols 1965. 11. Grinols and Tillman 1970. 12. Haw and Buckley 1971. 13, 14. MacGregor 1966, 1971. 15. Millikan and Pattie 1970. 16. Nelson and Larkins 1970. 17, 18. Robinson, Barraclough, and Fulton 1968a, b, 19. Shippen and Alton 1967.

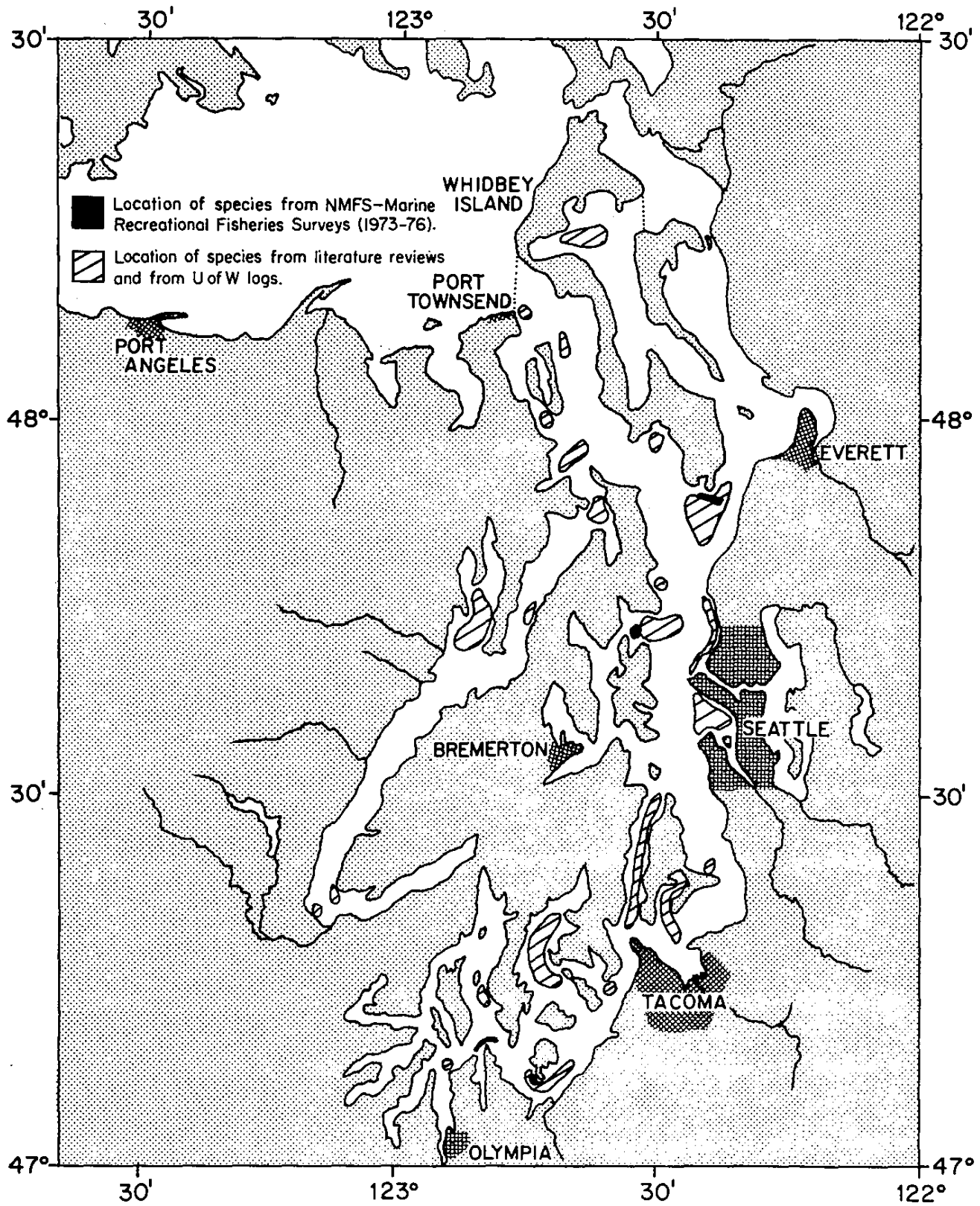


Figure 4 Known distribution of Pacific tomcod, Microgadus proximus, in Puget Sound.

Pacific tomcod, Microgadus proximus

Local Names: Tomcod, and piciata.

Recognition: Three dorsal fins (first pointed), with the anus under the first dorsal; the "whisker" on the lower jaw is about as long as the diameter of the eye. Olive green on back with creamy white sides.

Distribution: From central California to Alaska.[2]

Washington Distribution: Found in all marine waters of Washington. Common in San Juan-Bellingham area as well as around Seattle, Port Orchard, and south Puget Sound. Less common in Hood Canal and the Strait of Juan de Fuca.[1]

Habitat: Found over mud silt bottoms. Often found in shallow water in summer.

Utilization: Not the specific target of a commercial fishery. Generally passed over by anglers because of small size.

Size: To 12 inches[2](30 cm).

Baits and Lures: Herring, rubber worms, jigs.

Eating Qualities: Excellent--firm white flesh. Smaller sizes require a little extra work in cleaning and filleting.

Literature cited:

1. DeLacy, Miller, and Borton 1972. 2. Hart 1973.

Additional References:

1. Cobb 1927. 2. Hart 1949. 3. Haw and Buckley 1971. 4. Isaacson 1965. 5. Miller and Lea 1972. 6. Somerton and Murray 1976. 7. Wilimovsky 1964.

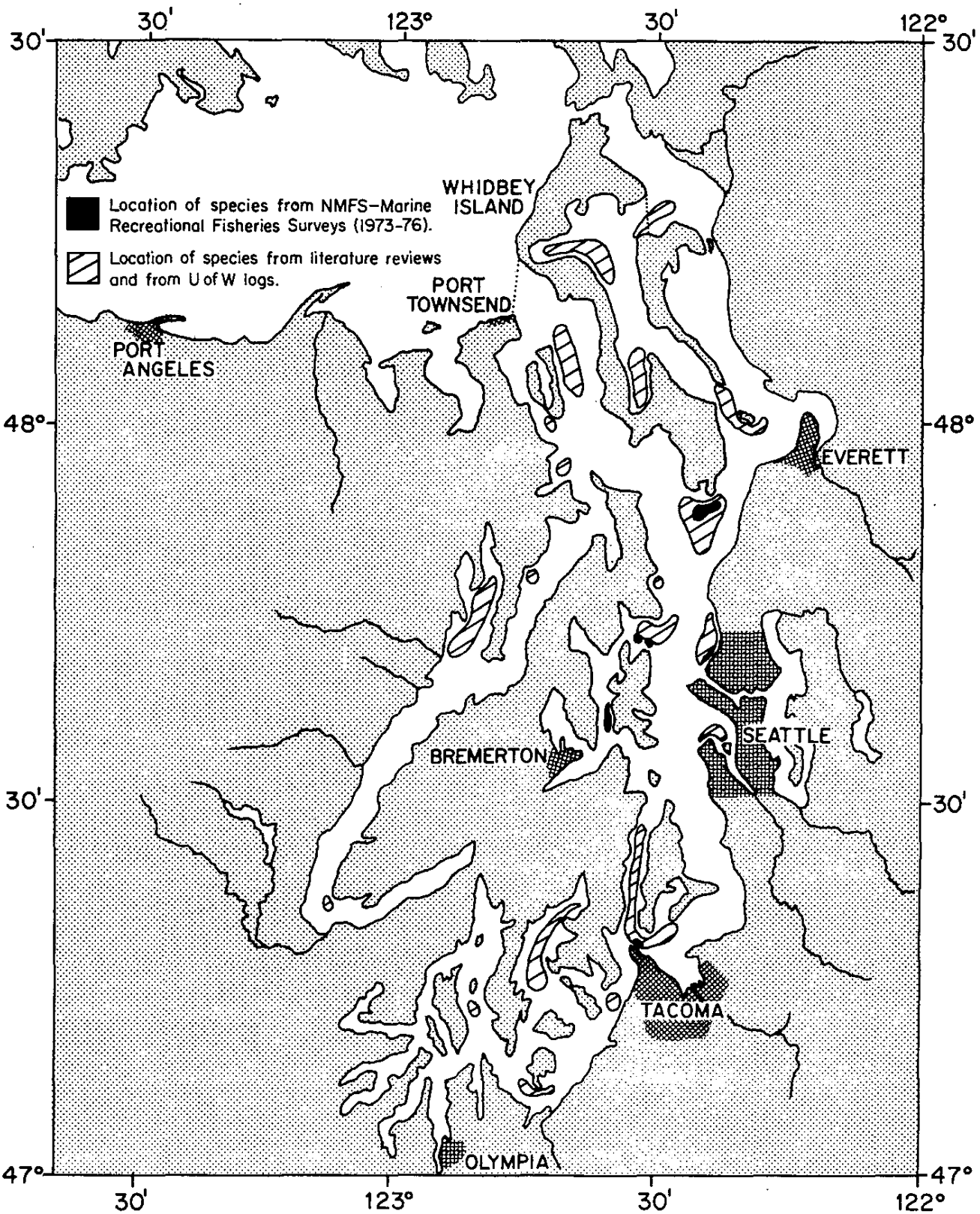


Figure 5 Known distribution of walleye pollock, Theragra chalcogramma, in Puget Sound.

Walleye pollock, Theragra chalcogramma

Local Names: Pollock, whiting.

Recognition: Three well separated dorsal fins. The anus is below the space between first and second dorsals. "Whisker" on lower jaw small or absent. (Somerton and Murray 1976, indicate barbel is absent). The eyes are relatively large. Dark green to brown on back (often blotched), silvery to white on sides.

Distribution: Central California to Alaska. [2, 3]

Washington Distribution: Found in all marine waters of Washington. Very common in Strait of Juan de Fuca, central and south Puget Sound. Less common elsewhere.

Habitat: Prefers soft bottoms in moderate depths.

Utilization: An important commercial species in the North Pacific and Bering Sea. Small amounts are landed locally for animal food. Landed, but generally not angled for specifically.

Size: Length to 3 ft.[2] Usually smaller in Puget Sound (22 inches--56 cm).

Baits and Lures: Herring, jigs.

Eating qualities:

Literature cited:

1. DeLacy, Miller and Borton 1972. 2. Hart 1973. 3. Miller and Lea 1972. 4. Somerton and Murray 1976.

Additional References:

1. Alverson, Pruter, and Ronholt 1964. 2. Armstrong and Winslow 1968. 3. Barraclough 1967a. 4. Barraclough, Robinson, and Fulton 1968. 5. Clemens and Wilby 1961. 6. Cobb 1927. 7. Grinols 1965. 8. Hart 1949. 9. Haw and Buckley 1971. 10. Larkin and Richer 1964. 11. Matsubara 1955. 12. Miller and Lea 1972. 13. Nikol'skii 1954. 14. Okada 1955. 15, 16. Phillips 1942, 1943. 17, 18. Robinson, Barraclough, and Fulton 1968a, b. 19. Wilimovsky, Peden and Peppar 1967.

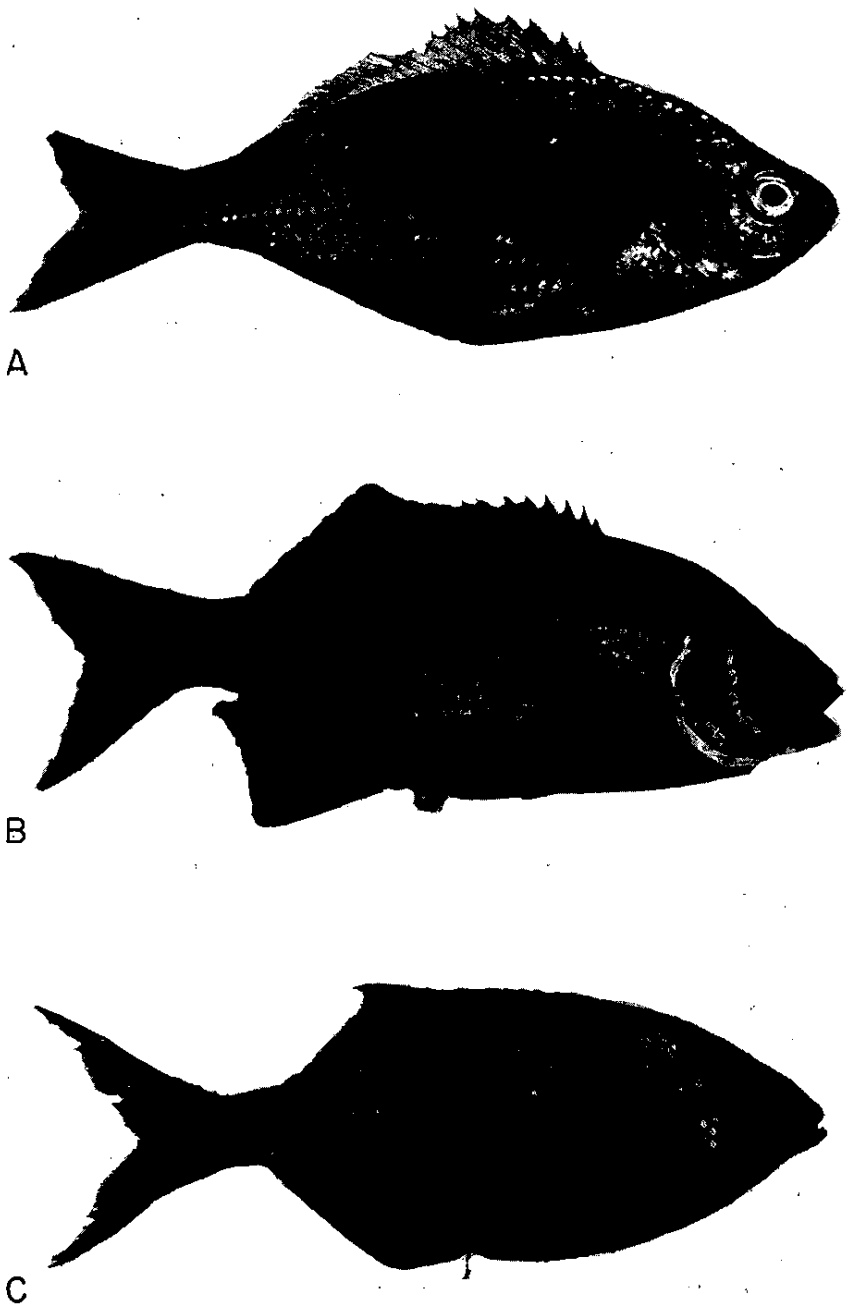


Figure 6 Photographs of (A) shiner perch; (B) striped perch; (C) pile perch.

SURFPERCHES

In Puget Sound, the surfperches, family Embiotocidae, have three representatives that are important in the sport catch. These include the shiner perch, striped seaperch, and pile perch. This family is an important group to the shore-bound angler, being closely associated with barnacle- and musselencrusted pilings. In addition, they are important forage species for numerous predator fish species.

Iniviparous fishes, the eggs are fertilized and develop internally, the young being released as miniature replicas of the parent.

The fishes in this family have small mouths. Therefore, hook sizes must be much smaller than for other bottom species (I recommend 6-10 size hooks). Baits used with light leaders and leads have proven most productive for the surfperches.

Shiner perch, Cymatogaster aggregata
Striped seaperch, Embiotoca lateralis
Pile perch, Rhacochilus vacca

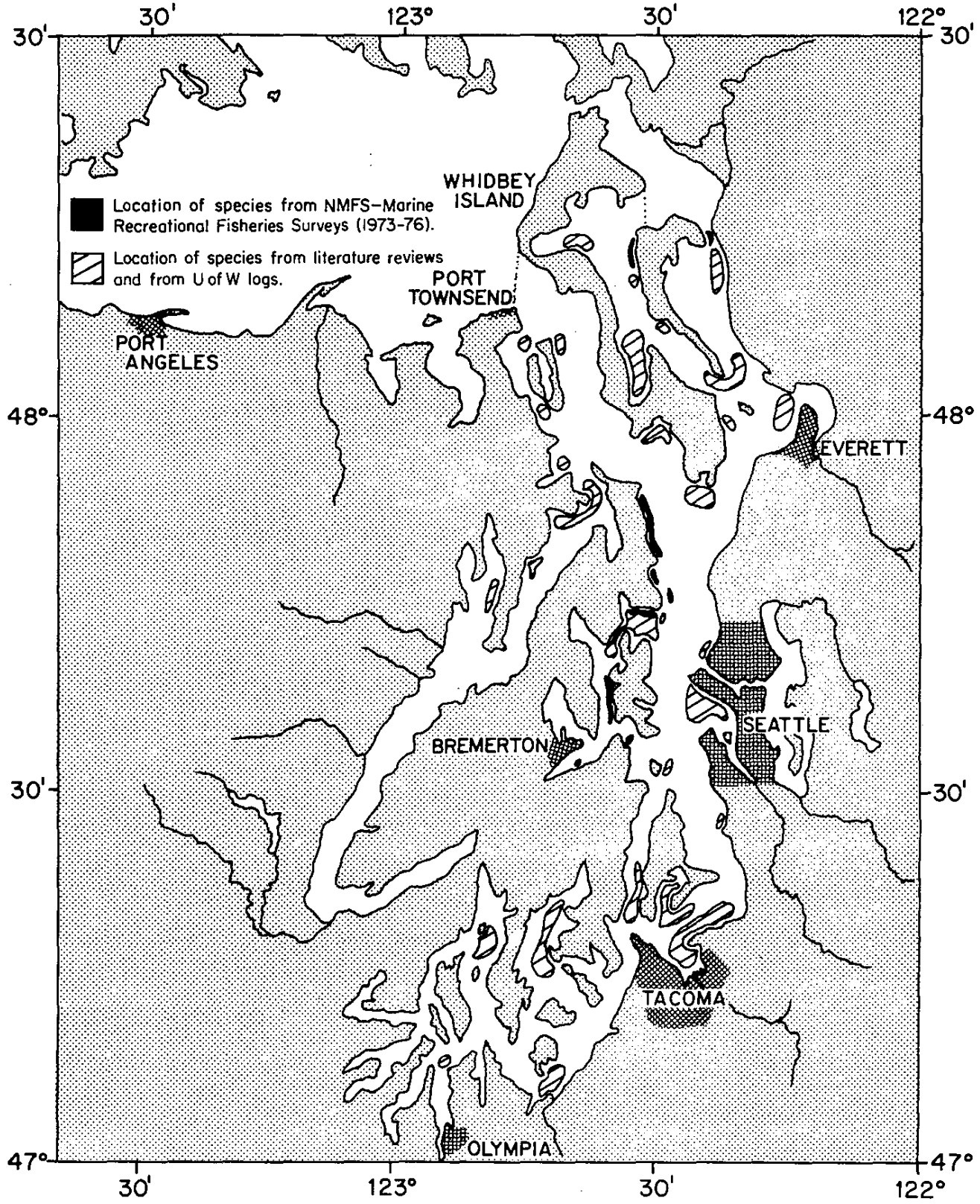


Figure 7 Known distribution of shiner perch, Cymatogaster aggregata, in Puget Sound.

Shiner perch, Cymatogaster aggregata

Local Names: Shiner seaperch, yellow shiner, shiner, bayperch, poggie.

Recognition: Large scales. There is no fold of skin attaching lower jaw to lip. Silvery. May have three yellow vertical bands on sides.

Distribution: From northern Baja California to southern Alaska.[2, 3]

Washington Distribution: Found in all marine waters of this state. Very common throughout Puget Sound, Hood Canal, and the San Juans. Less abundant in the Strait of Juan de Fuca.[1]

Habitat: During summer and fall, found in schools in shallow water. During the winter they apparently move into deeper water.

Utilization: Sometimes used for bait. There is a limited market for human consumption. Provide many hours of entertainment for young anglers.

Size: Length to 6 inches[3](15.2 cm).

Baits and Lures: Clams, mussels, shrimp, worms.

Eating Qualities: Occasionally eaten dried or pickled. Considered a delicacy by Chinese.

Literature cited:

1. DeLacy, Miller, and Borton 1972. 2. Hart 1973. 3. Miller and Lea 1972.

Additional References:

1. Anderson and Bryan 1970. 2. Arai 1967. 3. Clothier 1950. 4. Earnest and Benville 1972. 5. Eigenmann and Ulrey 1894. 6. Gordon 1965. 7. Haw and Buckley 1971. 8. Hubbs 1917, 9. Roedel 1953. 10. Shaw, Allen, and Stone 1974. 11. Sommerton and Murray 1976. 12. Smith 1969. 13. Suomela 1931. 14. Tarp 1952. 15. Turner 1952. 16, 17. Wiebe 1968a, b.

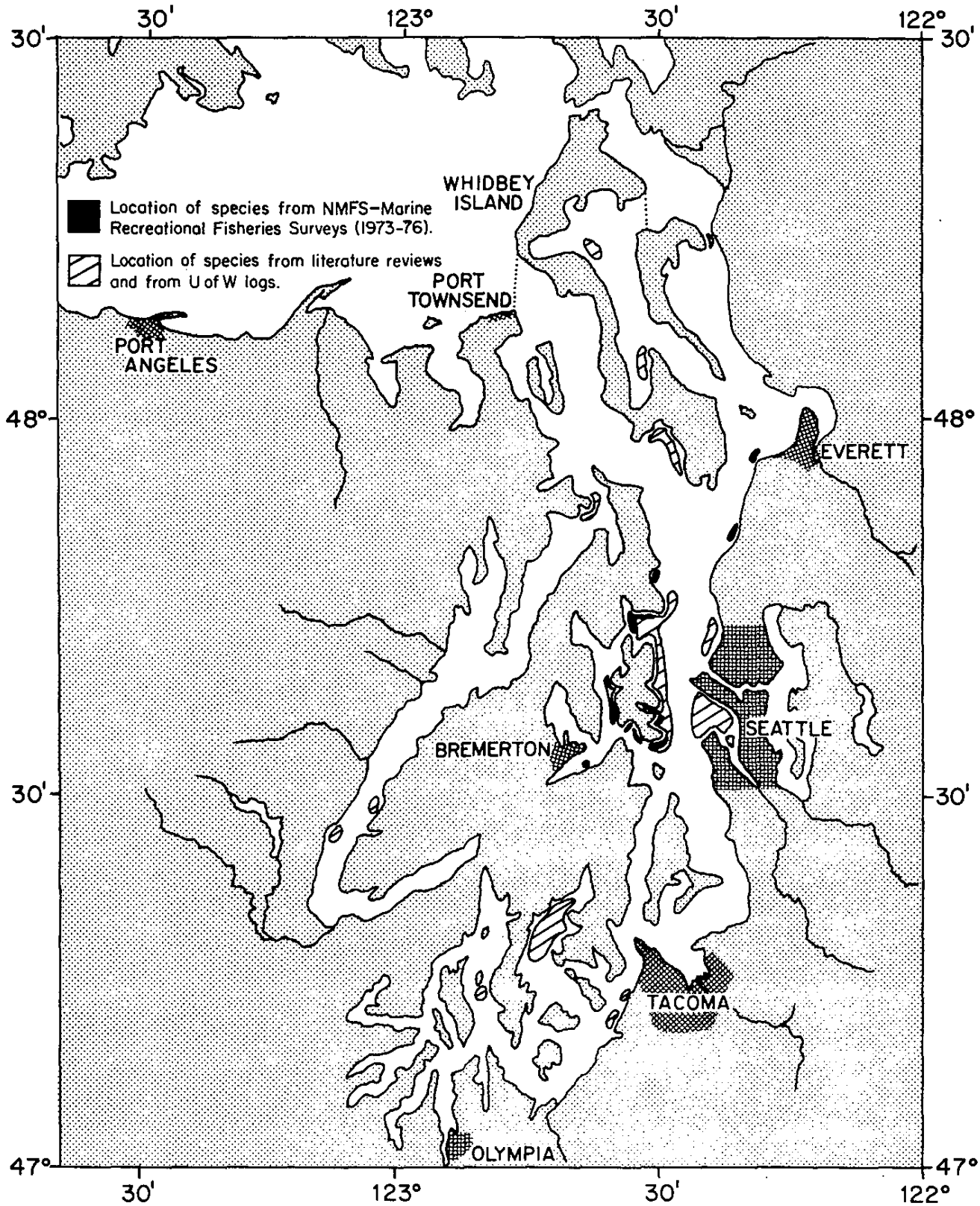


Figure 8 Known distribution of striped perch, Embiotoca lateralis, in Puget Sound.

Striped seaperch, Embiotoca lateralis

Local Names: Blue perch, crugnoli.

Recognition: Several bright blue stripes running along body. Relatively short dorsal fin. Copper color on back with about 15 blue stripes running along body.

Distribution: Pt. Cobras, Baja California to southeast Alaska (Port Wrangel).[2, 3]

Washington Distribution: Very common in southern and central Puget Sound. Less common in San Juans and Strait of Juan de Fuca.[1]

Habitat: During summer and fall, found in shallow water in schools. Found over rocks or often in kelp and eel grass beds.

Utilization: Small amounts caught commercially in this area. Small fishery exists in northern California. Important to shore-bound angler. (beach, jetty, and pier).

Size: Length to 15 inches[2](38.1).

Baits and Lures: Clams, mussels, shrimp, worms, small spinners, and flies.

Eating Qualities: Good.

Literature cited:

1. DeLacy, Miller, and Borton 1972. 2. Hart 1972. 3. Miller and Lea 1972.

Additional references:

1. Arai 1967. 2. Edwards 1970. 3. Fraser 1923. 4. Haw and Buckley 1971. 5. Grose 1968. 6. Roedel 1953. 7. Smith 1969. 8. Somerton and Murray 1976. 9. Swedberg 1965. 10. Tarp 1952.

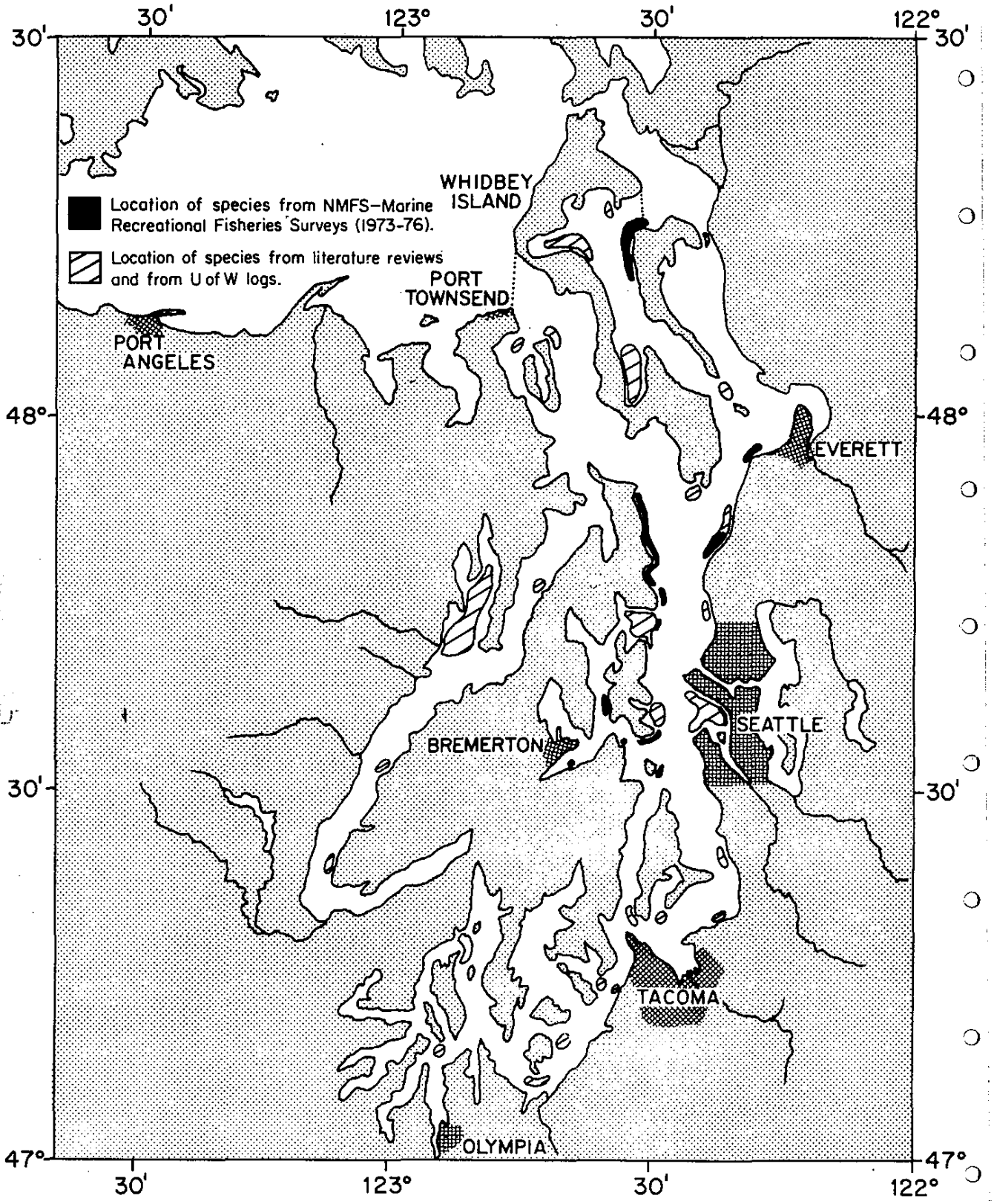


Figure 9 Known distribution of pile perch, Rhacochilus vacca, in Puget Sound.

Pile perch, Rhacochilus vacca

Local Names: Pile seaperch, dusky seaperch, porgie, white seaperch, silver perch.

Recognition: The dorsal fin has a low spiny section followed by a much higher soft rayed section. The tail is deeply forked. Dark gray or brown on back. Silvery on sides.

Distribution: Northern Baja California to southern Alaska.[2, 3]

Washington Distribution: Common throughout all of Puget Sound. Less common elsewhere.[1]

Habitat: Prefers hard bottoms in shallow water.

Utilization: Small amounts caught commercially in the Pacific Northwest. There is a commercial fishery in northern California. Important to shorebound angler.

Size: Length to 17 inches.[2] Individuals have been reported over 19 inches (48.3 cm) (about 5 lb) from Puget Sound.

Baits and Lures: Clams, mussels, shrimp, worms, smelt, crabs, small spinners, and flies.

Eating Qualities: Good

Literature cited:

1. DeLacy, Miller, and Borton 1972. 2. Hart 1973. 3. Miller and Lea 1972.

Additional References:

1. Arai 1967. 2. Eigenmann and Ulrey 1894. 3. Haw and Buckley 1971. 4. Morgan 1961. 5. Randolph 1898. 6. Roedel 1953. 7. Smith 1969. 8. Somerton and Murray 1976. 9. Tarp 1952. 9. Wales 1929. 10. Wares 1968. 11. Wilimovsky 1954.

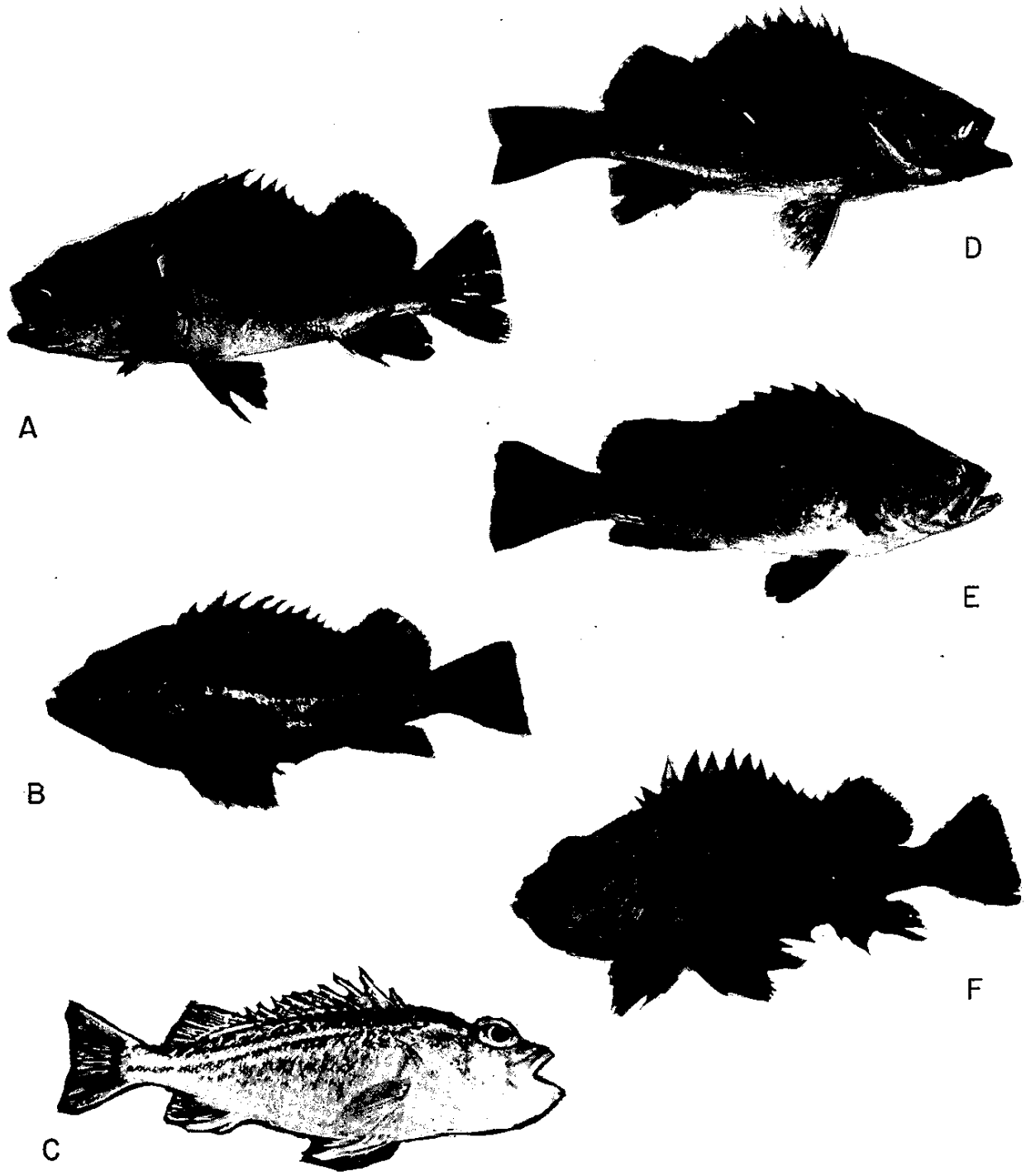


Figure 10 Photographs of (A) brown rockfish; (B) copper rockfish; (C) greenstripe rockfish; (D) yellowtail rockfish; (E) black rockfish; (F) quillback rockfish;

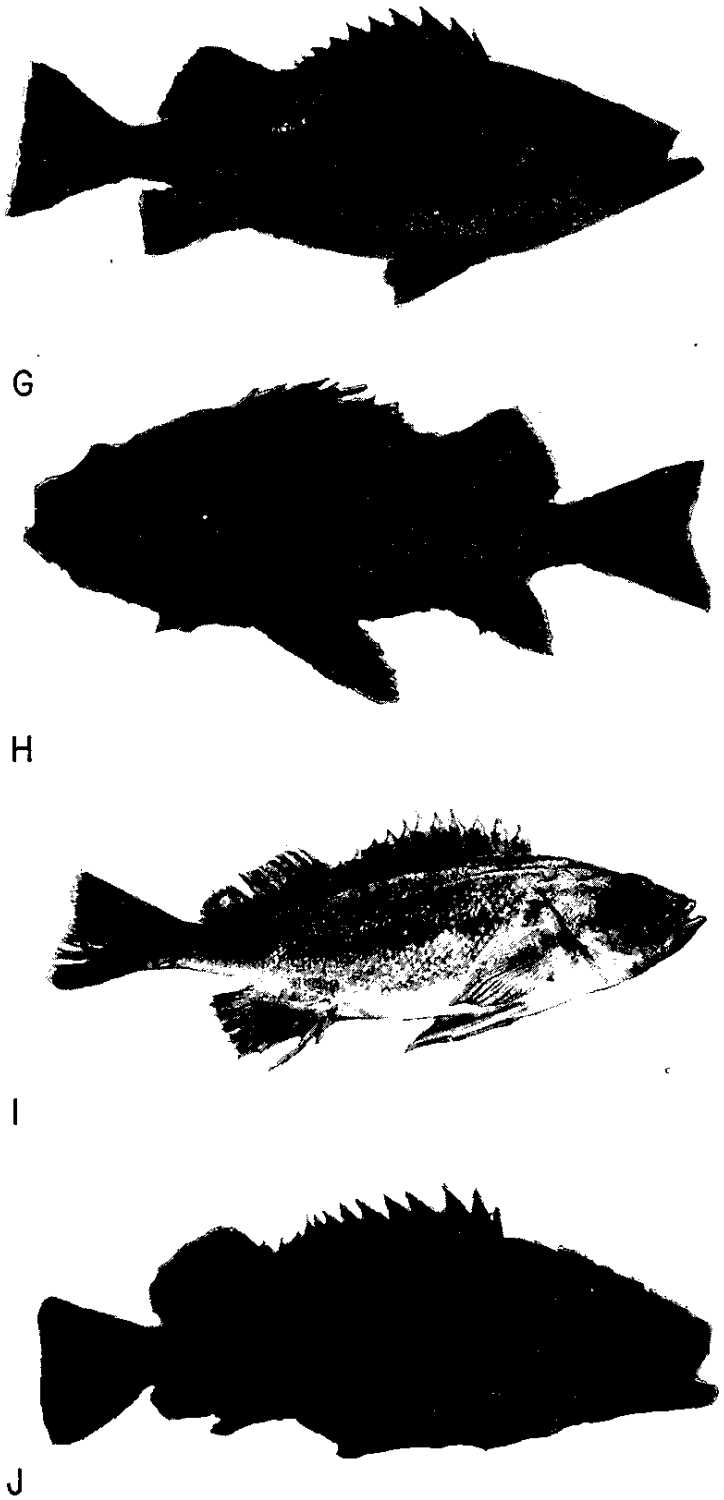


Figure 10 (Cont.) (G) bocaccio; (H) Canary rockfish; (I) redstripe rockfish; and (J) yelloweye rockfish.

ROCKFISHES

The rockfishes are by far the most important marine fish group in Puget Sound. There are known to be 21 members of the family Scorpaenidae in the "Sound" [1]; however, five of them (brown, copper, quillback, black, and yellowtail) make up 85-90% of the total bottomfish catch--both incidental (to salmon) and specific catches, while some others are seldom caught.[2] Local names for this species wrongly associate them with the cods, sea bass, and snapper (a tropical deep-water species). In no case is there any relation. The various species resemble each other in body shape but may differ radically in color.

Rockfishes, like surfperch, have an unusual life history in that they give birth to live young. Unlike the surfperches, the young are born as larvae within the egg capsule which are initially pelagic. A female rockfish may carry 1,000,000 or more eggs, or larvae, the number varying widely between species. The time of spawning varies by species but is usually between winter and summer. Some species (rasphead and copper rockfish) have been found to contain fertilized eggs in summer, which probably means a minor spawning period occurs in early fall also.

Techniques used to capture rockfish vary with depth. The species found in shallow water are best caught using light gear (spinning or bait casting) and artificial lures, fished on bottom. Species living in depths greater than 150 ft are caught using artificials or bait, medium to heavy rods and reels, dacron line or bait, heavy rods and reels, and wire line. The artificial lures are jigged, and baits are mooched on bottom.

Brown rockfish, S. auriculatus
Copper rockfish, S. caurinus
Greenstripe rockfish, S. elongatus
Yellowtail rockfish, S. flavidus
Quillback rockfish, S. maliger
Black rockfish, S. melanops
Bocaccio, S. paucispinis
Canary rockfish, S. pinniger
Redstripe rockfish, S. proriger
Rasphead rockfish, S. ruberrimus

1 DeLacy, Miller, and Borton 1972.
2 Buckley 1970.

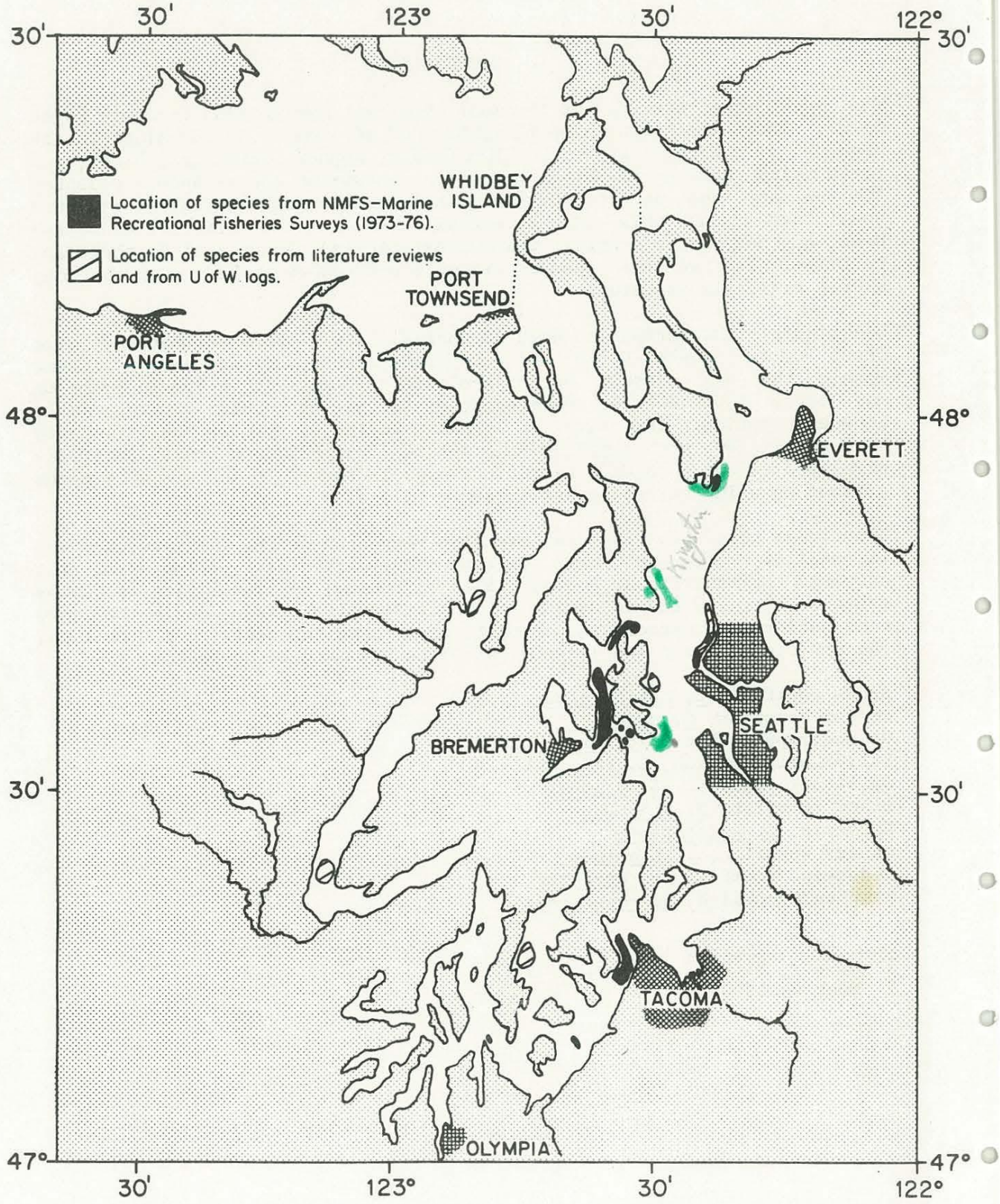


Figure 11 Known distribution of brown rockfish, Sebastes auriculatus, in Puget Sound.

Brown rockfish, Sebastes auriculatus

Local Names: Bolina, sand bass, rock cod.

Recognition: Similar to copper rockfish. Brown body with dark spot on gill cover. Dark to light brown, head and body with dark vague bars across back.

Distribution: Hipolito Bay, Baja California to southeast Alaska.[2,3] Not common north of Washington.

Washington Distribution: Fairly common in Puget Sound. Rarely found in San Juans, or Strait of Juan de Fuca.[1]

Habitat: Widely spread in shallow water (20 to 200 ft), from the outer edge of kelp beds out. (Gotshall 1977 indicates they are seldom found in kelp beds in California).

Utilization: A significant portion of the commercial catch. Also important in bottom fish catches by 2/ anglers in certain areas.

Size: To 20 inches.[2] Uncommon over 15 inches, but a specimen 17 inches (43.2 cm) and 4 pounds was taken in Puget Sound.

Baits and Lures: Herring, squid, crab, clams, artificial worms, jigs.

Eating Qualities: Excellent--steamed, poached, baked, or fried.

Literature cited:

1. DeLacy, Miller, and Borton 1972. 2. Gotshall 1977. 3. Hart 1973. 4. Miller and Lea 1972.

Additional References:

1. DeLacy and Dryfoos 1962. 2. DeLacy, Hitz, and Dryfoos 1964. 3. Hitz 1965. 4, 5. Hitz and DeLacy 1960, 1965. 6. Phillips 1957. 7. Roche and Halstead 1972. 8. Somerton and Murray 1976. 9. Wilimovsky 1954.

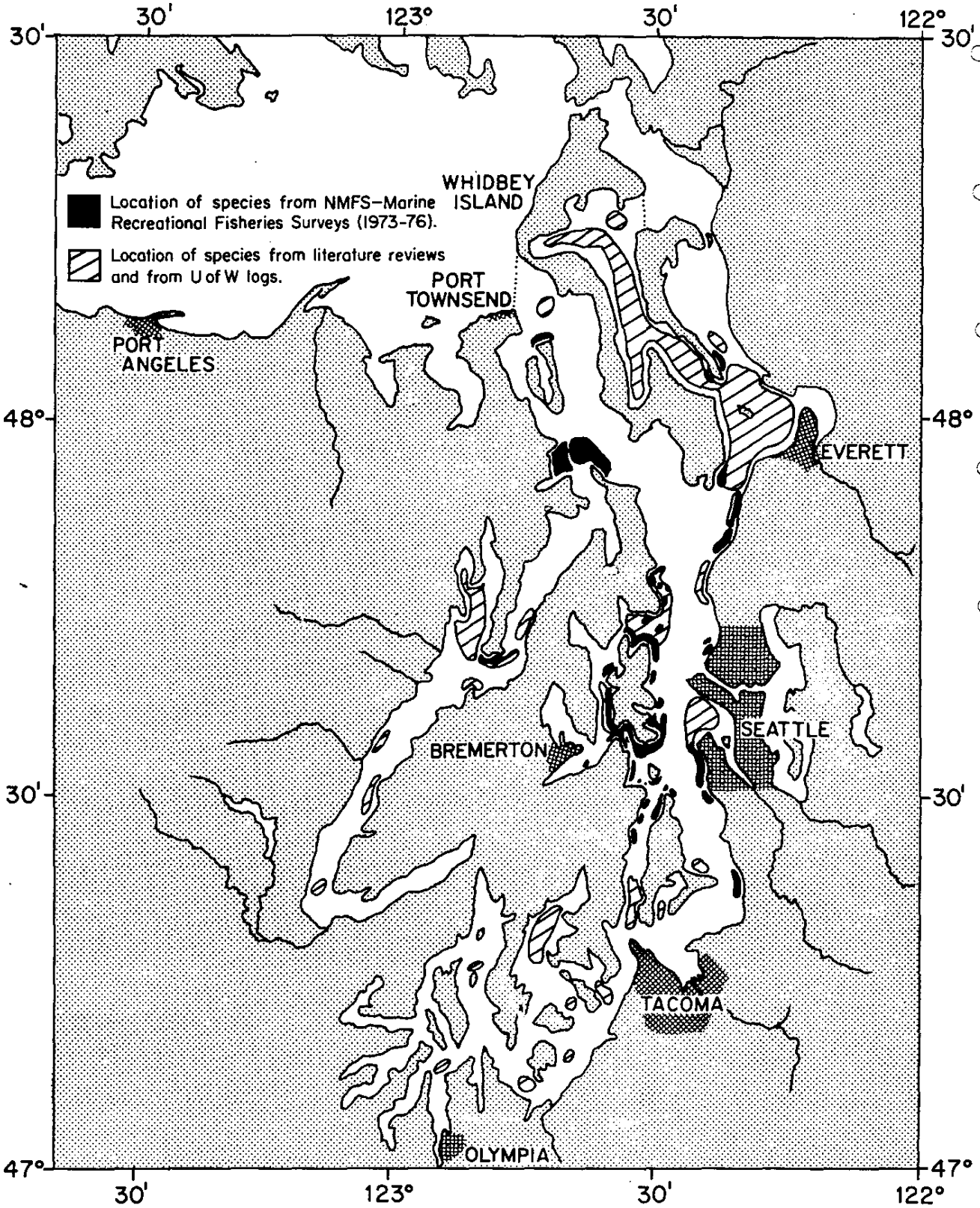


Figure 12 Known distribution of copper rockfish, Sebastes caurinus, in Puget Sound.

Copper rockfish, Sebastes caurinus

Local Names: Whitebelly rockfish, white gopher, barriga blanca, palermotana, copper cod, northern rockfish, bracea, rock cod.

Recognition: Coppery brown coloration, dark fins, lightly colored along posterior two-thirds of lateral line. Black and dark brown to olive brown, with some copper color; occasional yellow patches.

Distribution: From San Benitos Isls., Baja, California, to Kenai Peninsula, Alaska.[2, 3]

Washington Distribution: Very common throughout Puget Sound, San Juans, and Strait of Juan de Fuca. One of the most common rockfish in Puget Sound.[1]

Habitat: Prefers rocky bottoms or kelp beds. Most often found in shallow water (less than 100 ft).

Utilization: The copper rockfish makes up a significant portion of the commercial catch in Puget Sound. Salmon anglers often catch this fish while fishing in water less than 100 feet deep.

Size: To 20 inches.[2] A number of individuals have been collected from Puget Sound that exceed 20-3/4 inches (52.7 cm).

Baits and Lures: Herring, squid, crab, clams, worms, artificial lures.

Eating Qualities: Excellent--steamed, poached, baked, or fried.

Literature cited:

1. DeLacy, Miller and Borton 1972. 2. Hart 1973. 3. Miller and Lea 1972.

Additional References:

1. DeLacy, Hitz, and Dryfoos 1964. 2. Haw and Buckley 1971. 3, 4. Hitz 1962, 1965. 5. 7. Hitz and DeLacy 1960, 1965. 8. Patten 1973. 9. Schultz and DeLacy 1936. 10. Somerton and Murray 1976. 11. Westrheim 1966a.

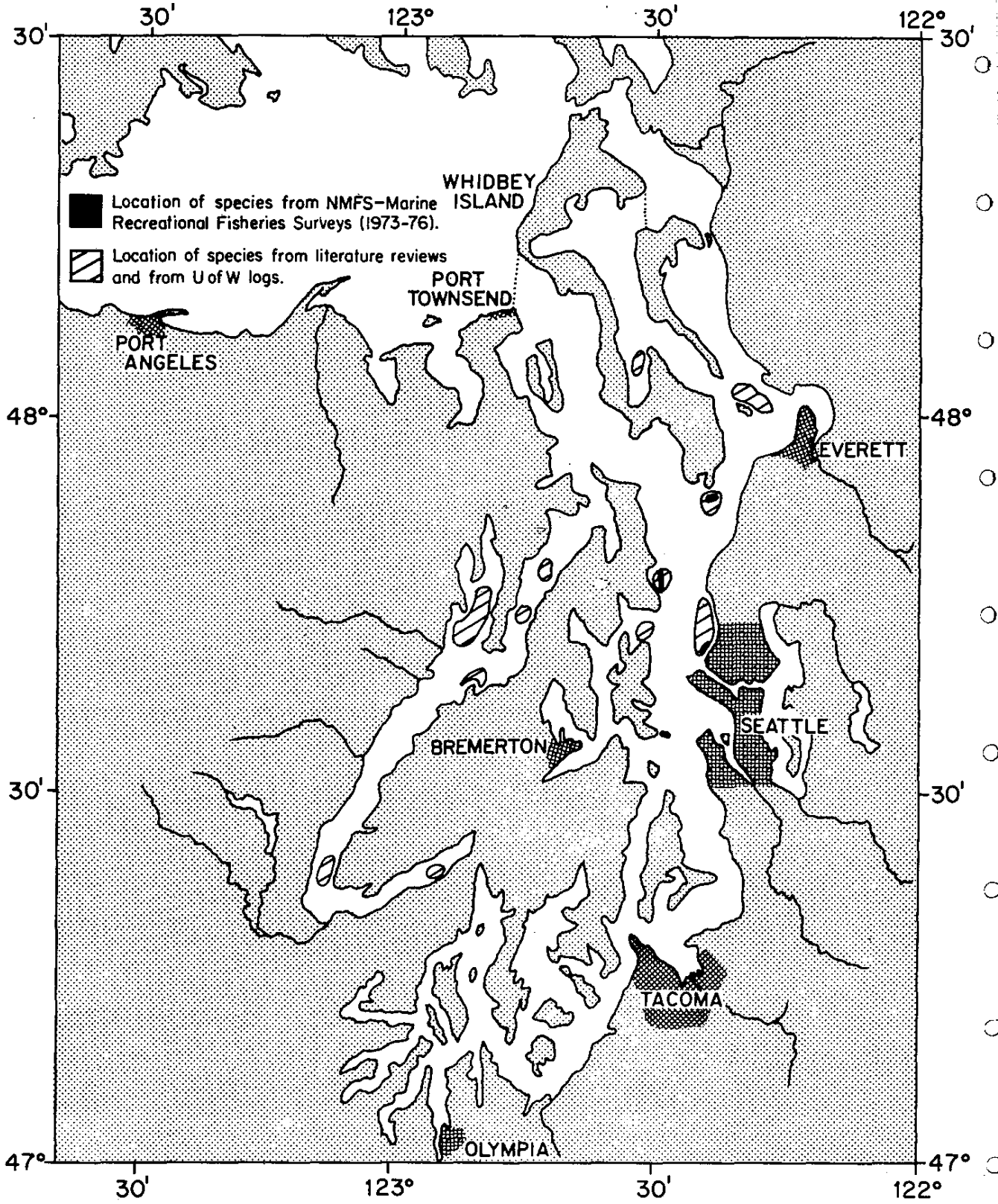


Figure 13 Known distribution of greenstripe rockfish, Sebastes elongatus, in Puget Sound.

Greenstripe rockfish, Sebastes elongatus

Local Names: Strawberry rockfish, serena, rima, poinsetta, striped rockfish.

Recognition: Distinguished by its slender body and green horizontal stripes on body. Body is pinkish red with four horizontal stripes.

Distribution: Cedros Island, Baja California to the Montague Island, Alaska.[2, 3]

Washington Distribution: Most abundant in Hood Canal.[1]

Habitat: Not known. Prefers deep water (greater than 100 ft).

Utilization: Small portion of incidental commercial and sport catches.

Size: To 15 inches.[2] Largest specimen from Puget Sound 13-3/4 inches (34.9 cm).

Baits and Lures: Herring, artificial lures.

Eating Qualities: Good.

Literature cited:

1. DeLacy, Miller, and Borton 1972. 2. Hart 1973. 3. Miller and Lea 1972.
Additional References:

1. Alverson, Pruter, and Ronholt 1964. 2. DeLacy, Hitz, and Dryfoos 1964. 3. Hitz 1962. 4. Phillips 1957. 5. Roche and Hatstead 1972. 6. Smith 1936. 7. Westrheim 1966. 8. Westrheim, Harling, Davenport and Smith 1968.

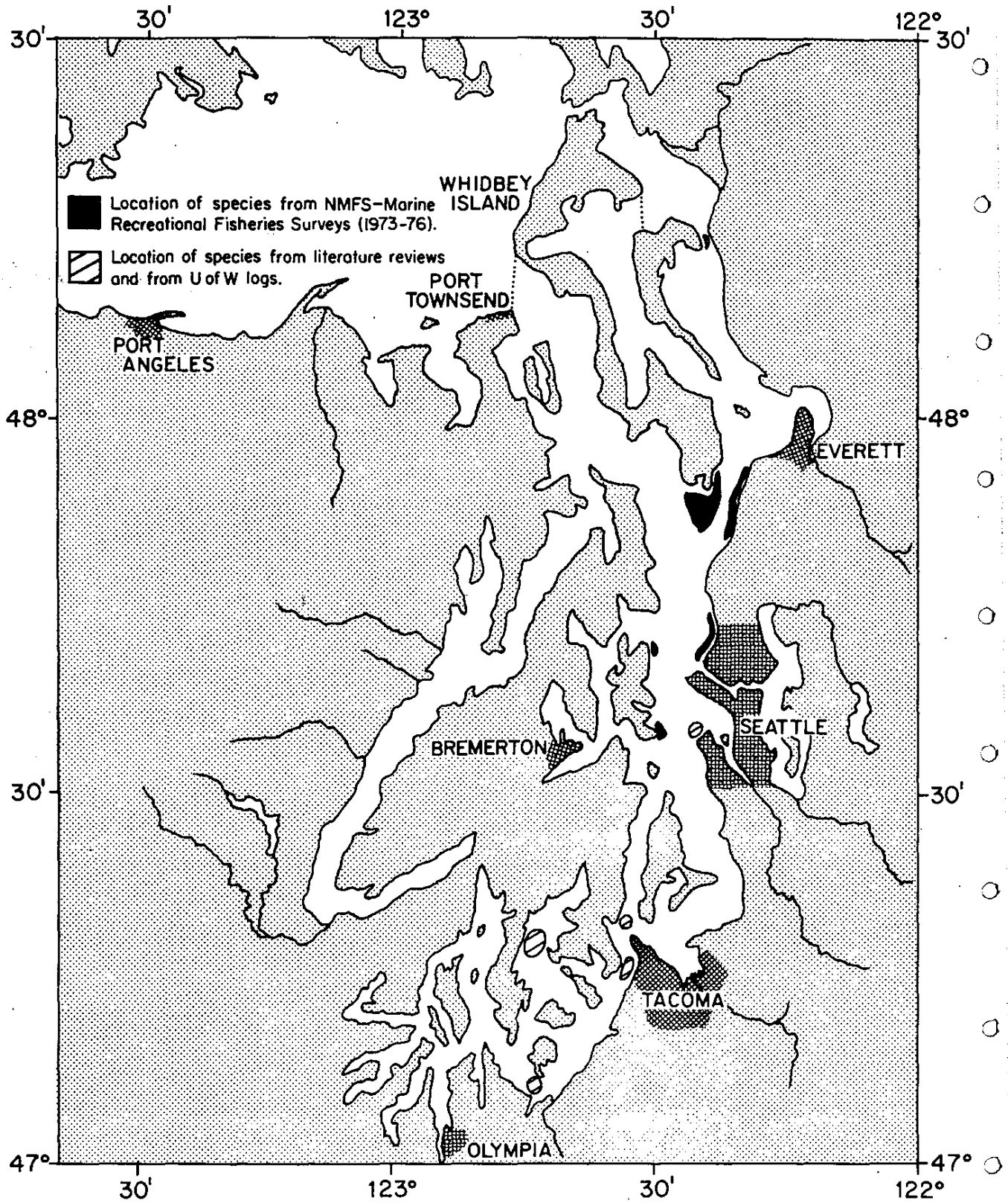


Figure 14 Known distribution of yellowtail rockfish, Sebastes flavidus, in Puget Sound.

Yellowtail rockfish, Sebastes flavidus

Local Names: Green snapper, giola, gialota, chune, yellow rockfish.

Recognition: Body color greenish to olive green. Tail is a definite yellow, vaguely streaked with brown.

Distribution: San Diego, California, to Kodiak, Alaska.[2, 3]

Washington Distribution: Found throughout Puget Sound, Hood Canal, and San Juans. Very common along the coast.[1]

Habitat: Younger fish form schools off bottom in shallow water, while older fish can be found in both deep (to 900 ft during day) and shallow water.

Utilization: Of considerable importance (up to 3 million lb annually) to commercial fishery, along the Washington coast. A very fine sportfish.

Size: To 26 inches;[2] in Puget Sound uncommon over 15 inches (38.1 cm) of 2 pounds.

Baits and Lures: Herring, squid, plugs, spoons, flies, rubber worms.

Eating Qualities: Excellent.

Literature cited:

1. DeLacy, Miller, and Borton 1972. 2. Hart 1973. 3. Miller and Lea 1973.

Additional References:

1. Alverson, Pruter, and Ronholt 1964. 2. Carlson and Haight 1972. 3. DeLacy, Hitz, and Dryfoos 1964. 4. Grinols 1965. 5. Haw and Buckley 1971. 6. Hitz 1962. 7. Pereyra, Pearcy, and Karvey 1969. 8, 9. Phillips 1957, 1964. 10 Somerton and Murray 1976. 11. Westrheim 1966.

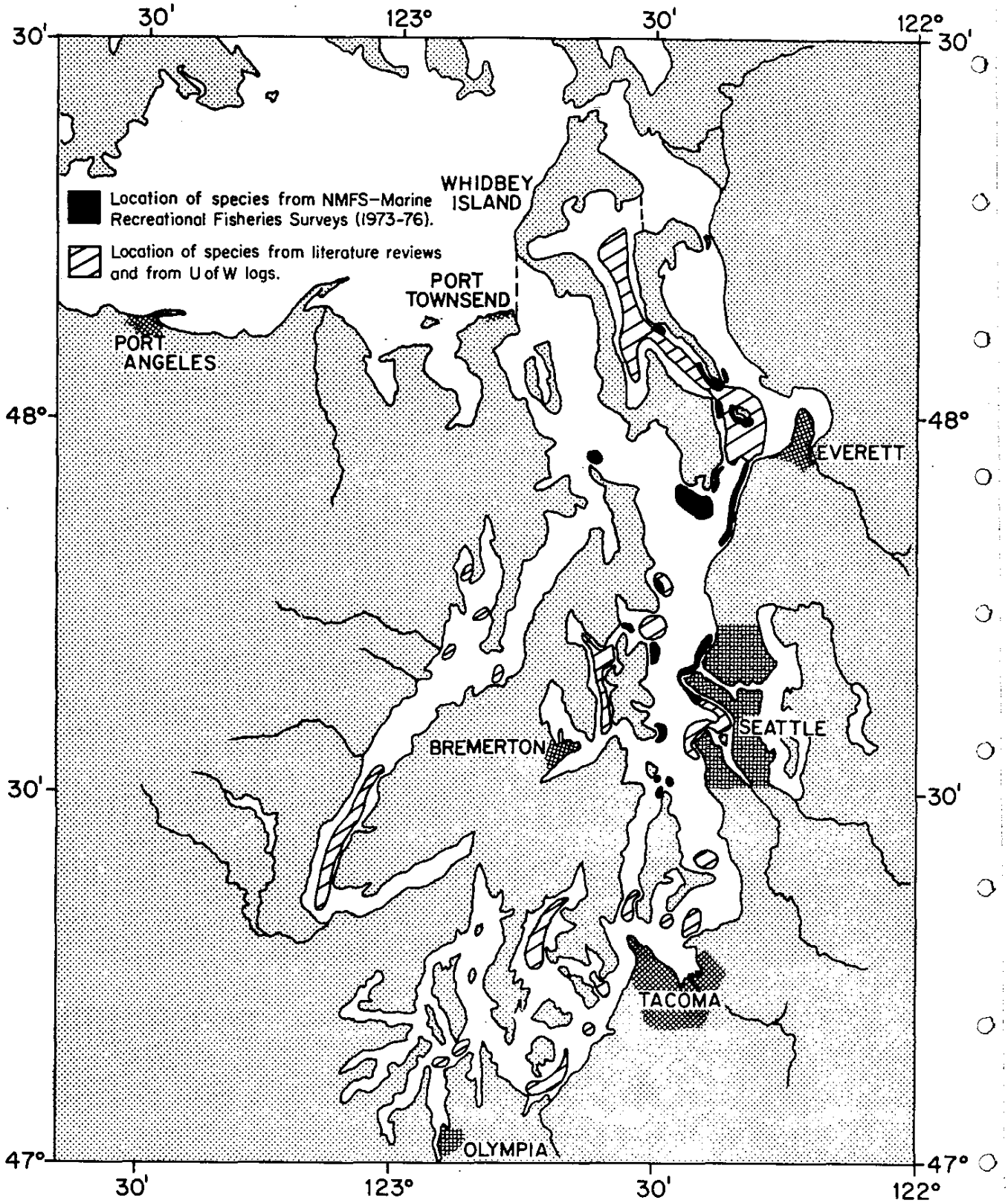


Figure 15 Known distribution of quillback rockfish, Sebastes maliger, in Puget Sound.

Quillback rockfish, Sebastes maliger

Local Names: Orange spotted rockfish, yellow backed rockfish, brown rockfish, speckled rockfish, rock cod.

Recognition: Very similar to the copper rockfish. Can be distinguished by high fin on back, yellowish blotch on back, dark fins, and freckles. Brown with yellow or tan areas behind head and brownish freckles on jaw. Fins are dark.

Distribution: From central California (Point Sur) to Gulf of Alaska.[2, 3]

Washington Distribution: Common throughout Puget Sound, San Juans, and the Strait of Juan de Fuca. Most common rockfish in Puget Sound.[1]

Habitat: Prefers rocky bottoms and obstructions on bottom--such as sunken logs, ships or rock piles. Found in 10 to over 500 feet of water. Gotshall 1977 reports 35 feet as the shallowest they are found.

Utilization: Quillbacks make up a significant portion of the commercial catch of rockfish in Puget Sound. Many are taken by sports fishermen, a large portion incidental to salmon.

Size: To 24 inches[2]; uncommon over 15 inches in Puget Sound (to 15-5/8 inches--39.8 cm or 2-3/4 lb).

Baits and Lures: Herring, candlefish, squid, worms, crabs, plugs, spoons, flies, jigs, rubber worms.

Eating Qualities: Excellent.

Literature cited:

1. DeLacy, Miller and Borton 1972. 2. Gotshall 1977. 3. Hart 1973. 4. Miller and Lea 1972.

Additional References:

1. Alverson, Pruter, and Ronholt 1964. 2. Grinols 1965. 3. Haw and Buckley 1971. 4. Phillips 1957. 5. Roche and Holstead 1972. 6. Somerton and Murray 1976. 7. Wilimovsky 1954.

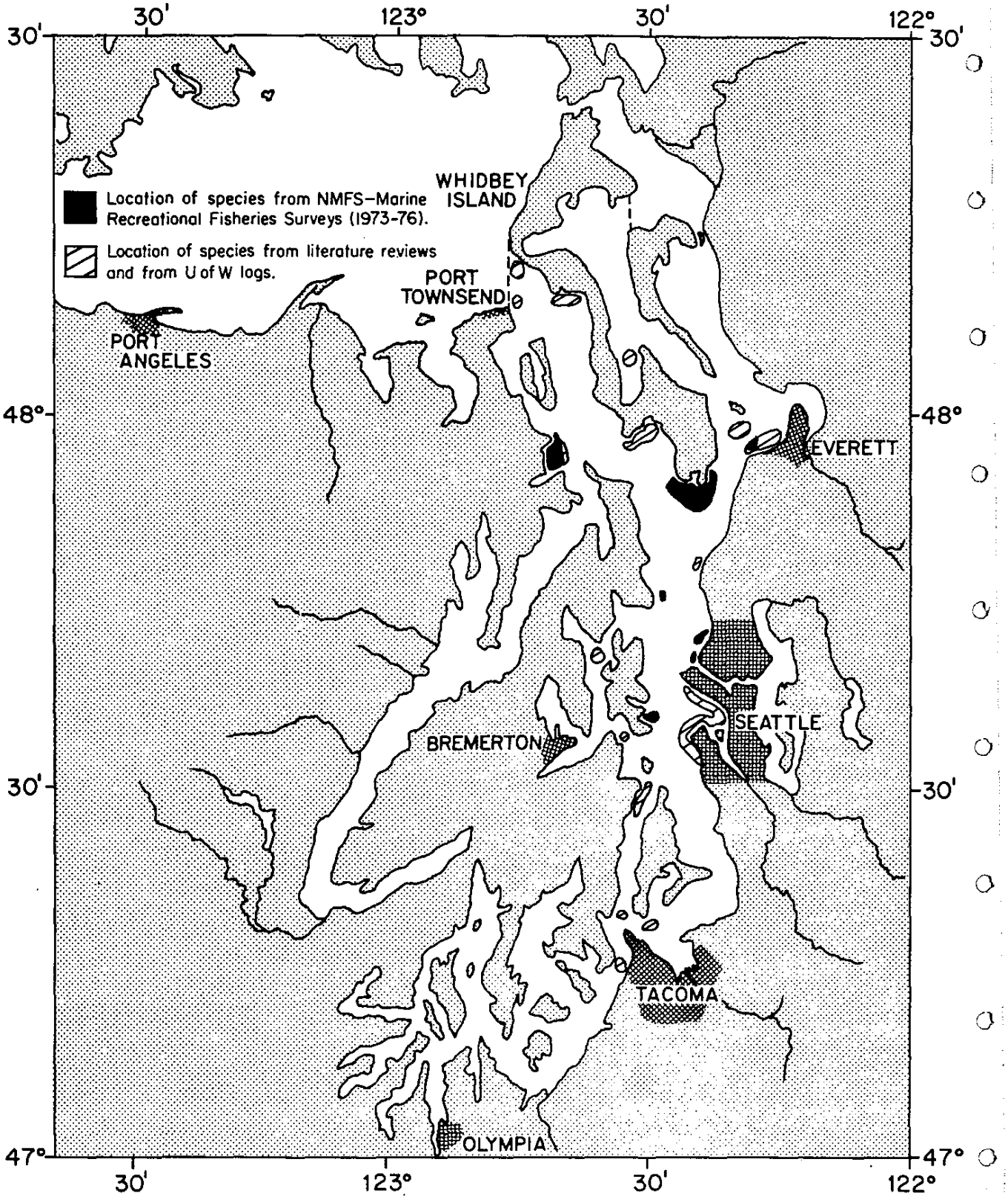


Figure 16 Known distribution of black rockfish, Sebastes melanops, in Puget Sound.

Black rockfish, Sebastes melanops

Local Names: Black snapper, black bass, nero, cherna, coastal black rockfish, Columbia River rockfish, blackcod, sea bass.

Recognition: Has large eyes. When the mouth is closed, the upper jaw extends at least to the rear of the eye (distinguishes from blue rockfish), black over entire head and body except for whitish belly.

Distribution: From southern California to the Gulf of Alaska.[2, 3, 4]

Washington Distribution: Common in all marine waters of Washington except for south Puget Sound where it is absent.[1]

Habitat: Kelp beds, rocky shorelines. In summer it is found in shallow water. These fish are often found off the bottom. (surface to 180 ft. in Puget Sound.

Utilization: A small number are taken as an incidental catch in the commercial fishery. Very fine light-gear sportfish.

Size: To 23 inches.[3] Specimens to 22 inches (56 cm) and 6 pounds in Puget Sound with unconfirmed reports of fish up to 10 pounds.

Baits and Lures: Herring, squid, plugs, spoons, spinners, flies, rubber worms, jigs.

Eating Qualities: Excellent.

Literature cited:

1. DeLacy, Miller, and Borton 1972. 2. Dunn and Hitz 1969. 3. Hart 1973. 4. Miller and Lea 1972.

Additional References:

1. Alverson, Pruter, and Ronholt 1964. 2. Haw and Buckley 1971. 3. Phillips 1957. 4. Somerton and Murray 1976. 5. Wilimovsky 1954.

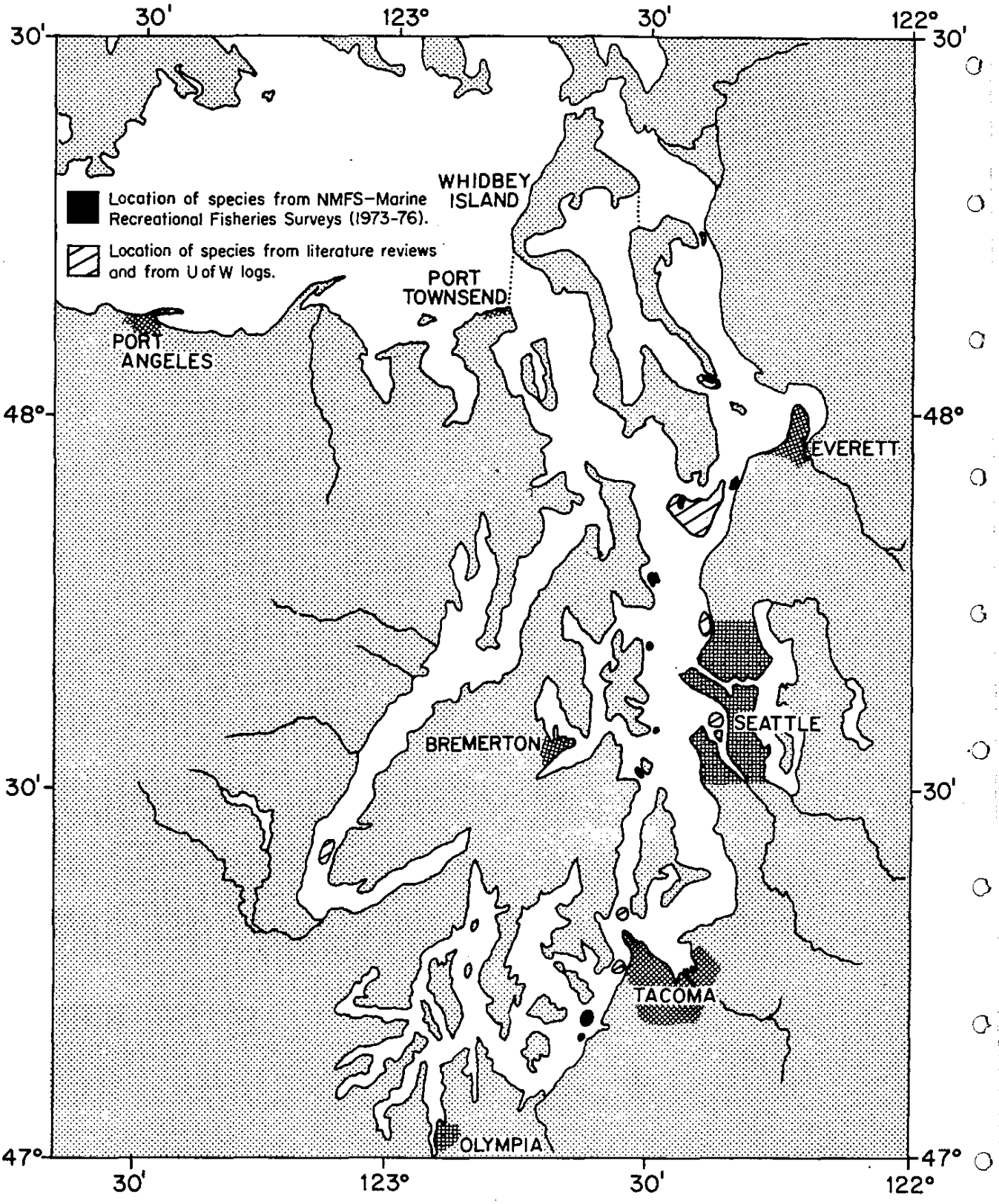


Figure 17 Known distribution of bocaccio, Sebastes paucispinis, in Puget Sound.

Bocaccio, Sebastes paucispinis

Local Names: Salmon grouper, tomcod, rock cod, spotted rockfish.

Recognition: Large mouth. Lower jaw extends beyond upper jaw. Dull red on head and back. May be pink on sides with dark blotches on sides.

Distribution: Baja California to British Columbia.[2, 3]

Washington Distribution: Relatively common in northern Puget Sound and Hood Canal. Less common in south Puget Sound.[1] Our data indicate that they are common in central and south Puget Sound also.

Habitat: Prefers deep water (caught at 120-280 feet in Puget Sound). May be found over a variety of hard bottom types.

Utilization: Caught commercially in Washington and British Columbia. An important commercial species in California. Recently, an important sport species in central and south Puget Sound.

Size: To 36 inches.[2] Specimens to 28-3/4 inches (73 cm) and 13 pounds collected from Puget Scund with reports of larger specimens 15 pounds unverified.

Baits and Lures: Herring, squid, jigs.

Eating Qualities: Fair. A little grainier flesh than other rockfish. Flesh exceptionally fatty for a rockfish. Smaller fish in 3-5 pound range best.

Literature cited:

1. DeLacy, Miller, and Borton 1972. 2. Hart 1973. 3. Miller and Lea 1972.

Additional References:

1. Davenport 1966. 2. Moser 1967. 3, 4. Phillips 1964. 5. Roche and Halstead 1972. 6. Somerton and Murray 1976. 7. Westrheim 1966b.

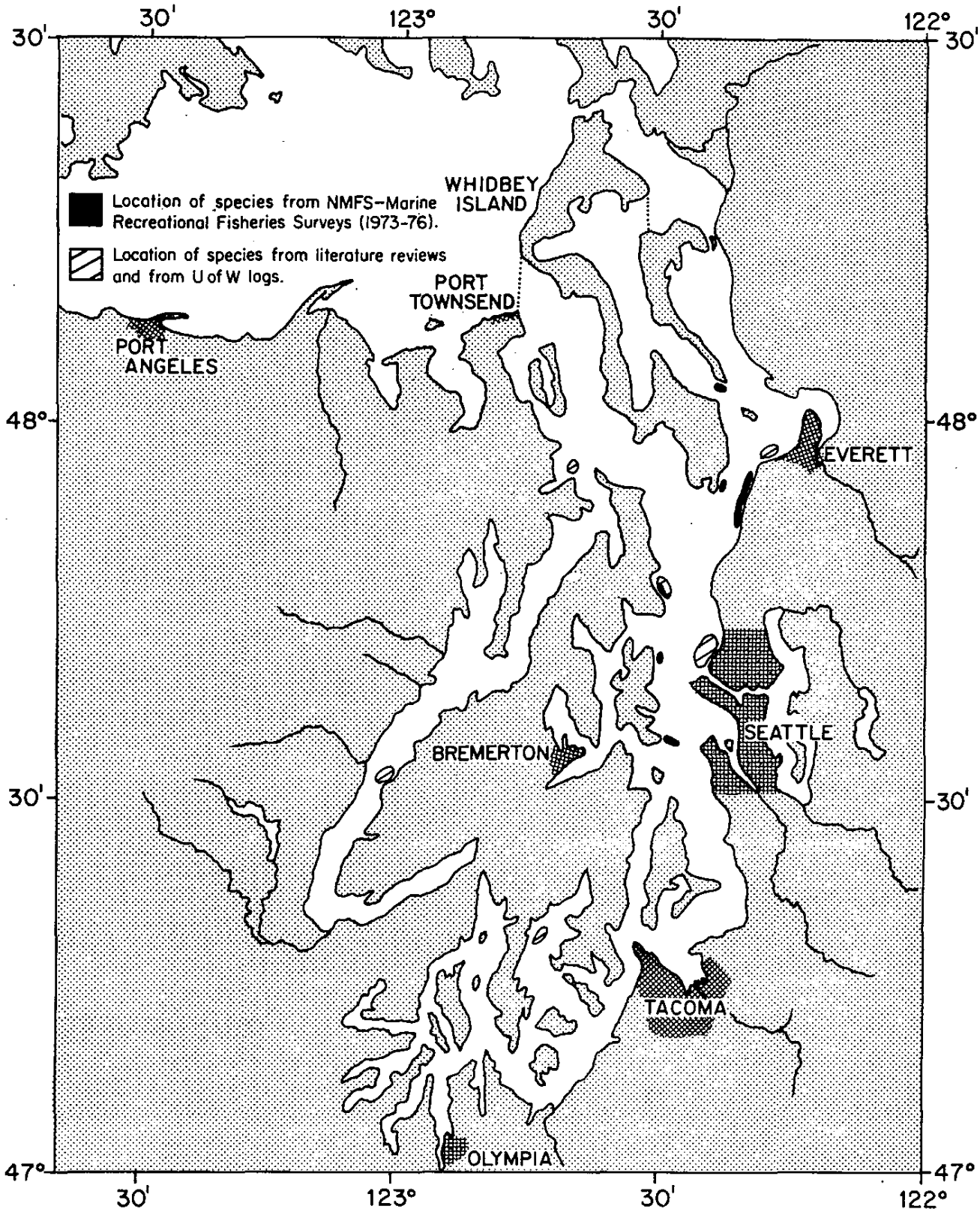


Figure 18 Known distribution of canary rockfish, Sebastes pinniger, in Puget Sound.

Canary rockfish, Sebastes pinniger

Local Names: Orange rockfish, yellow snapper, codalargo, filione, fantail, red rock cod, red snapper, bosco.

Recognition: Head and body orange with some dark speckles on back. Fins are bright orange.

Distribution: Baja California to southeast Alaska.[2, 3]

Washington Distribution: Found in northern Puget Sound, San Juans, and Strait of Juan de Fuca.[1]

Habitat: Prefers deep water (deeper than 150 ft). Found over hard bottom.

Utilization: An important part of the coastal commercial catch. Marketed "red snapper." Regarded highly by bottom anglers.

Size: To 30 inches.[2] Specimens to 22 inches (56.4 cm) and 6 pounds collected from Puget Sound.

Baits and Lures: Herring, candlefish, squid, jigs, rubber worms.

Eating Qualities: Excellent.

Literature cited:

1. DeLacy, Miller and Borton 1972. 2. Hart 1973. 3. Miller and Lea 1972.

Additional References:

1. Alverson, Pruter, and Ronholt 1964. 2. Haw and Buckley 1971. 3, 4. Phillips 1957, 1964. 5. Somerton and Murray 1976. 6. Waldron 1968. 7. Westrheim 1966b.

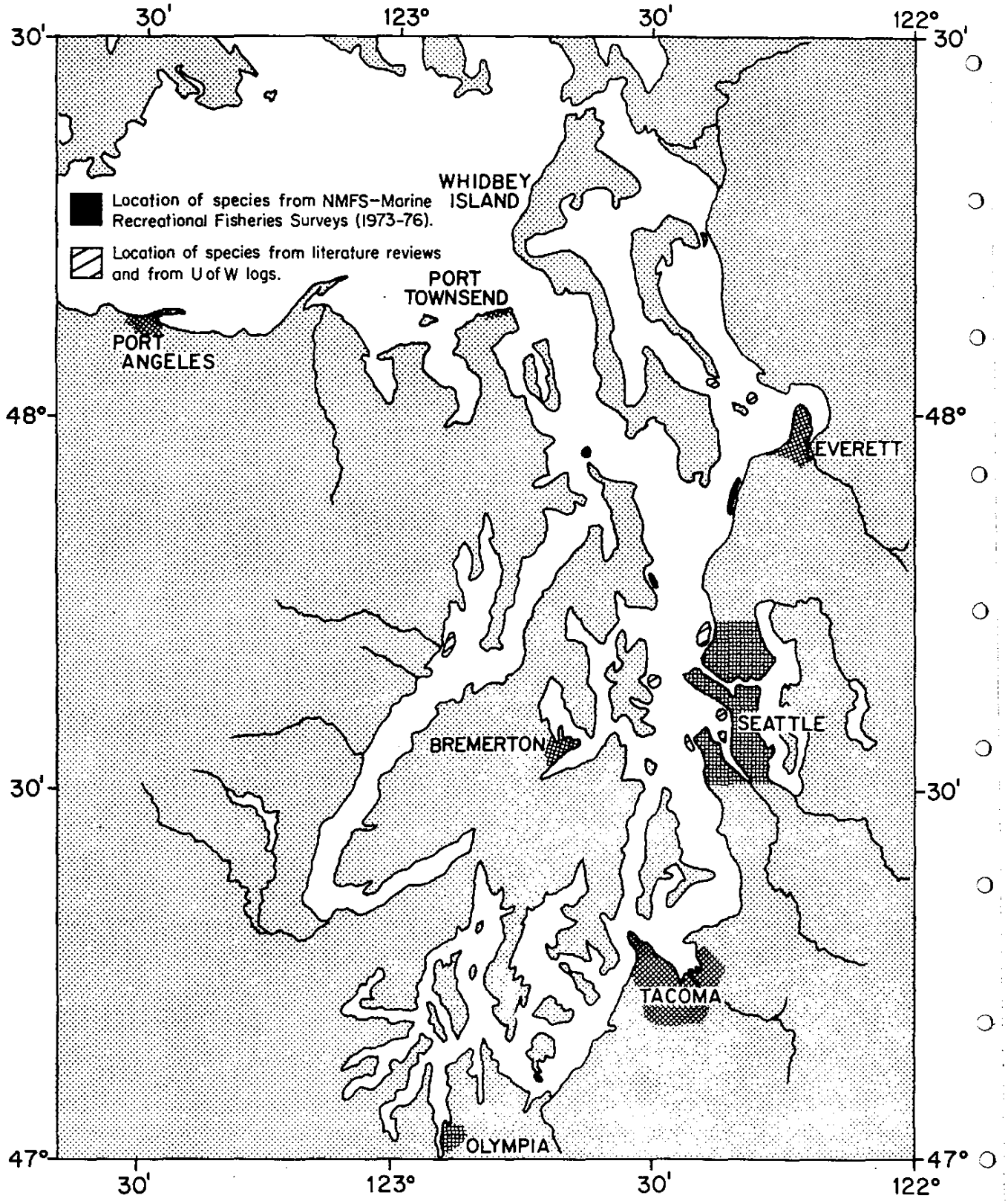


Figure 19 Known distribution of redstripe rockfish, Sebastes proriger, in Puget Sound.

Redstripe rockfish, Sebastes proriger

Local Names: Little red rock cod, red stripe cod.
Recognition: Clear red stripe running the full length of the lateral line canal. Green stripes radiating from eyes. Pale red, mottled with green and yellow.

Distribution: San Diego, California, to the Bering Sea.[2, 3]

Washington Distribution: Moderately common in San Juans and northern Puget Sound. Also found in Hood Canal and south Puget Sound.[1]

Habitat: Prefers moderately deep water over rocky bottoms (generally deeper than 100 feet).

Utilization: An incidental commercial species. Also caught incidental to sport salmon and bottom fish fisheries.

Size: Length to 20 inches[2]; uncommon over 12 inches (30 cm) in Puget Sound.

Baits and Lures: Herring, jigs, rubber worms.

Eating Qualities: Excellent.

Literature cited:

1. DeLacy, Miller, and Borton 1972. 2. Hart 1973. 3. Miller and Lea 1972.

Additional References:

1. Alverson, Pruter, and Ronholt 1964. 2. Grinols 1965. 3. Phillips 1957. 4. Wilimovsky 1954.

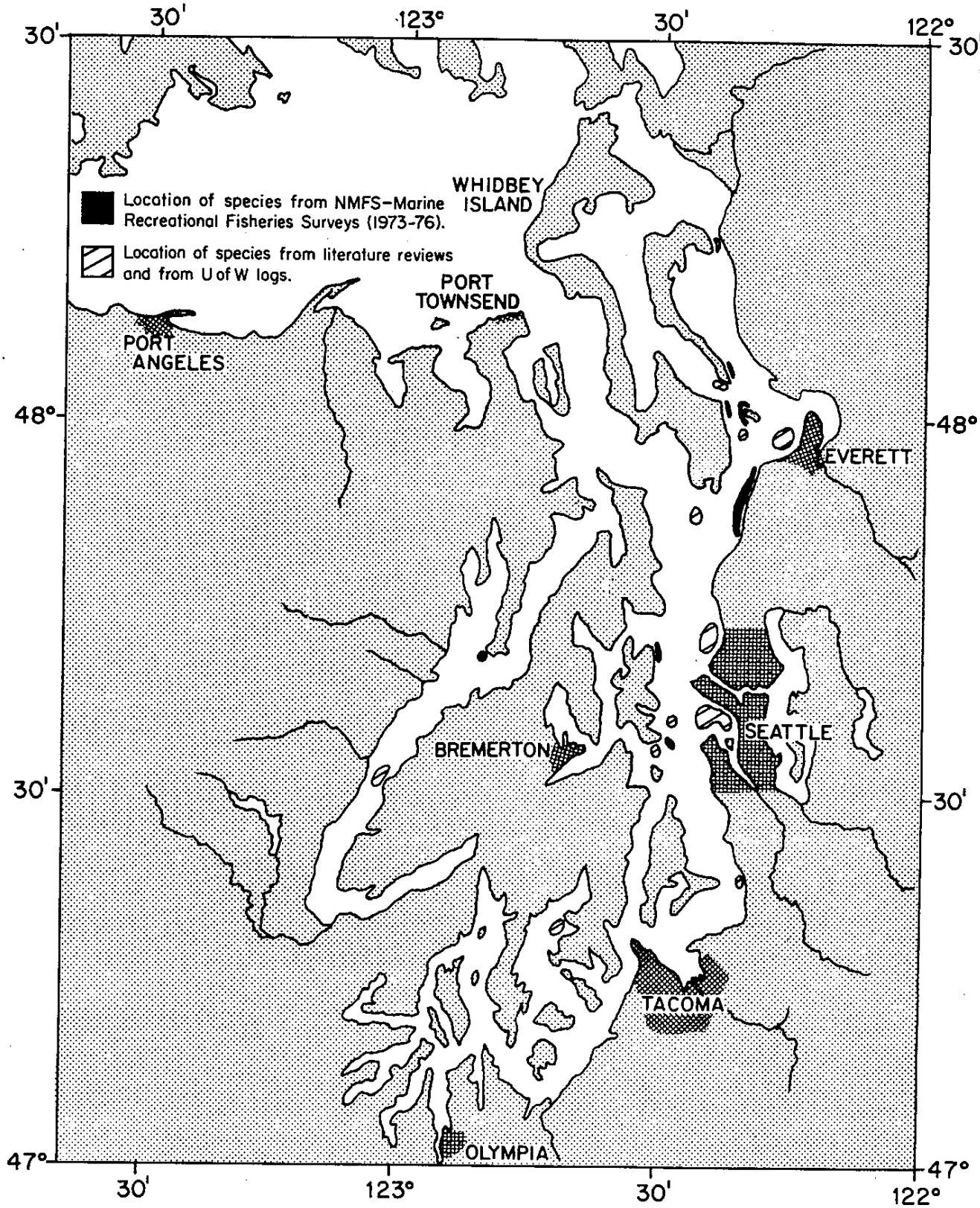


Figure 20 Known distribution of yelloweye rockfish, Sebastes ruberrimus, in Puget Sound.

Yelloweye rockfish, Sebastes ruberrimus

Local Names: Red snapper, pot belly, drum, tambor, vecchia, red rock cod, cowfish, turkey rockfish, rasphead rockfish.

Recognition: Orange red coloration. The fins are tipped with black and the eye is a bright yellow. Orange yellow over head and body. May be some black mottling around head.

Distribution: Baja California to Gulf of Alaska.[2, 3]

Washington Distribution: Common in coastal waters. San Juan Islands, Strait of Juan de Fuca, Puget Sound, and Hood Canal.[1]

Habitat: Found over reefs in deep water (deeper than 200 ft in Puget Sound).

Utilization: Important commercial species. Usually caught by setlines. Sold as "red snapper." Highly prized by most anglers because of its large average size.

Size: To 36 inches.[2] Specimens to 27-3/4 inches (70.1 cm) and 16 pounds have been collected in Puget Sound with unconfirmed reports of larger specimens.

Baits and Lures: Herring, squid, jigs, spoons, spinners.

Eating Qualities: Excellent.

Literature cited:

1. DeLacy, Miller, and Borton 1972. 2. Hart 1973. 3. Miller and Lea 1972.

Additional References:

1. Alverson, Pruter, and Ronholt 1964. 2. Barsukov 1964. 3. DeLacy, and Dryfoos 1962. 4. DeLacy, Hitz, and Dryfoos 1964. 5. Grinols 1965. 7. Haw and Buckley 1971. 8. Phillips 1957. 9. Somerton and Murray 1976. 10. Welander and Alverson 1954. 11. Wilimovsky 1954.

Figure 21 Photograph of a sablefish.

SABLEFISH

Sablefish belong to the skilfish family, Anoplopomatidae, and are also known as blackcod (no relation to Pacific cod), the adults of this species are seldom, if ever, found in Puget Sound. Sablefish are available to Puget Sound anglers as 1-, 2-, and 3-year-old juveniles--probably having entered the Sound as pelagic eggs or larvae in water masses from the ocean or the Strait of Juan de Fuca. The adult female will produce several hundred thousand free-floating eggs.

Even though much smaller than adults which can grow to 40 inches in length and over 126 pounds, the youngsters found in the "Sound" are "alley fighters," putting up a more than respectable battle from their bottom home at 100 or so feet to the surface. This species is gaining popularity amoung bottom anglers because of the firm white flesh and the high oil content, which makes it a prime smoking fish.

Baits mooched on bottom have always produced the best results with sablefish. Gear should be chosen to suit the depth fished--light gear in shallow water ranging to heavier gear as depths increase.

Sablefish, Anoplopoma fimbria

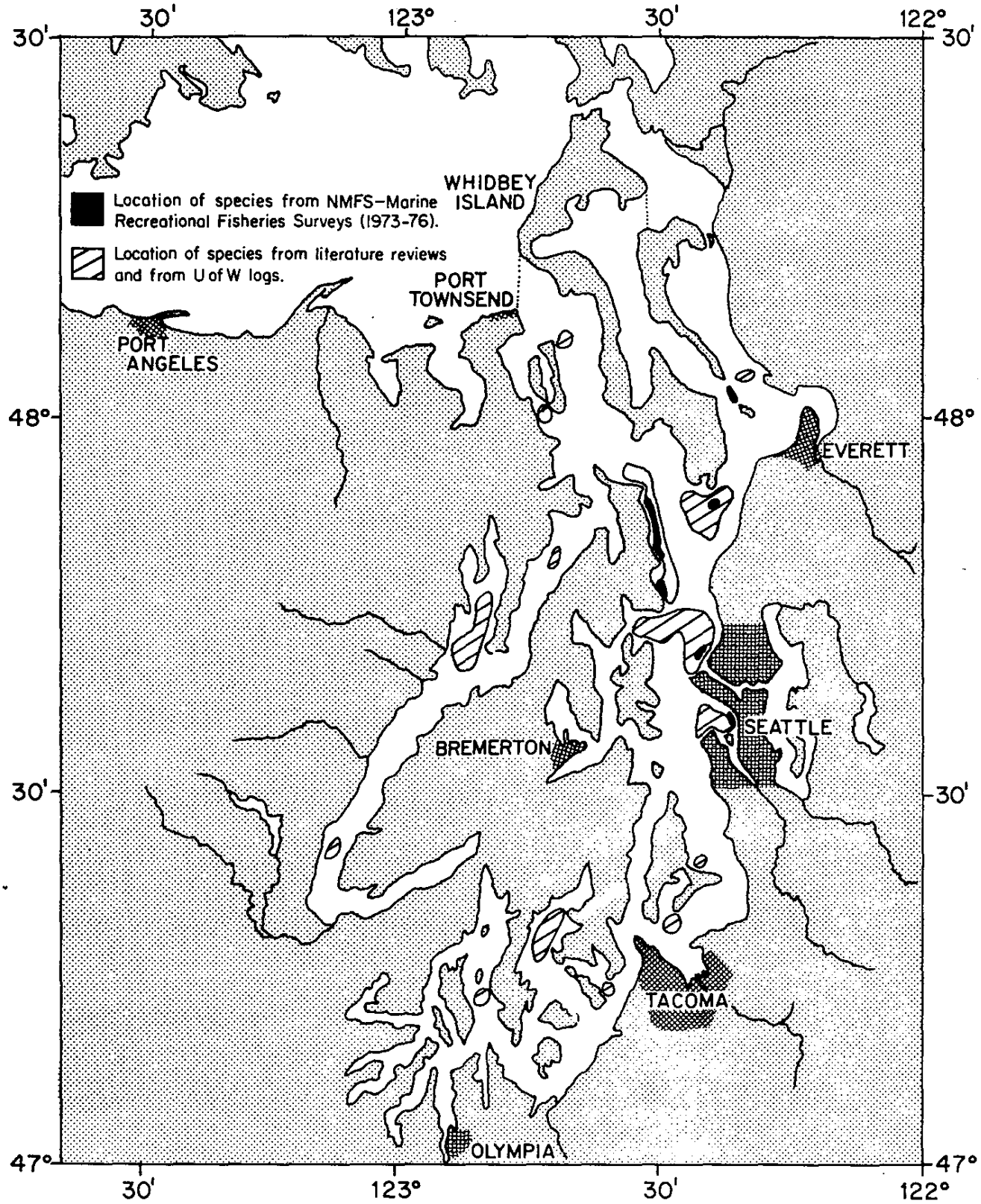


Figure 22 Known distribution of sablefish, Anoplopoma fimbria, in Puget Sound.

Sablefish, Anoplopoma fimbria

Local Names: Blackcod, coalfish, blue cod, butterfish.

Recognition: No spines on head or body. Two well-separated dorsal fins, that are almost equal in size. Black or greenish gray on back with a light gray on underside.

Distribution: Baja California to Alaska.[1]

Washington Distribution: Found in almost all marine waters of this state.[1] Common in Strait of Juan de Fuca, northern Puget Sound. Puget Sound has only juveniles.[3] Species leaves by the end of its fourth to fifth year.

Habitat: Found over flat mud silt bottoms over a wide variety of depths.

Utilization: An important coastal commercial species, 40 thousand tons are landed annually, mainly by foreign fishing vessels off the coast. Prized in Midwest as Alaska blackcod--a smoked product. (Be careful, the oil will burn up your electric smoker.) Enjoying an increase in popularity among bottom anglers.

Size: To 40 inches along coast; [2] much smaller (23-1/2 inches--59.4 cm and 4-1/4 lb) within Puget Sound (juveniles only).

Bait: Herring (plugged or spinner cut best).

Eating Qualities: The flesh is very oily, which results in an excellent smoked product. Good with beer or poached for breakfast.

Literature cited:

1. DeLacy, Miller, and Borton 1972. 2. Hart 1973. 3. Pruter 1959.

Additional References:

1. Alverson 1960. 2. Alverson, Pruter, and Ronholt 1964. 3. Andriashev 1937. 4. Bailey, Carter, and Swain 1952. 5. Bell and Gharett 1945. 6. Bell and Pruter 1958. 7. Bourne and Pope 1969. 8. Brock 1940. 9. Conway 1967. 10. Cox 1948. 11. Edson 1954. 12, 13. Fisheries Research Board Canada 1966, 1967. 14. Grinols 1965. 15. Grinols and Gill 1968. 16. Haw and Buckley 1971. 17. Heyamoto 1963. 18, 19. Heyamoto and Alton 1964, 1965. 20. Holmberg and Jones 1954. 21, 22. Kennedy 1968, 1970. 23. Kennedy and Pletcher 1968. 24. Ketchen and Forrester 1954. 25. Larkin and Ricker 1964. 26. Matsubara 1955. 27. Miller and Lea 1972. 28. Nikol'skii 1954. 29. Pasquale 1964. 30, 31. Phillips 1952, 1958a, 32. Phillips, Glothier, and Fry 1954. 33. Pruter 1954. 34. Roedel 1953. 35. Thompson 1941.

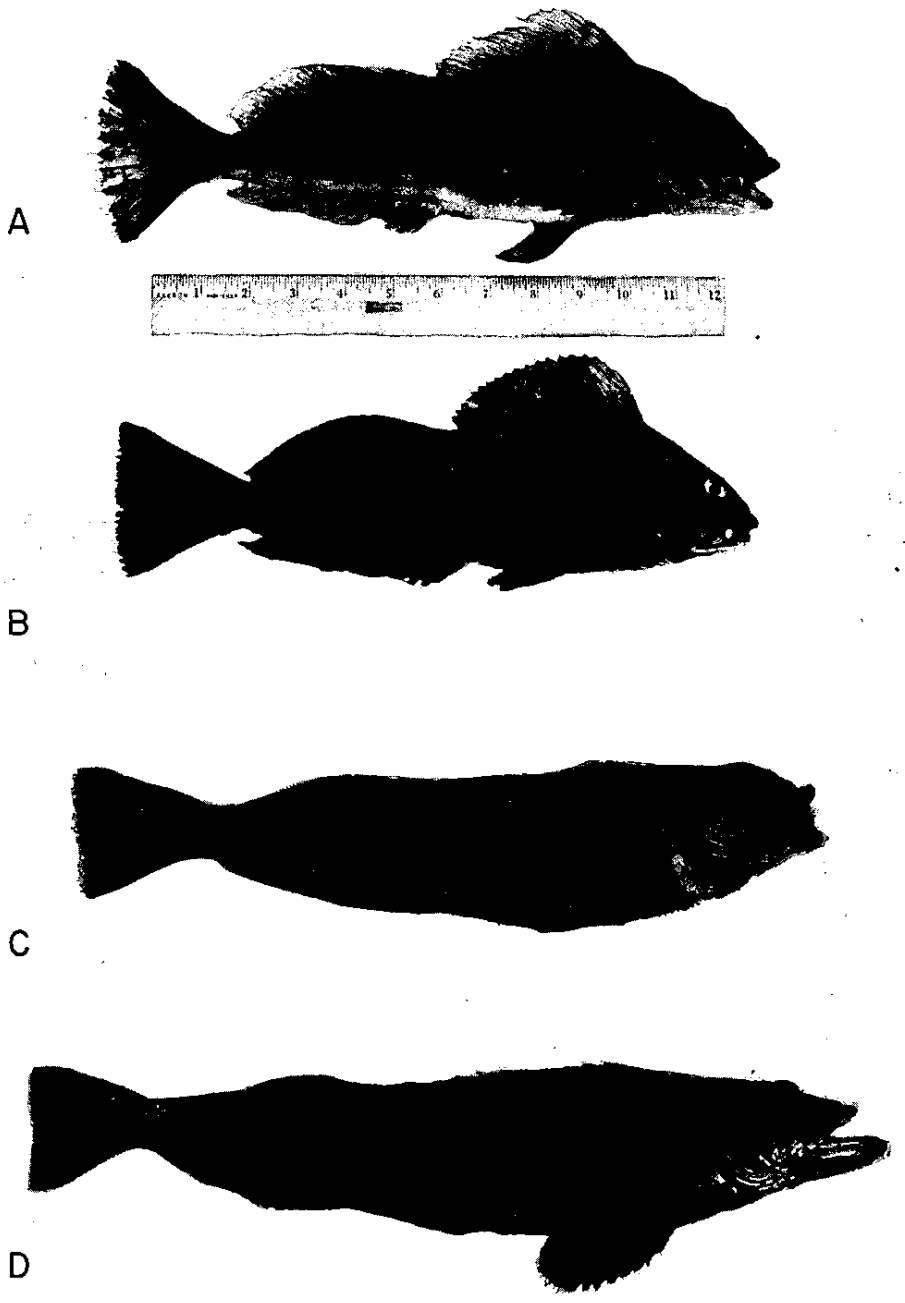


Figure 23 Photograph of (A) female kelp greenling; (B) male kelp greenling; (C) whitespotted greenling; and (D) lingcod.

GREENLINGS

Members of this family, Hexagrammidae, vary widely in coloration and size from the smaller whitespotted greenling to the massive lingcod (no relation to Pacific cod, rockfish, or sablefish), which have been caught weighing up to 105 pounds in British Columbia. Only the lingcod is of commercial importance to the United States.

All members of this family have been taken while jigging for rockfish with light gear. The better lingcod spots in Puget Sound require the presentation of baits or lures in swift deep water, necessitating the use of heavy rod-reel, wire line, and heavy weight combinations.

Kelp greenling, Hexagrammos decagrammus
Whitespotted greenling, Hexagrammos stelleri
Lingcod, Ophiodon elongatus

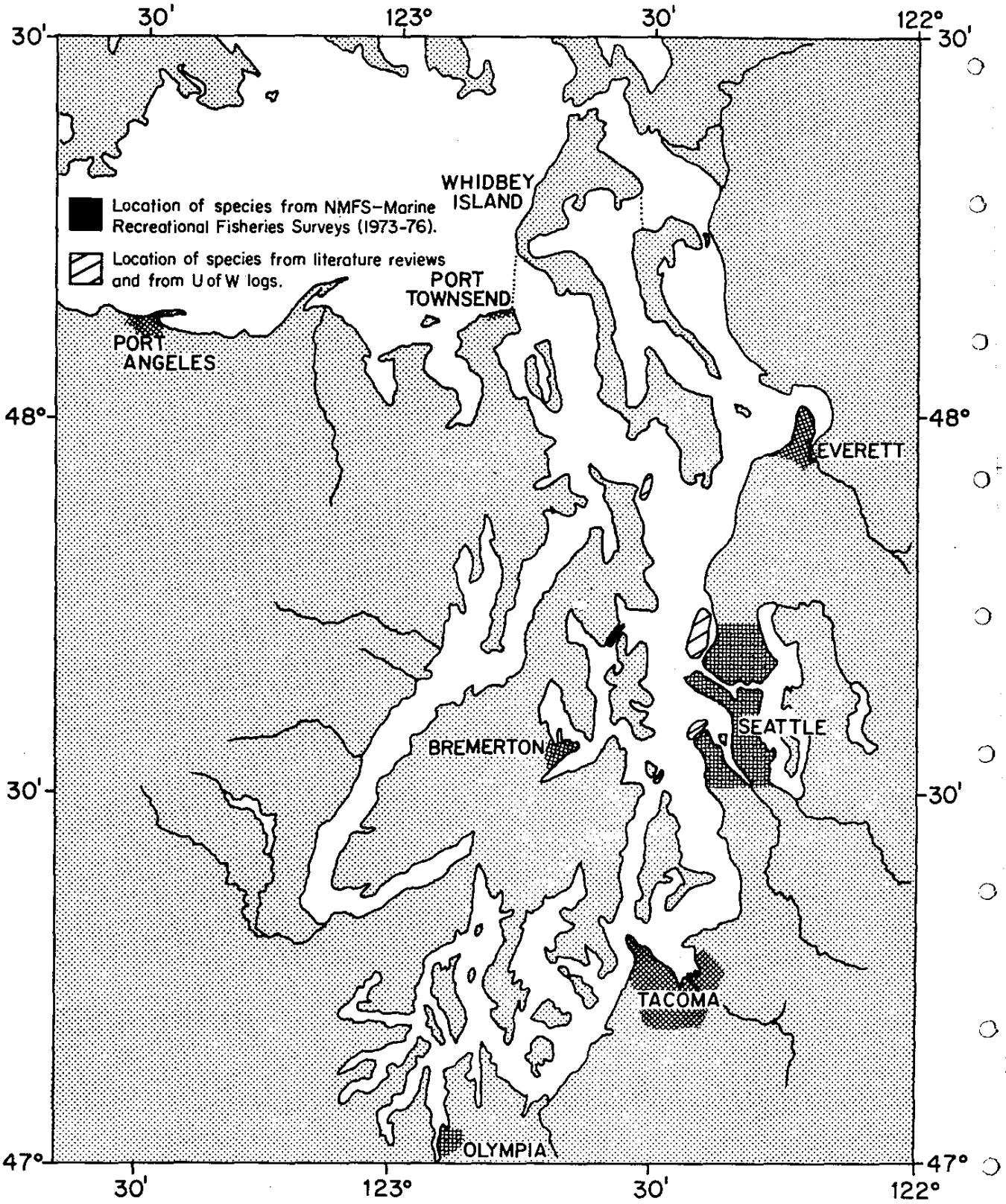


Figure 24 Known distribution of kelp greenling, Hexagrammos decagrammus, in Puget Sound.

Kelp greenling, Hexagrammos decagrammus

Local Names: Kelp cod, Rock trout, greenling.

Recognition: Two pairs of "fleshy flaps" (1 pair above eyes, the other smaller pair on nape), long dorsal fin with about 21 spines and five lateral lines on body. Color depends on sex. Females have a slate brown or gray body covered with round reddish brown spots. The males have slate brown or gray bodies with large turquoise spots on the head and anterior part of body.

Distribution: From La Jolla to Alaska.[2, 3]

Washington Distribution: Found in moderate numbers, in Strait of Juan de Fuca, San Juans, Bellingham area, Puget Sound. Not common in Hood Canal.[1]

Habitat: Found in shallow water over rocky and sandy bottoms. Most common in kelp beds and over reefs.

Utilization: Not caught commercially. Caught incidental to other bottom fish by anglers.

Size: Length to 22 inches.[2] Specimens to 17-1/2 inches (44.5 cm) have been collected from Puget Sound.

Baits and Lures: Herring, candlefish, rubber worms.

Eating Qualities: Excellent. The flesh is at times blue turning white when cooked.

Literature cited:

1. DeLacy, Miller, and Borton 1972. 2. Hart 1973. 3. Miller and Lea 1972.

Additiional References:

1, 2, 3. Barraclough 1967a, b, c. 4. Haw and Buckley 1971. 5, 6. Robinson, Barraclough, and Fulton 1968a, b. 5. Roedel 1953. 6. Somerton and Murray 1976. 7. Wilimovsky 1964.

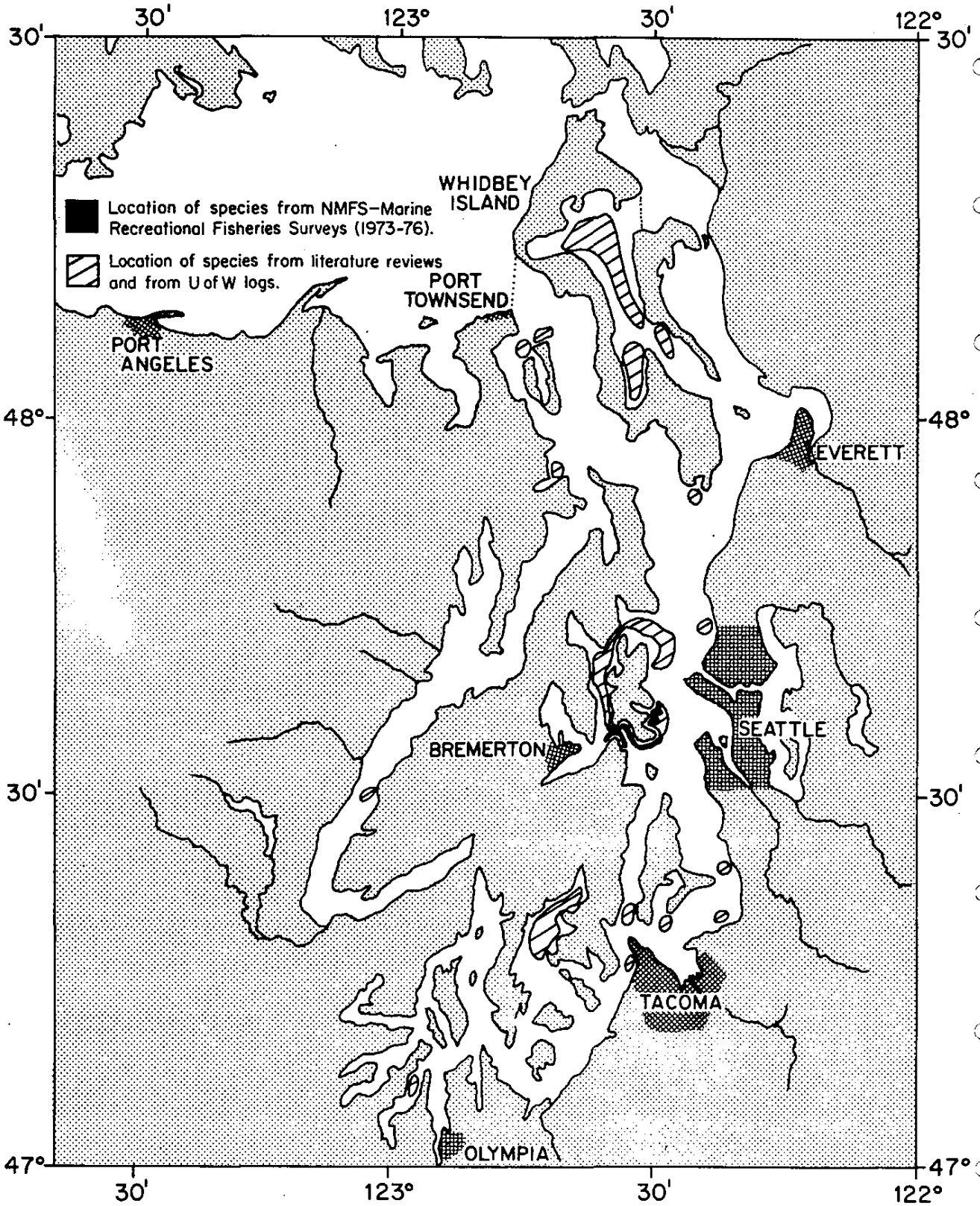


Figure 25 Known distribution of whitespotted greenling, Hexagrammos stellari, in Puget Sound.

Whitespotted greenling, Hexagrammos stelleri

Local Names: Kelp cod, Rock trout greenling, Tommy cod.

Recognition: One small fleshy flap above each eye, and five lateral lines. Mostly green (usually the female) but may vary from pale red to tan (usually the males). Small white spots over body.

Distribution: Puget Sound to Japan to Alaska,[4] from Coos Bay, Oregon, north.

Washington Distribution: Found in moderate numbers in Strait of Juan de Fuca, San Juans, and Puget Sound. (Somerton and Murray 1976 list them as uncommon in Puget Sound; however, our data show otherwise).

Habitat: Prefers rocky areas in shallow water.

Utilization: Not caught commercially. Caught incidental to other bottom fish by anglers.

Size: Length to 24 inches.[3] Specimens to 14-1/2 inches (36.8 cm) collected from Puget Sound.

Baits and Lures: Herring, candlefish, jigs, rubber worms.

Eating Qualities: Excellent.

Literature cited:

1. DeLacy, Miller and Borton 1972. 2. Gotshall 1977. 3. Hart 1973. 4. Miller and Lea 1972. 5. Somerton and Murray 1976.

Additional References:

1. Barraclough and Fulton 1968. 2. Barraclough, Robinson, and Fulton 1968. 3. DeLacy, Dryfoos, and Miller 1963. 4. Haw and Buckley 1971. 5. Matsubata 1955. 6. Popov 1933. 7. Roedel 1953. 8. Schmidt 1950. 9, 10. Wilimovsky 1954, 1964.

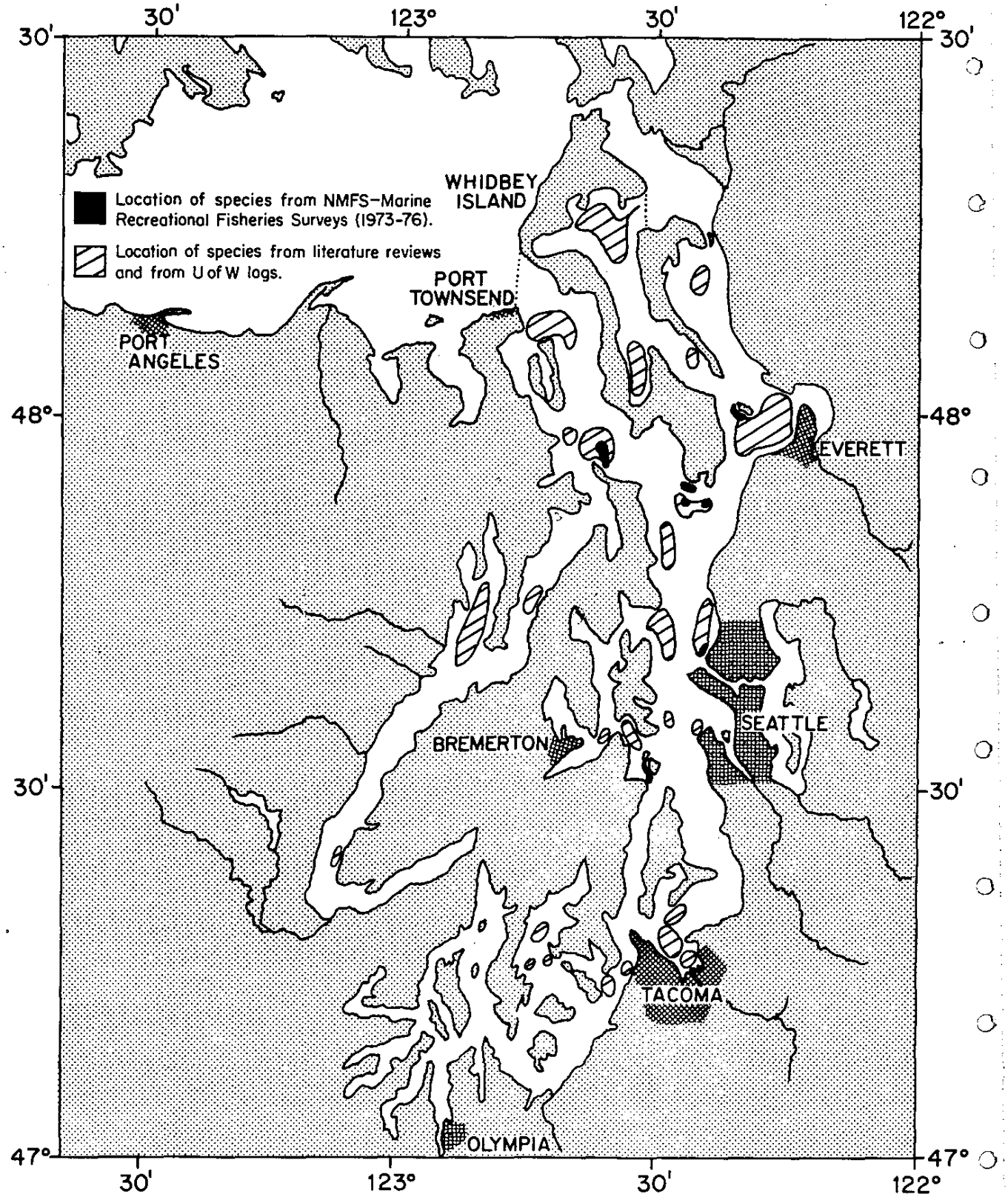


Figure 26 Known distribution of lingcod, Ophiodon elongatus, in Puget Sound.

Lingcod, Ophiodon elongatus

Local Names: Ling, greenling, cod.

Recognition: Elongated body with large mouth, large teeth, and long dorsal fin. Very variable. May be green to dark brown. Color depends on environment.

Distribution: Baja California to Alaska. Greatest abundance is in vicinity of British Columbia.[2, 3, 4]

Washington Distribution: Found in all marine waters of the State. Most common along the coast, the western Strait of Juan de Fuca and the San Juan Islands. Less common in central Puget Sound.[1]

Habitat: Prefer rocky bottoms where there is a strong tidal current. In Puget Sound usually found in deep water in summer and shallow water in winter.

Utilization: An important commercial fish. Over 2 million pounds of lingcod are landed annually--mostly from coastal waters. One of the most highly prized bottom fish.

Size: Length to 5 feet.[2] Specimens to 41 inches (104 cm) and 26 pounds collected from Puget Sound with many unverified reports of much larger specimens.

Baits and Lures: Herring, plugs, jigs, spoons, rubber worms.

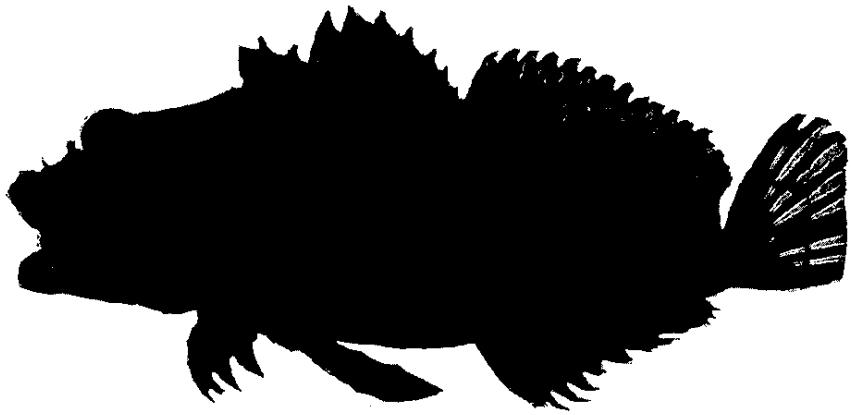
Eating Qualities: Excellent. The pale blue/green color flesh turns white during cooking.

Literature cited:

1. DeLacy, Miller, and Borton 1972. 2. Hart 1973. 3. Miller and Lea 1972. 4. Phillips 1959.

Additional References:

1. Alverson 1960. 2. Alverson, Pruter, and Ronholt 1964. 3. Bailey, Carter, and Swaim 1952. 4, 5, 6. Barraclough 1967a, b, c. 7, 8. Barraclough and Fulton 1967, 1968. 9. Biological Board of Canada 1935. 10, 11, 12, 13. Chatwin 1954, 1955a, b, 1958. 14. Clothier 1950. 15, 16. Fisheries Research Board Canda 1954, 1967c. 17. Fitch 1950. 18. Forrester 1969b. 19. Grinols 1965. 20, 21, 22. Hart 1943a, b, 1967. 23. Haw and Buckley 1971. 24. Ketchen 1950a. 25. Larkin and Ricker 1964. 26. Miller and Geibel 1973. 27, 28. Robinson, Barraclough, and Fulton 1968a, b. 29. Roedel 1948. 30. Somerton and Murray 1976. 31 Wendler 1953. 32. Wilby 1937.



A

B

C

Figure 27 Photograph of (A) red Irish lord; (B) Pacific staghorn sculpin; and (C) cabezon.

SCULPINS

The family Cottidae is an extremely large and diverse group. While most are important as forage for other fishes, only a few species are large enough to be of true recreational importance. While the flesh of some species is of high quality, the eggs of the cabezon are extremely poisonous.

Sculpins are normally caught using light gear and bait, however, jig-rubber worm combinations have been found to be exceptional for producing cabezon.

Red Irish lord, Hemilepidotus hemilepidotus
Pacific staghorn sculpin, Leptocottus armatus
Cabezon, Scorpaenichthys marmoratus

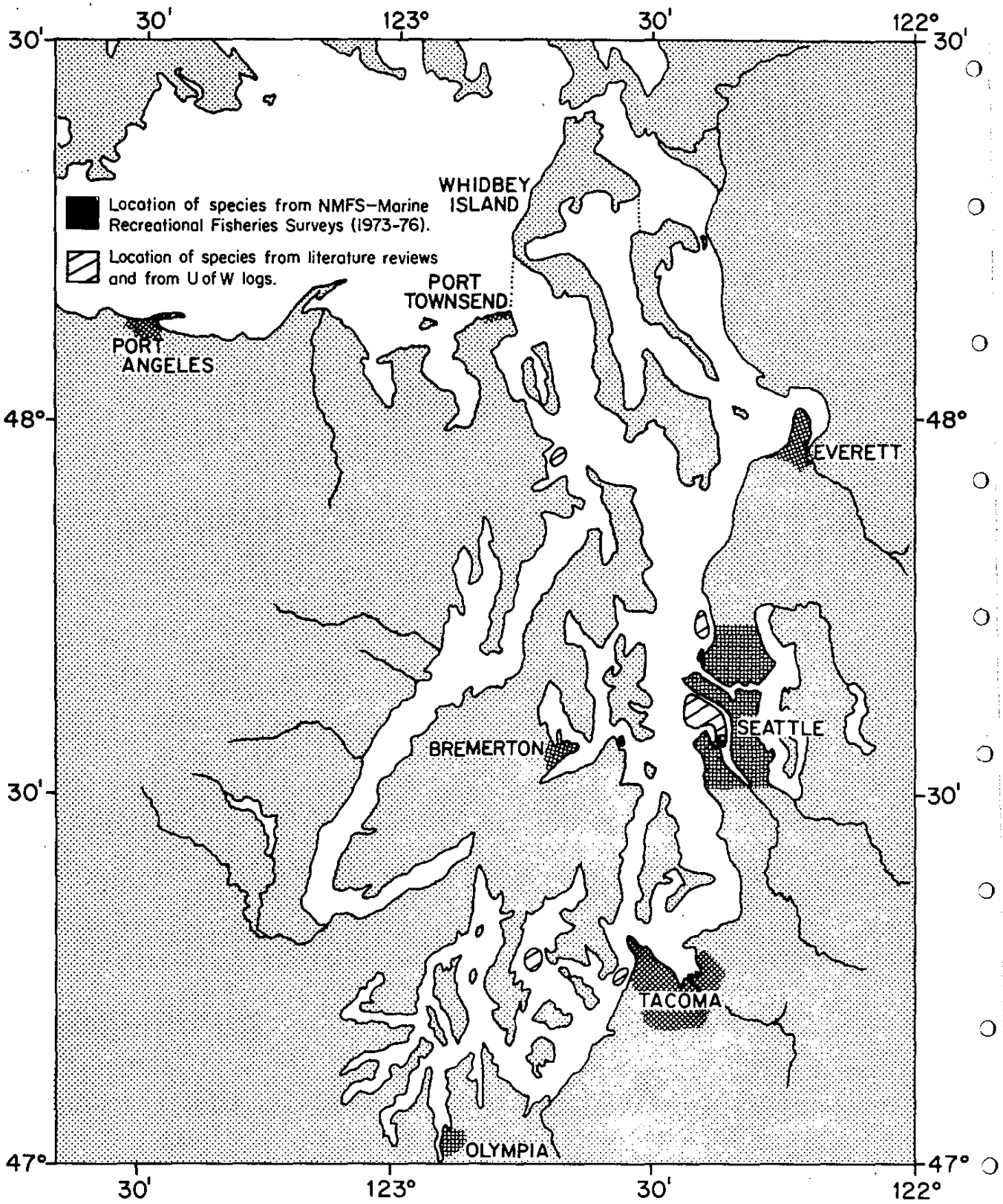


Figure 28 Known distribution of red Irish lord, Hemilepidotus hemilepidotus, in Puget Sound.

Red Irish lord, Hemilepidotus hemilepidotus

Local Names: Spotted Irish lord, bullhead.

Recognition: Has a single dorsal fin that has three different levels; there is a band of scales, 4-5 scales wide, surrounding dorsal fin. Variable, mainly red with mottling all over body. Not always red--some may be brownish.

Distribution: From central California to Bering Sea.[2, 3]

Washington Distribution: Common in Puget Sound; not recorded from Hood Canal.[1]

Habitat: Occurs in shallow water over rocky bottoms.

Utilization: Not caught commercially. A generally overlooked species because of its appearance.

Size: Length to 20 inches[2] (50.8 cm).

Baits and Lures: Herring, jigs, rubber worms.

Eating Qualities: Good.

Literature cited:

1. DeLacy, Miller and Borton 1972. 2. Hart 1973. 3. Miller and Lea 1972.

Additional References:

1. Arai 1969. 2, 3. Barraclough 1967a, b. 4. Haw and Buckley 1971. 5. Peden 1964. 6. Popov 1933. 7. Somerton and Murray 1976. 8, 9. Wilimovsky 1954, 1964.

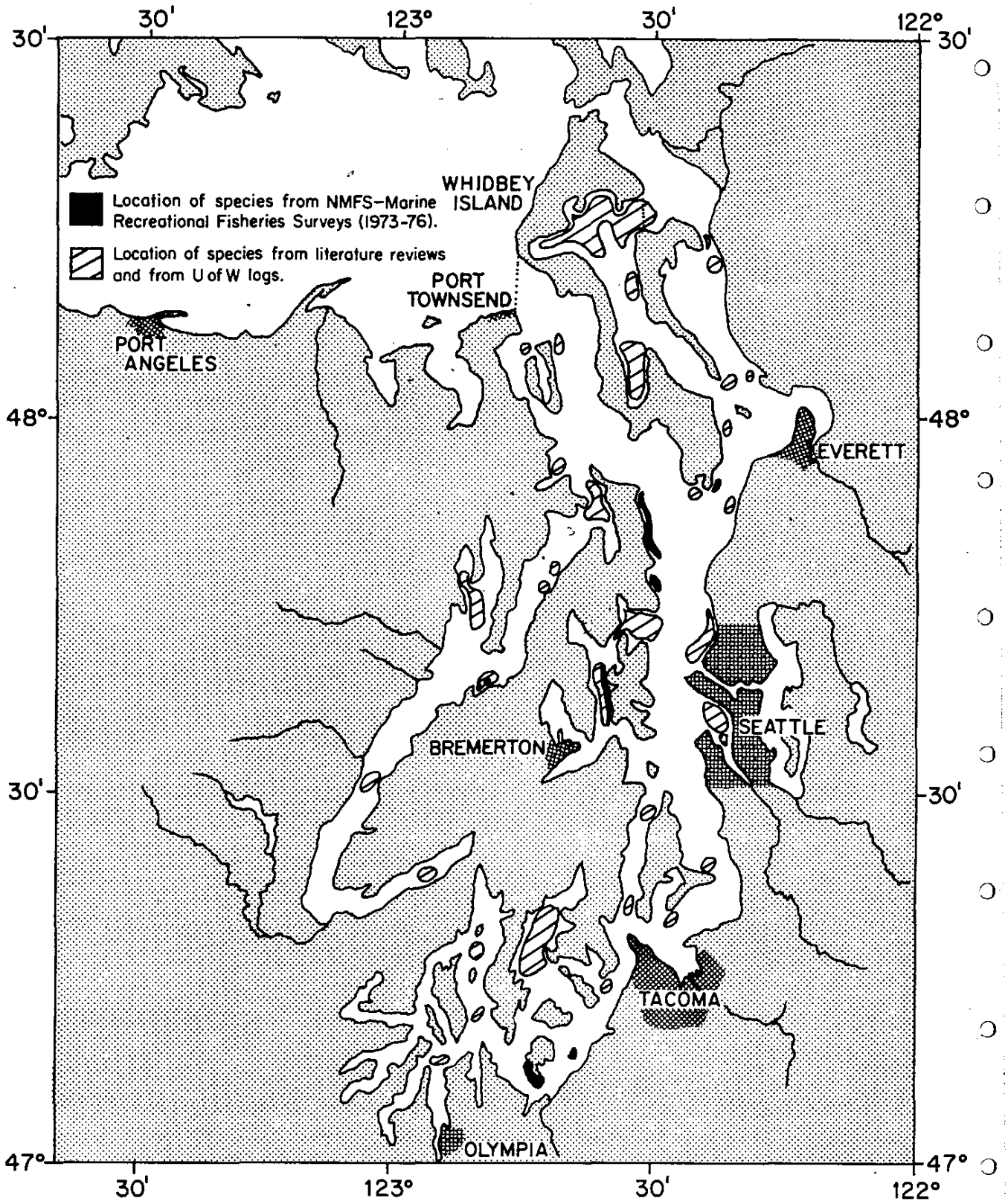


Figure 29 Known distribution of Pacific staghorn sculpin, Leptocottus armatus, in Puget Sound.

Pacific staghorn sculpin, Leptocottus armatus

Local Names: Staghorn sculpin, buffalo sculpin, buffalo fish, bullhead.

Recognition: No scales on body. There is a large spine on each gill cover and a dark spot on the rear portion of the spinous dorsal fin. Olive gray to green with some yellow on back. Orange-yellow to white on stomach.

Distribution: Baja California to the Gulf of Alaska.[2, 3]

Washington Distribution: Found in all marine waters of Washington. Very abundant throughout Puget Sound and the San Juans.[1]

Habitat: Usually found in very shallow water over nonrocky bottoms but may occur in water over 100 feet deep. Often enters lower portions of rivers and streams.

Utilization: Not caught commercially. This species is one of the more common catches for the shore or pier angler. Mainly thought of as a pest, but fillets a good bait. Try live for ling cod.

Size: Length to 18 inches[2] (45.7 cm).

Eating Qualities: Good.

Baits and Lures: Herring, jigs, rubber worms.

Literature cited:

1. DeLacy, Miller and Borton 1972. 2. Hart 1973. 3. Miller and Lea 1972.

Additional References:

1. Haw and Buckley 1971. 2. Roedel 1948. 3. Somerton and Murray 1976. 4. Wilimovsky 1954.

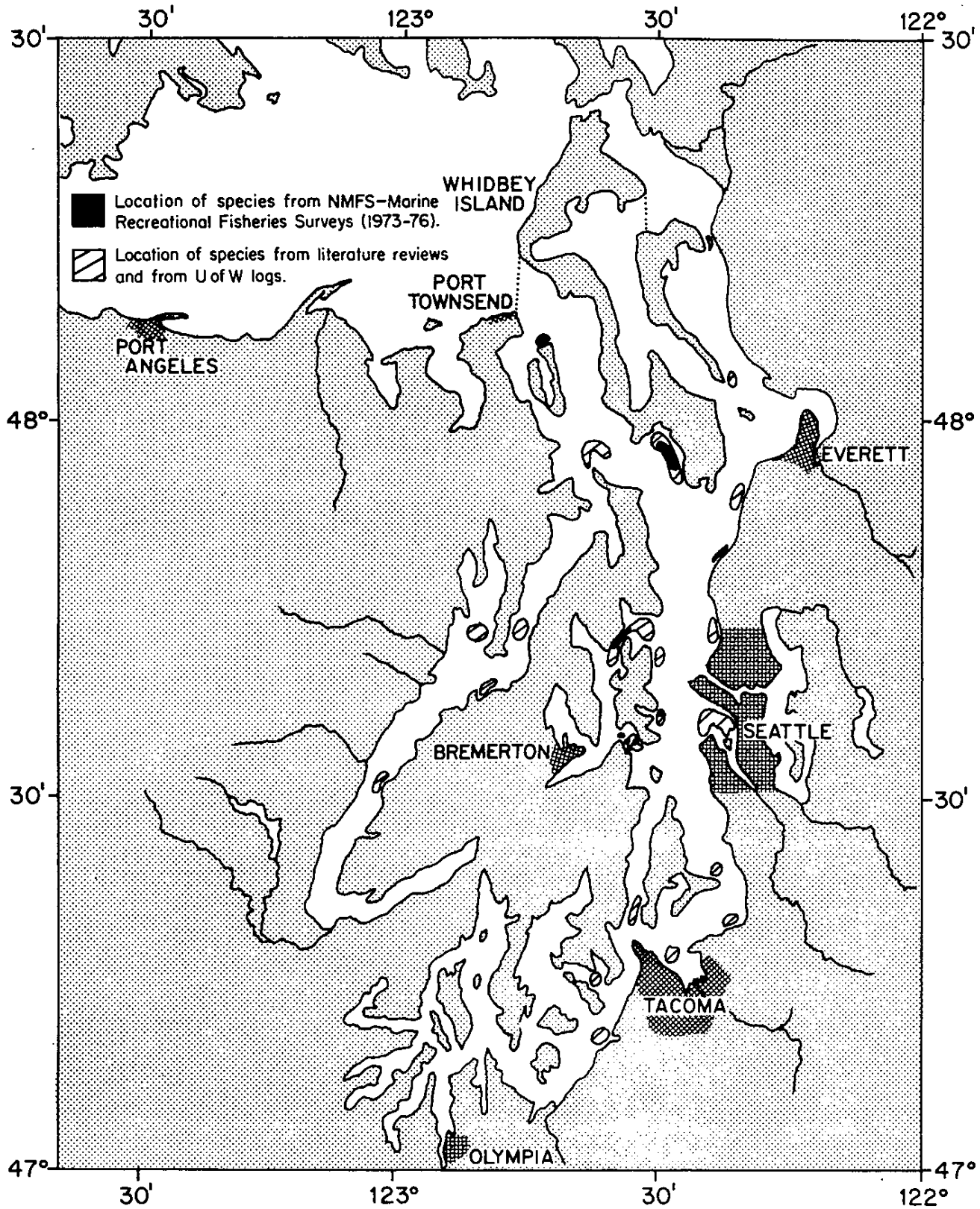


Figure 30 Known distribution of cabezon, Scorpaenichthys marmoratus, in Puget Sound.

Cabezon, Scorpaenichthys marmoratus

Local Names: Giant marbled sculpin, bullhead, blue cod.

Recognition: Flaplike fleshy stalk on snout with a mottled appearance over head and body. Green to brown or gray over entire body, mottled with large pale areas. Color is very variable.

Distribution: Baja California to south Alaska.[2, 3]

Washington Distribution: Abundant in area of Port Orchard. Found throughout Washington shallow marine waters.[1]

Habitat: Prefers shallow water (3-80 ft) over rocky and sandy bottoms.

Utilization: Caught commercially occasionally, sought and eaten by few because of its appearance.

Size: Length to 30 inches.[2] Specimens to 24-1/2 inches (68.1 cm) and 9-1/4 pounds from Puget Sound with unconfirmed reports of individuals much larger.

Baits and Lures: Squid, ghost shrimp, crabs, jigs, rubber worms.

Eating Qualities: Excellent. (Caution: the eggs are poisonous.) One of the better eating fish in Puget Sound. Don't let the greenish flesh scare you off (it turns white when cooked).

Literature cited:

1. DeLacy, Miller and Borton 1972. 2. Hart 1973. 3. Miller and Lea 1972.

Additional References:

1. Barraclough 1967a. 2. Clothier 1950. 3. Haw and Buckley 1971. 4. Hubbs and Wick 1951. 5. O'Connell 1953. 6. Pillsbury 1957. 7. Quast 1968. 8. Roedel 1948. 9. Somerton and Murray 1976.

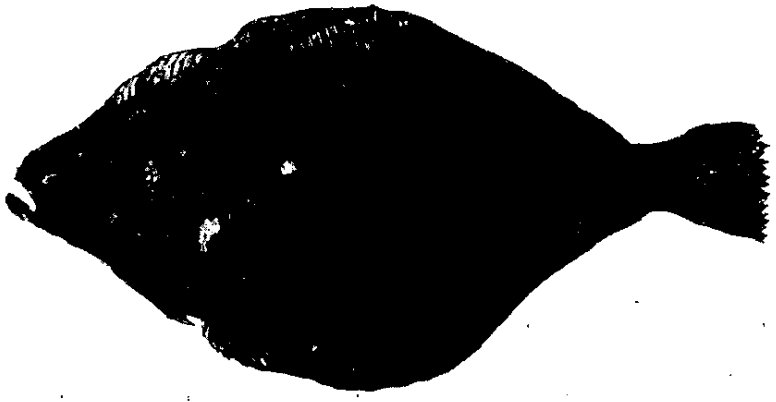


Figure 31 Photograph of a Pacific sanddab.

SANDDABS - LEFT EYE FLATFISHES

The sanddabs (family Bothidae) are very abundant in Puget Sound. Found over sandy bottoms in moderate to shallow waters, 30-80 feet. Dabs are so voracious at times that they can be pests. Included in this group are the speckled and the Pacific sanddab. The Pacific is the larger and the more commonly caught in Puget Sound. The speckled is too small to be considered of recreational importance.

Mooched baits are most effective for sanddabs.

Pacific sanddab, Citharichthys sordidus

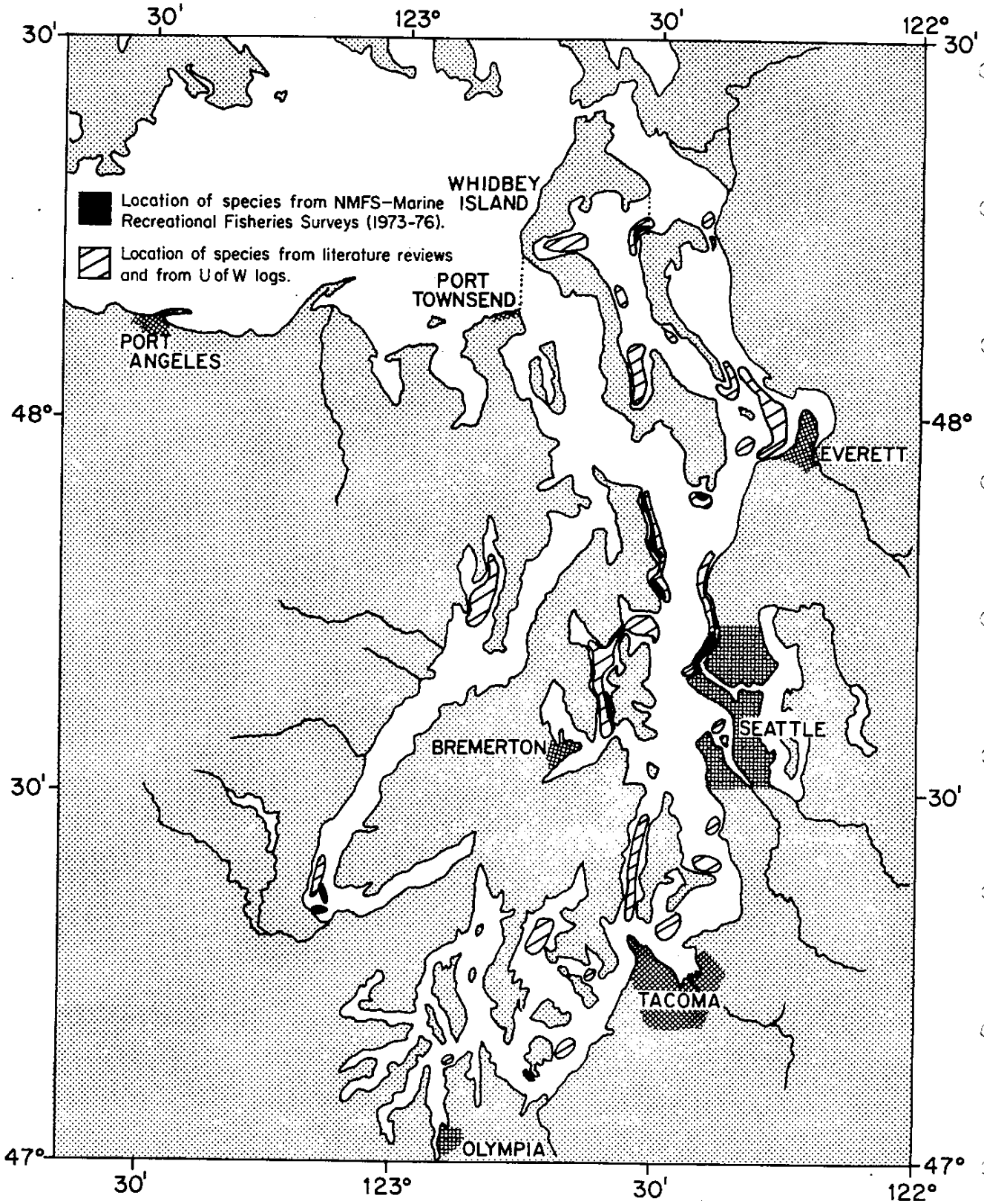


Figure 32 Known distribution of Pacific sanddab, Citharichthys sordidus, in Puget Sound.

Pacific sanddab, Citharichthys sordidus

Local Names: Mottled sanddab, megrim, soft flounder, sanddab.

Recognition: Eyes on left side of head. There is a bony bridge between the eyes. The diameter of the lower eye is greater than the length of the snout. On eyed side, dull brown. May be mottled with black. Blind side is white to light brown.

Distribution: Baja California to Alaska.[2, 3]

Washington Distribution: Found in all marine waters of Washington. Especially common around Seattle, Everett, and central Puget Sound.[1]

Habitat: Caught in shallow water (to over 100 feet) over a variety of bottom types. Most common over gravel, sand, or mud bottoms.

Utilization: A small commercial fishery exists in British Columbia and California. A very good live bait for lingcod. Most taken incidental to sport salmon fishery.

Size: To 16 inches.[2] Uncommon over 10 inches in Puget Sound (to 10-1/2 inches--26.5 cm).

Baits and Lures: Herring (best spinner or plug cut), polychaetes, clams, jigs, spinners, flies.

Eating Qualities: Good--highly regarded in California and by many people in the Puget Sound area. Try skinning instead of filleting.

Literature cited:

1. DeLacy, Miller and Borton 1972. 2. Hart 1973. 3. Miller and Lea 1972.

Additional References:

1. Alverson, Pruter, and Ronholt 1964. 2. Arora 1951. 3. Batts 1964. 4. Clothier 1950. 5. Demory 1971. 6. Grinols 1965. 7. Haw and Buckley 1971. 8. Roedel 1948. 9. Smith 1936. 10. Somerton and Murray 1976. 11. Wilimovsky 1954.

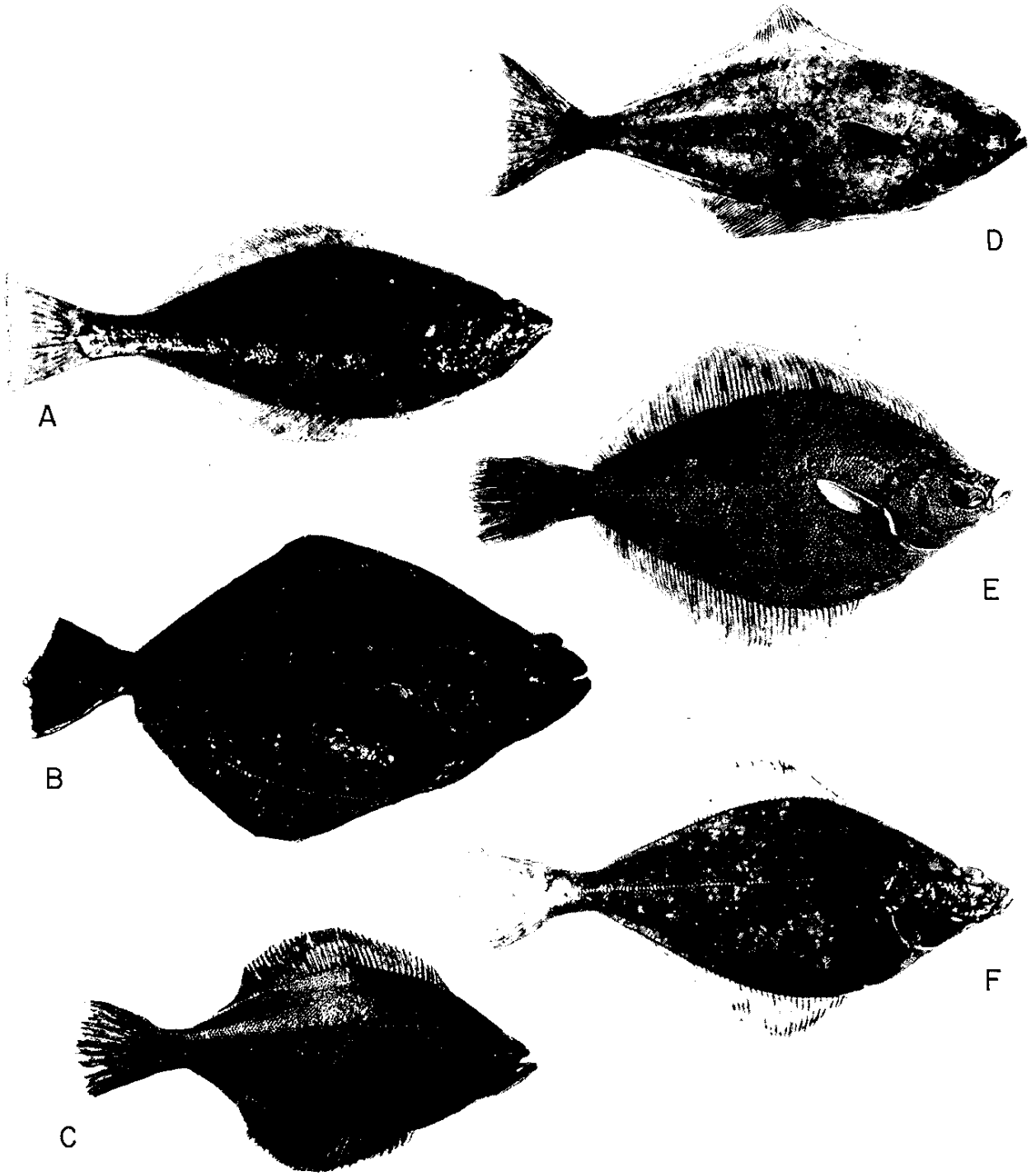
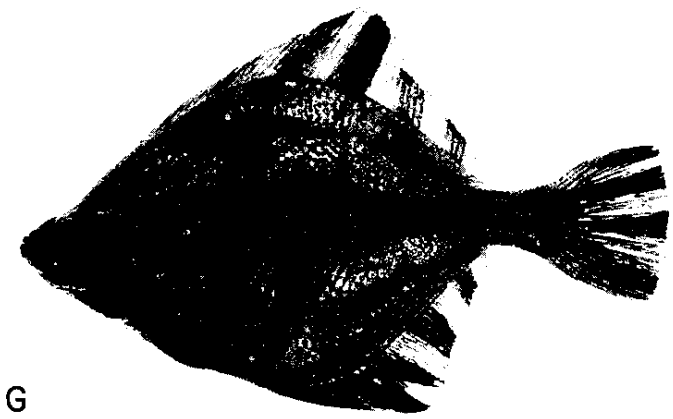


Figure 33 Photographs of (A) arrowtooth flounder; (B) petrale sole; (C) flathead sole; (D) Pacific halibut; (E) rock sole; (F) English sole;



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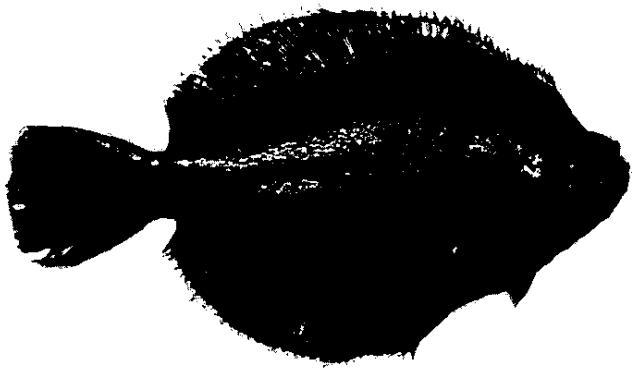

H

I

Figure 33 (Cont.) (G) starry flounder; (H) C-O sole; and (I) sand sole.

FLOUNDERS

This is one of the larger families (Pleuronectidae), in terms of numbers of species and individuals present in Puget Sound. This is probably due to the fact that the major portion of Puget Sound habitat is well suited to flatfishes--sand, mud, or silt bottoms.

The best results have been achieved with mooched baits; however, the larger mouthed species are taken successfully while jigging. The variety of sizes (C-O sole to Pacific Halibut) of flounders dictates the need for a variety of hook and gear sizes.

Arrowtooth flounder, Atheresthes stomias
Petrale sole, Eopsetta jordani
Flathead sole, Hippoglossoides elassodon
Pacific halibut, Hippoglossus stenolepis
Rock sole, Lepidopsetta bilineata
English sole, Parophrys vetulus
Starry flounder, Platichthys stellatus
C-O sole, Pleuronichthys coenosus
Sand sole, Psettichthys melanostictus

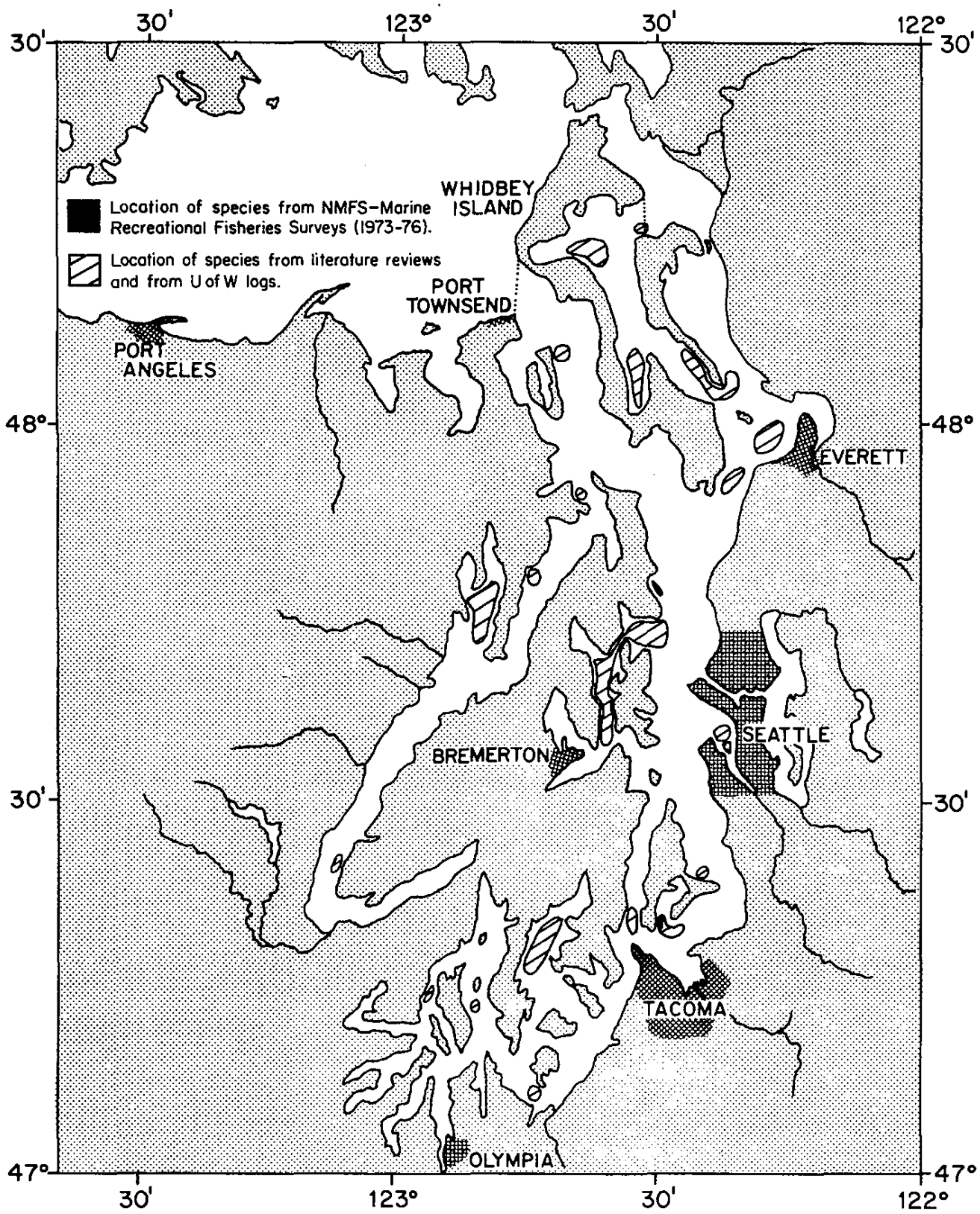

Figure 34 Known distribution of arrowtooth flounder, Atheresthes stomias, in Puget Sound.

Arrowtooth flounder, Atheresthes stomias

Local Names: Long jaw flounder, turbot, French sole, English flounder, bastard halibut, arrowtooth halibut.

Recognition: Very large mouth (extends behind eyes), and long, sharp teeth. It has a slender body compared to most flatfish. Brown on eyed side. Blind side is white and finely dotted with black.

Distribution: Central California to Bering Sea. It is most common in British Columbia and Alaska.[2]

Washington Distribution: Found in all marine waters. Found throughout Puget Sound, especially near Everett, Port Orchard, and throughout central and southern Puget Sound.[1]

Habitat: Prefers moderately deep water (more than 75 feet) and soft bottoms.

Utilization: Large amounts are sold annually for mink food. There is miminal market for human consumption. Usually taken as incidental catch while bottom angling.

Size: Length to 33 inches (83.8 cm).[2]

Baits or Lures: Herring.

Eating Qualities: Fair.

Literature cited:

1. DeLacy, Miller and Borton 1972. 2. Hart 1973.

Additional References:

1. Alverson, Pruter, and Ronholt 1964. 2. Andriashev 1937. 3. Barraclough and Fulton 1968. 4. Batts 1964. 5, 6. Forrester 1958, 1968. 7. Gotshall 1969. 8. Grinols 1965. 9. Haw and Buckley 1971. 10. Miller and Lea 1972. 11. Nikol'skii 1954. 12. Roedel 1948. 13. Taylor 1967.

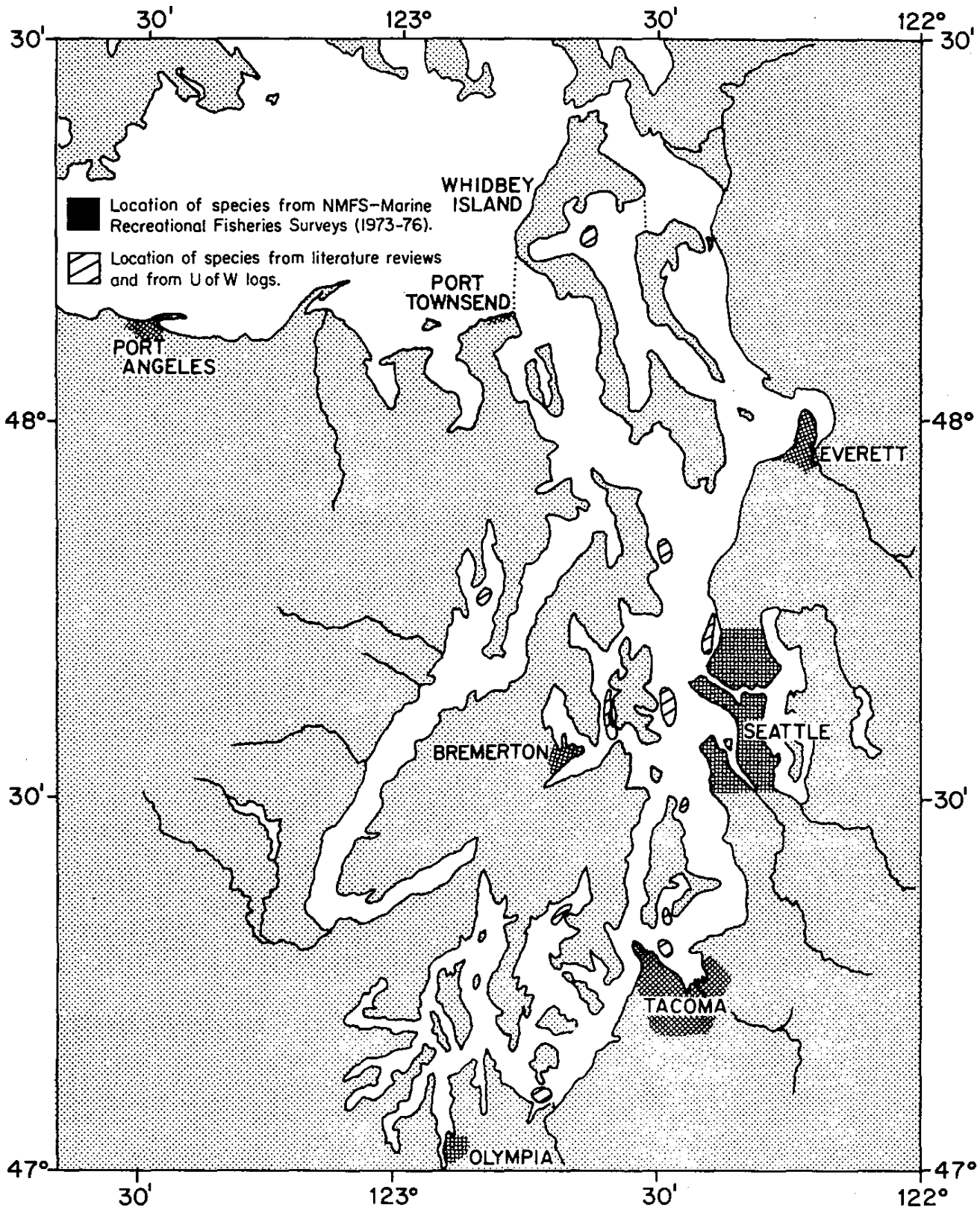

Figure 35 Known distribution of petrale sole, Eopsetta jordani, in Puget Sound.

Petrale sole, Eopsetta jordani

Local Names: Brill, California sole, English sole, Jordan's flounder.

Recognition: Large mouth (maxillary extends under eye). Two rows of teeth in upper jaw. The scales are small. Eyed side is an even olive brown. Blind side is white.

Distribution: Northern Baja California to the Bering Sea.[3, 4]

Washington Distribution: Abundant along the coast of Washington, but in limited numbers in Puget Sound.[1]

Habitat: Prefers deep water. In winter, moves into very deep water (400 feet or more) to spawn. During the rest of the year, from 150 to 200 foot depths.

Utilization: A very valuable commercial species. Two million pounds are taken annually by Washington coastal trawlers.[2] Usually incidental catch in sport fisheries.

Size: Length to 27 inches (68.6 cm),[3] generally smaller in Puget Sound.

Baits and Lures: Herring, candlefish, rubber worms.

Eating Qualities: Excellent. Probably the finest eating "small" flatfish of the northeastern Pacific Ocean.

Literature cited:

1. DeLacy, Miller and Borton 1972. 2. Forrester 1969b. 3. Hart 1973. 4. Miller and Lea 1972.

Additional References:

1. Alderdice and Forrester 1971a. 2. Alverson 1960. 3. Alverson and Chatwin 1957. 4. Alverson, Pruter and Ronholt 1964. 5. Barraclough 1954a. 6. Batts 1964. 7. Best 1963b. 8. Cleaver 1949. 9. Clemens and Wilby 1961. 10. DiDonato and Pasquale 1970. 11. Evermann and Goldsborough 1907. 12. Forrester and Alderdice 1967. 13. Forrester and Smith 1971. 14. Grinols 1965. 15. Harry 1959. 16. Haw and Buckley 1971. 17. Ketchen and Forrester 1966.

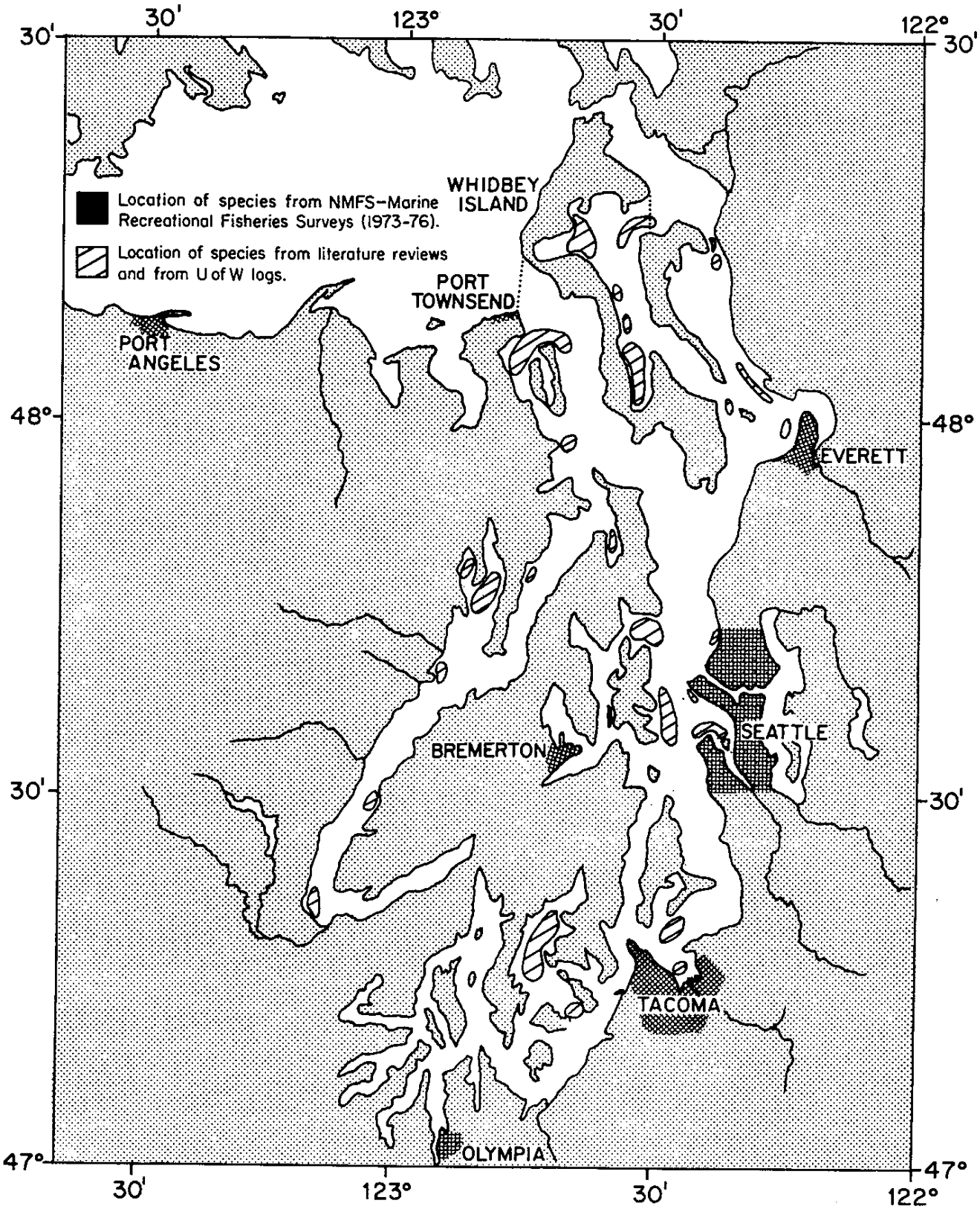

Figure 36 Known distribution of flathead sole, Hippoglossoides elassodon, in Puget Sound.

Flathead sole, Hippoglossoides elassodon

Local Names: Paper sole, cigatette paper, false halibut.

Recognition: Mouth extends to pupil of eye but not beyond; end of tail is nearly straight and teeth on the upper jaw are in one row. Gray to brown on eyed side. Dusky blotches on fins.

Distribution: Northern California to Alaska.[2, 3]

Washington Distribution: Found in all marine waters of Washington State.[1]

Habitat: Prefers deep water--usually well over 150 feet.

Size: Length to 18 inches.[2] Generally smaller in Puget Sound.

Utilization: Generally used in reduction and animal food. Incidental catch in sport fisheries.

Baits and Lures: Herring, candlefish, rubber worms.

Eating Qualities: Fair to poor--too much work for a small flesh yield.

Literature cited:

1. DeLacy, Miller and Borton 1972. 2. Hart 1973. 3. Miller and Lea 1972.

Additional References:

1. Alverson, Pruter, and Ronholt 1964. 2. Andriashev 1937. 3. Batts 1964. 1/ 4. English 1966. 5. Forrester and Alderdice 1968. 6. Gilbert and Burke 1912. 7. Grinols 1965. 8. Haw and Buckley 1971. 9. Matsubara 1955. 10, 11. Miller 1969, 1970. 12. Mineva 1964. 13. Schmidt 1950. 14. Smith 1936. 15. Somerton and Murray 1976. 16. Townsend 1936. 17. Wilimovsky, Peden, and Peppar 1967.

1/ English, T. S. 1966. English sole egg studies. Contract Rep. Northwest Pulp Pap. Assoc. 93 p.

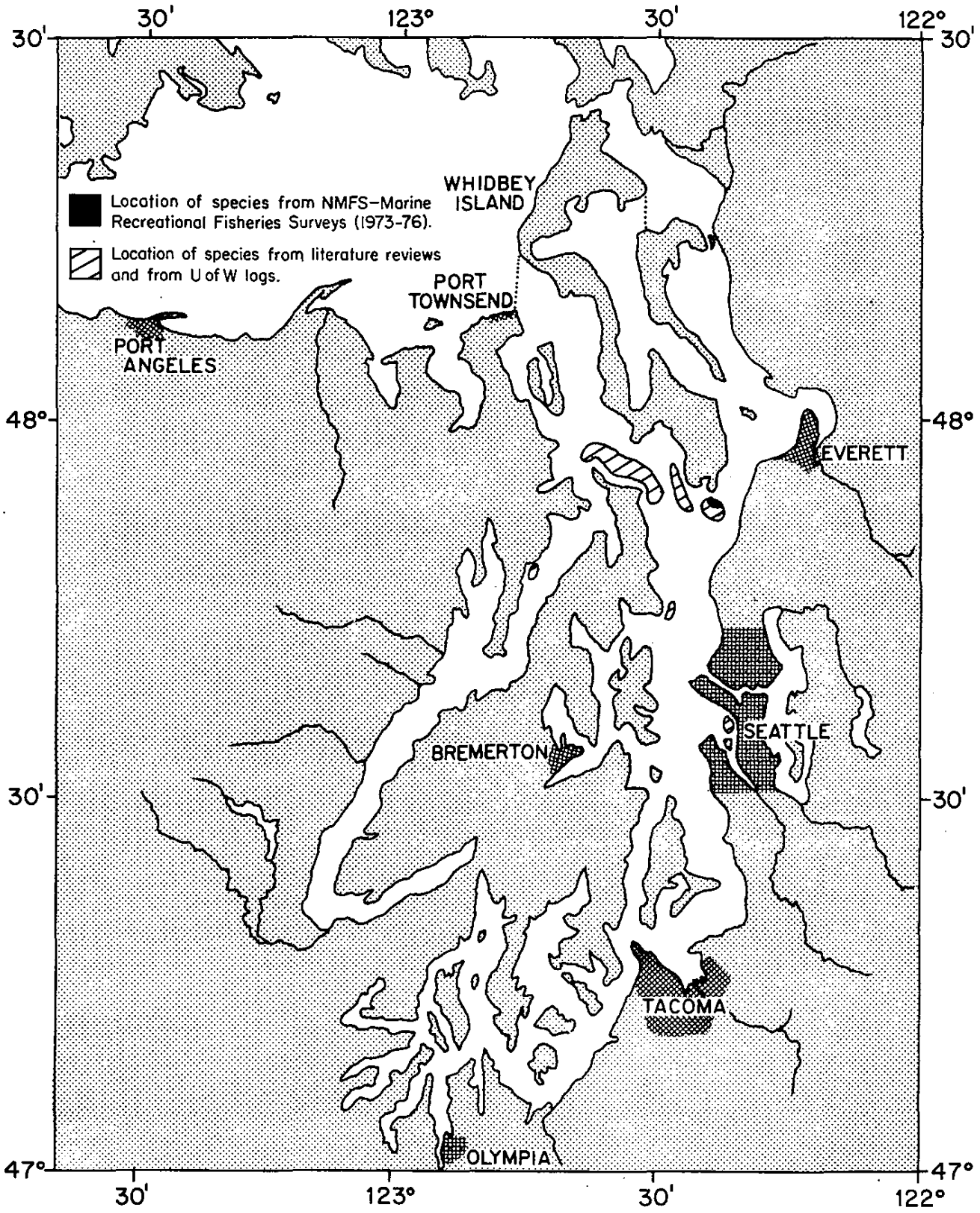

Figure 37 Known distribution of Pacific halibut, Hippoglossus stenolepis, in Puget Sound.

Pacific halibut, Hippoglossus stenolepis

Local Names: Northern halibut, right halibut, alabato.

Recognition: Moderately large mouth with conical teeth, arched lateral line, and smooth scales. Any flatfish larger than 15 pounds in this region is likely to be a halibut. Dark brown or gray on eyed side. Usually white on blind side.

Distribution: Southern California to Bering Sea. Uncommon south of Columbia River.[2, 3]

Washington Distribution: Most common along the Strait of Juan de Fuca. Also found in San Juan Islands, Hood Canal, and Admiralty Inlet.[1] Not common in central Puget Sound.

Habitat: In Washington, generally caught in water deeper than 80 feet.

Utilization: An important commercial and sports species. Over 50 million pounds were caught commercially in 1970. In Washington the average sport catch is about 1,200 fish annually, mostly by salmon fishermen who generally can only land fish less than 20 pounds.

Size: To 8 feet, 9 inches (266.7 cm) and over 500 pounds,[2] to 200 pounds in Strait of Juan de Fuca and Puget Sound. Several unconfirmed reports of individuals to 50 pounds in Puget Sound.

Baits and Lures: Herring, jigs, spoons, plugs, spinners.

Eating Qualities: Excellent. Smaller fish ("chickens") best eating.

Literature cited:

1. DeLacy, Miller, and Borton 1972. 2. Hart 1973. 3. Miller and Lea 1972.

Additional References:

1. Alverson, Pruter, and Ronholt 1964. 2. Bell and Pruter 1958. 3. *English 1966. 4. Gray 1964. 5. Grinols 1965. 6. Hardman and Southward 1965. 7. Haw and Buckley 1971. 8. International Pacific Halibut Commission 1965. 9. Kask 1936. 10. Ketchen 1956a. 11. Larkin and Ricker 1964. 12. Matsubara 1955. 13, 14, 15. Myre 1966, 1967, 1969. 16. Novikov 1964. 17. Peltonen 1969. 18. Phillips 1958b. 19. Popov 1933. 20. Schmidt 1934. 21. Schmidt 1950. 22. Somerton and Murray 1976. 23, 24, 25, 26. Southward 1961, 1962, 1967, 1968. 27. Southward and Chapman 1965. 28. Thompson and Freeman 1930. 29. Thompson and Herrington 1930. 30. Thompson and VanCleve 1936. 31. Townsend 1935. 32. VanCleve 1936.

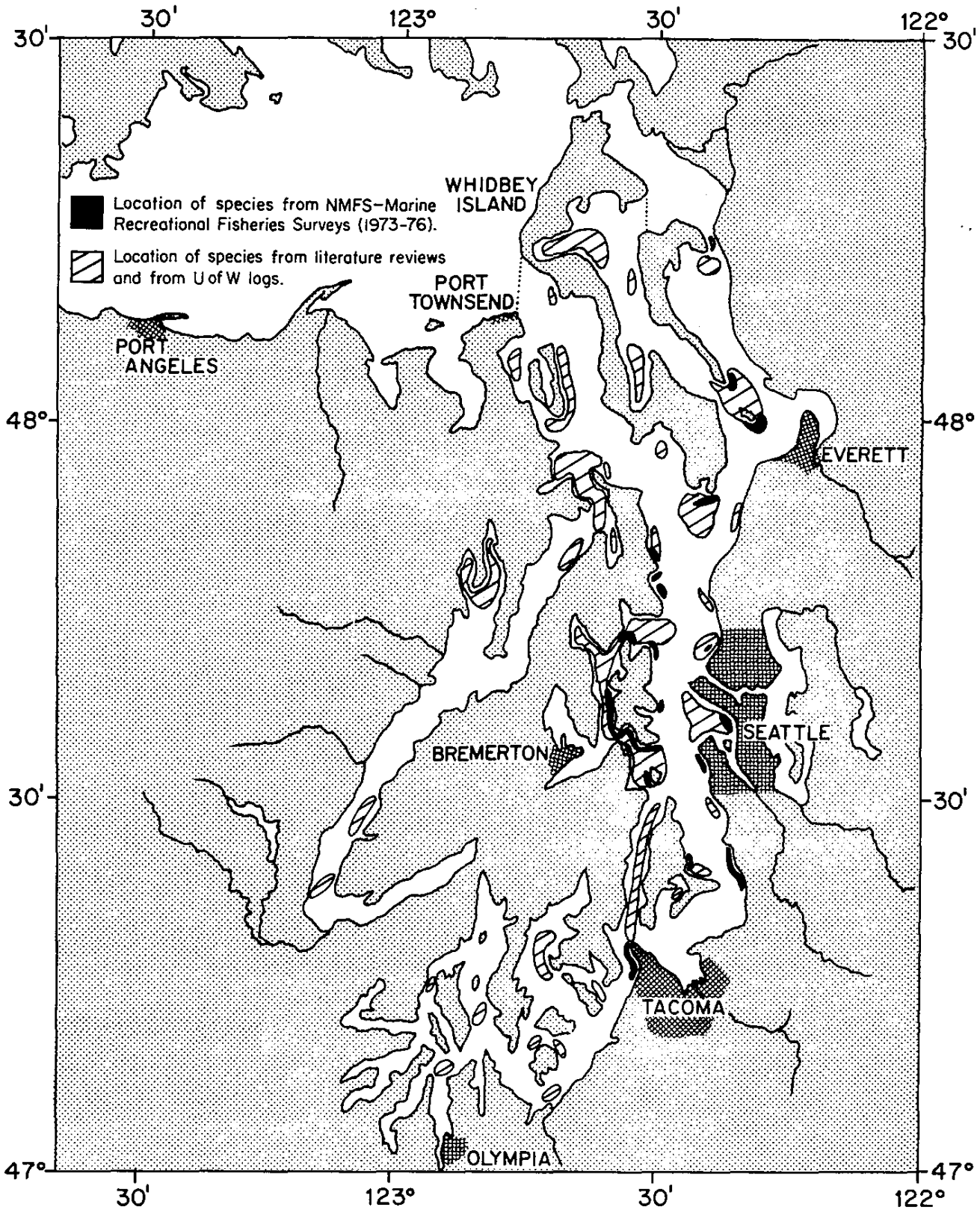

Figure 38 Known distribution of rock sole, Lepidopsetta bilineata, in Puget Sound.

Rock sole, Lepidopsetta bilineata

Local Names: Rough back sole, gravel sole, double-line sole.

Recognition: The lateral line has a large arch directly behind gill cover. The scales are very rough. On eyed side, gray or brown, irregularly blotched.

Distribution: Southern California to Bering Sea.[2, 3]

Washington Distribution: Very common in all marine waters inside of Cape Flattery.[1]

Habitat: Found over a wide range of depths.

Utilization: Highly prized as a foodfish. A target species of a large commercial fishery along the Washington coast and in Puget Sound. Landings by Washington trawlers total about 650,000 pounds a year, and most are taken off the coast. One of the more important flatfish in specific catches by anglers.

Size: To a length of 23 inches[2]: specimens to 14-3/4 inches (37.5 cm) from Puget Sound.

Baits and Lures: Herring.

Eating Qualities: Excellent.

Literature cited:

1. DeLacy, Miller and Borton 1972. 2. Hart 1973. 3. Miller and Lea 1972.

Additional References:

1. Alverson 1960. 2. Alverson, Pruter, and Ronholt 1964. 3. Batts 1964. 4, 5, 6. Forrester 1964b, c, 1969b. 7. Forrester and Thompson 1969. 8. Haw and Buckley 1971. 9. Ketchen, Peterson, and Forrester 1951. 10. Larkin and Ricker 1964. 11. Levings 1967. 12. Mineva 1964. 13. Nishishiamamoto 1958. 14. Roedel 1948. 15. Shubnikov and Lisovenko 1964. 16. Smith 1936. 17. Somerton and Murray 1976. 18. Wilimovsky, Peden, and Peppar 1967.

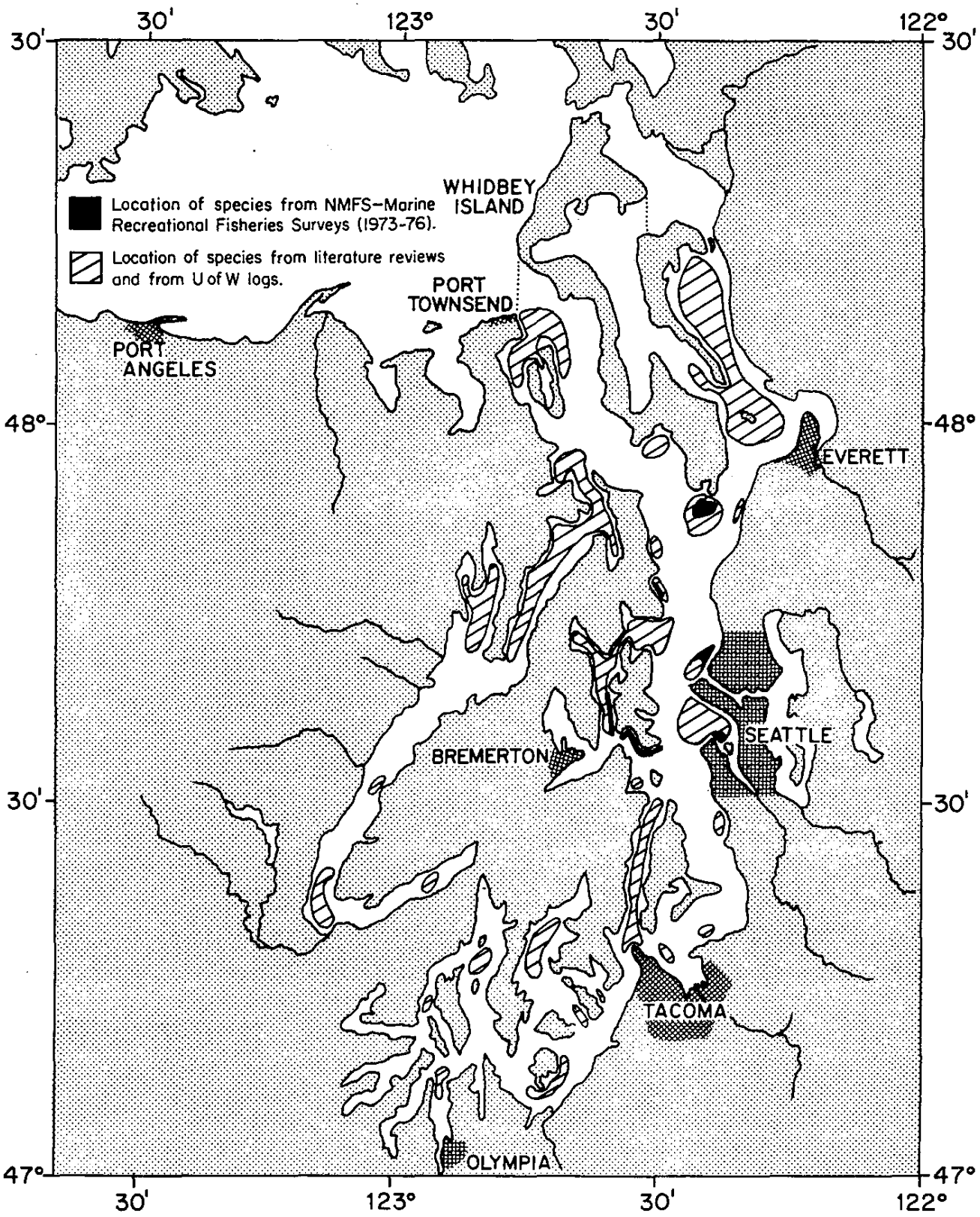

Figure 39 Known distribution of English sole, Parophrys vetulus, in Puget Sound.

English sole, Parophrys vetulus

Local Names: Lemon sole, common sole, California sole, pointed nose sole, sharp nose sole.

Recognition: Pointed head with a small mouth. The lateral line does not have an arch. A rather slender fish. Uniformly brown on eyed side. Blind side is pale yellow to white.

Distribution: Baja California to Alaska.[2]

Washington Distribution: Abundant in most all marine waters of the state. [1]

Habitat: Prefers soft or sandy bottoms. Most of these fish are found in deep water but during the summer, amny move into shallow water.

Utilization: A target species of a substantial commercial fishery along the Washington coast (500,000 lb per year) and in Puget Sound (1.5 million lb per year). Usually incidental catch in sport fisheries.

Size: Length to 22 inches.[2] Specimens to 17-1/2 inches (44.2 cm) from Puget Sound.

Baits and Lures: Herring, pileworms, clam necks, rubber worms.

Literature cited:

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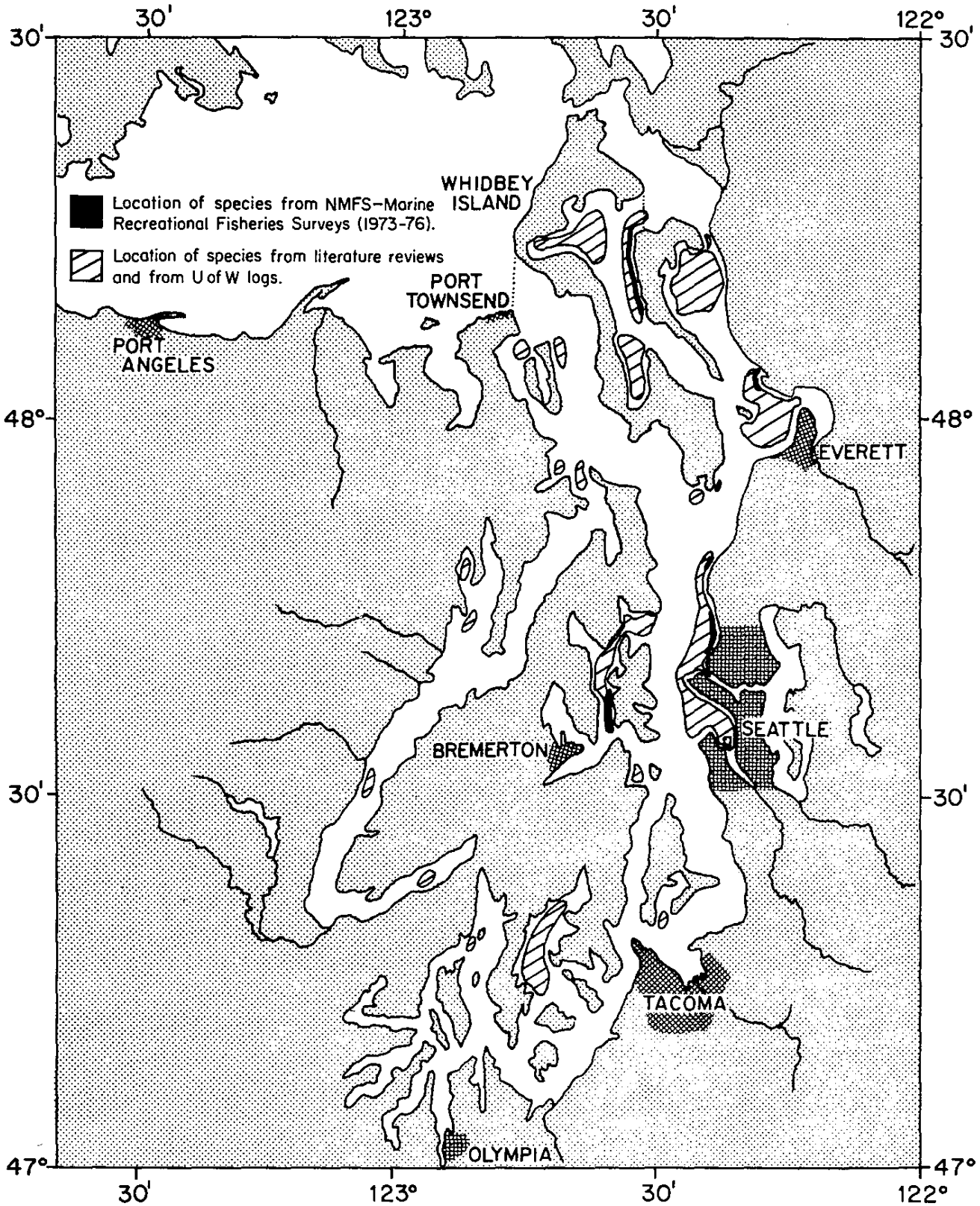

Figure 40 Known distribution of starry flounder, Platichthys stellatus, in Puget Sound.

Starry flounder, Platichthys stellatus

Local Names: Grindstone flounder, great flounder, rough jacket.

Recognition: Fins along side of body have alternating bands of orange and black. Scales are very rough. Individuals with eyes on right side common. Eyed side is dark brown to nearly black with dark blotches. Blind side is white and may have black blotches.

Distribution: Southern California to Alaska.[2, 3]

Washington Distribution: Common in marine waters of Washington.[1]

Habitat: Prefers shallow water over muddy or sandy bottoms. Often found in the lower reaches of streams.

Utilization: There is a commercial fishery for this species in the Gulf of Georgia and Saratoga Passage. Much more important in sport catch along the coast. Generally ignored in Puget Sound.

Size: Length to 36 inches.[2] Generally smaller in Puget Sound.

Baits and Lures: Herring, jigs, spinners.

Eating Qualities: Fair.

Literature cited:

1. DeLacy, Miller, and Borton 1972. 2. Hart 1973. 3. Miller and Lea 1972.

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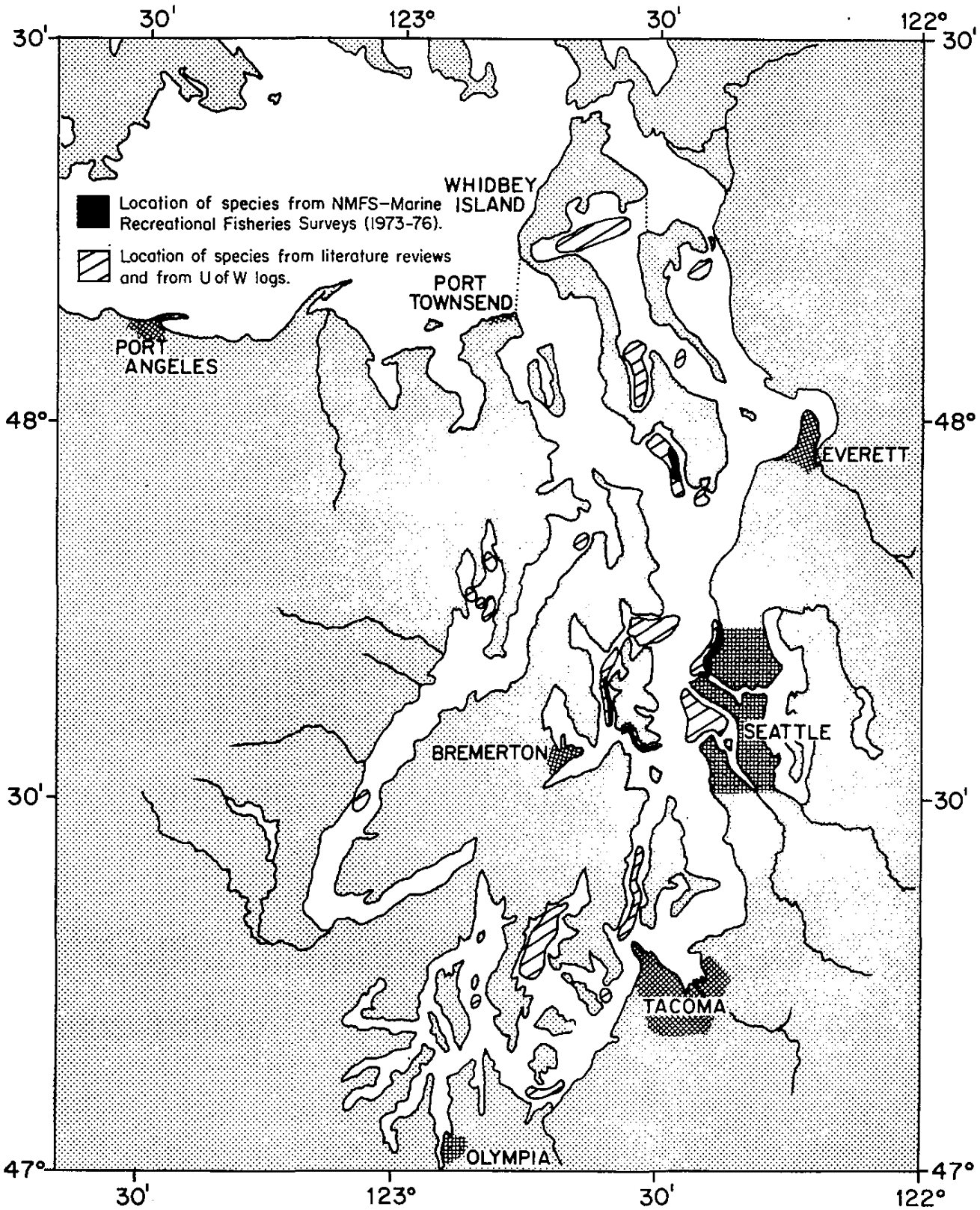

Figure 41 Known distribution of C-O sole, Pleuronichthys coenosus, in Puget Sound.

C-O sole, Pleuronichthys coenosus

Local Names: Popeye sole, C-O turbot, mottled turbot.

Recognition: Very round fish with a dark spot in the middle of the body. Dark brown to black on eyed side. Fins are very dark.

Distribution: Baja California to southeast Alaska.[2, 3]

Washington Distribution: Uncommon in Strait of Juan de Fuca and San Juans. More abundant in Puget Sound south of Admiralty Inlet.[1]

Habitat: Prefers deep water (over 100 ft) but found in eel grass beds commonly in Puget Sound.

Utilization: The commercial market for these fish is limited because their small size and tough skin makes filleting difficult. Small mouth usually excludes them from incidental sport catches.

Size: Length to 14 inches (35.6 cm).[2]

Baits and Lures: Small bait and lures--worms, shrimp, herring.

Eating Qualities: Good.

Literature cited:

1. DeLacy, Miller and Borton 1972. 2. Hart 1973. 3. Miller and Lea 1972.

Additional References:

1. Batts 1964. 2. Budd 1940. 3. Clemens and Wilby 1961. 4. Clothier 1950. 5. Haw and Buckley 1971.

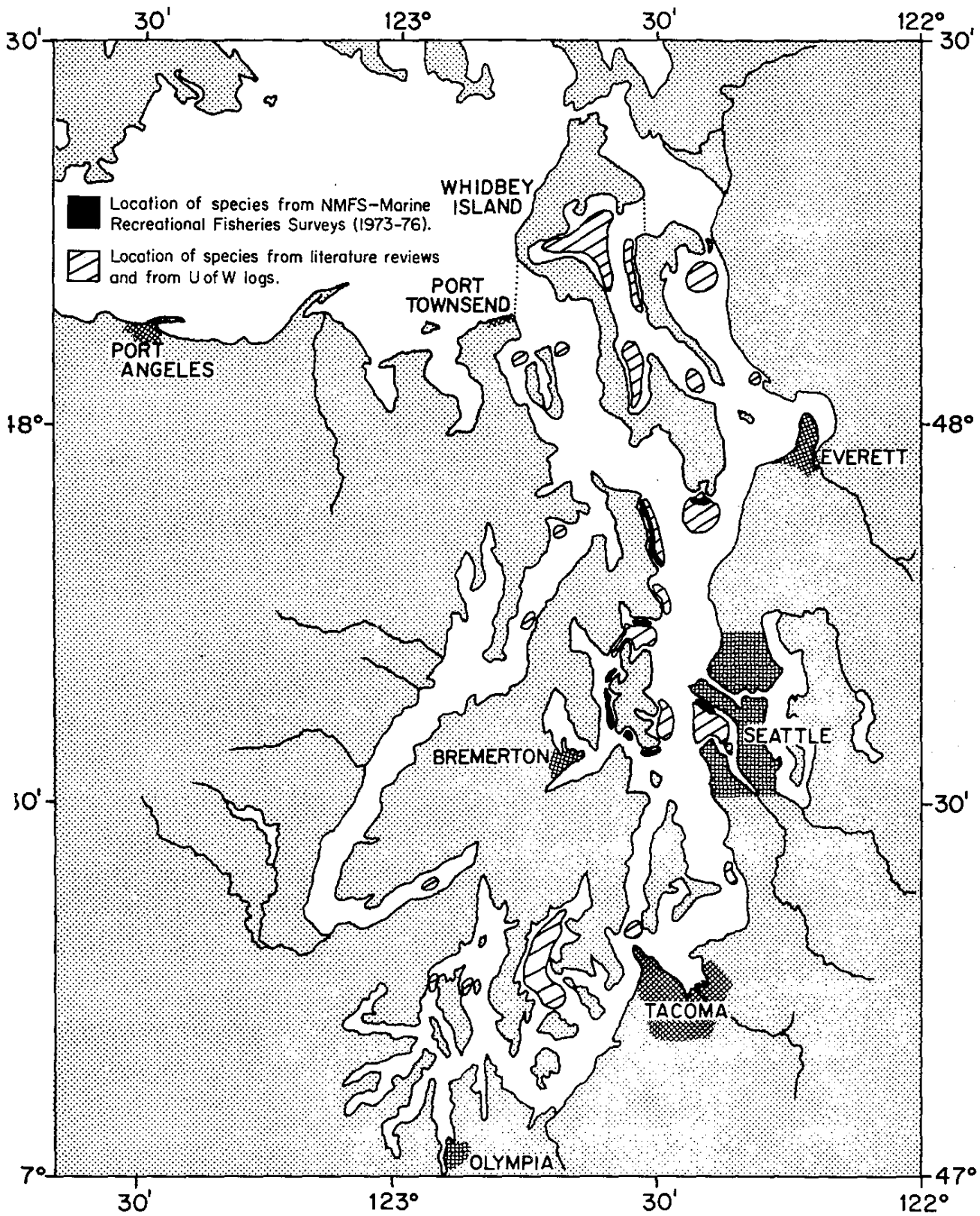

Figure 42 Known distribution of sand sole, Psettichthys melanostictus, in Puget Sound.

Sand sole, Psettichthys melanostictus

Local Names: Sand dabs, spotted flounder, fringe sole.

Recognition: Rather large mouth. The fin rays near the head are free from the fin membrane. Variable color. Eyed side may be light green to brown, speckled throughout with small black spots.

Distribution: Southern California to Bering Sea.[2, 3]

Washington Distribution: Common in marine waters of Washington.[1]

Habitat: Prefers water less than 100 feet deep over sandy bottoms.

Utilization: A rather small commercial fishery exists for this species. An important flounder in specific catches by anglers.

Size: To 25 inches.[2] Generally smaller in Puget Sound.

Baits and Lures: Herring, jigs, rubber worms.

Eating Qualities: Very good, much in demand.

Literature cited:

1. DeLacy, Miller, and Borton 1972. 2. Hart 1973. 3. Miller and Lea 1972.

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ACKNOWLEDGMENTS

I am especially grateful to Gregory G. Bargmann, a Fishery Biologist with the Washington Department of Fisheries, for his help in compiling data and his suggestions on organizing the material in this paper. I also wish to express my gratitude to Raymond Buckley, Mark Pederson, and James Beam of the Washington Department of Fisheries, to Dr. Bruce Miller of the University of Washington, and to Ronnie Gowan, Lawrence Moulton, and Frederick VanderWerff of my staff for their helpful reviews of early drafts of this paper. I am also very appreciative of typist Cheryl Morisaki's efforts and patience.

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