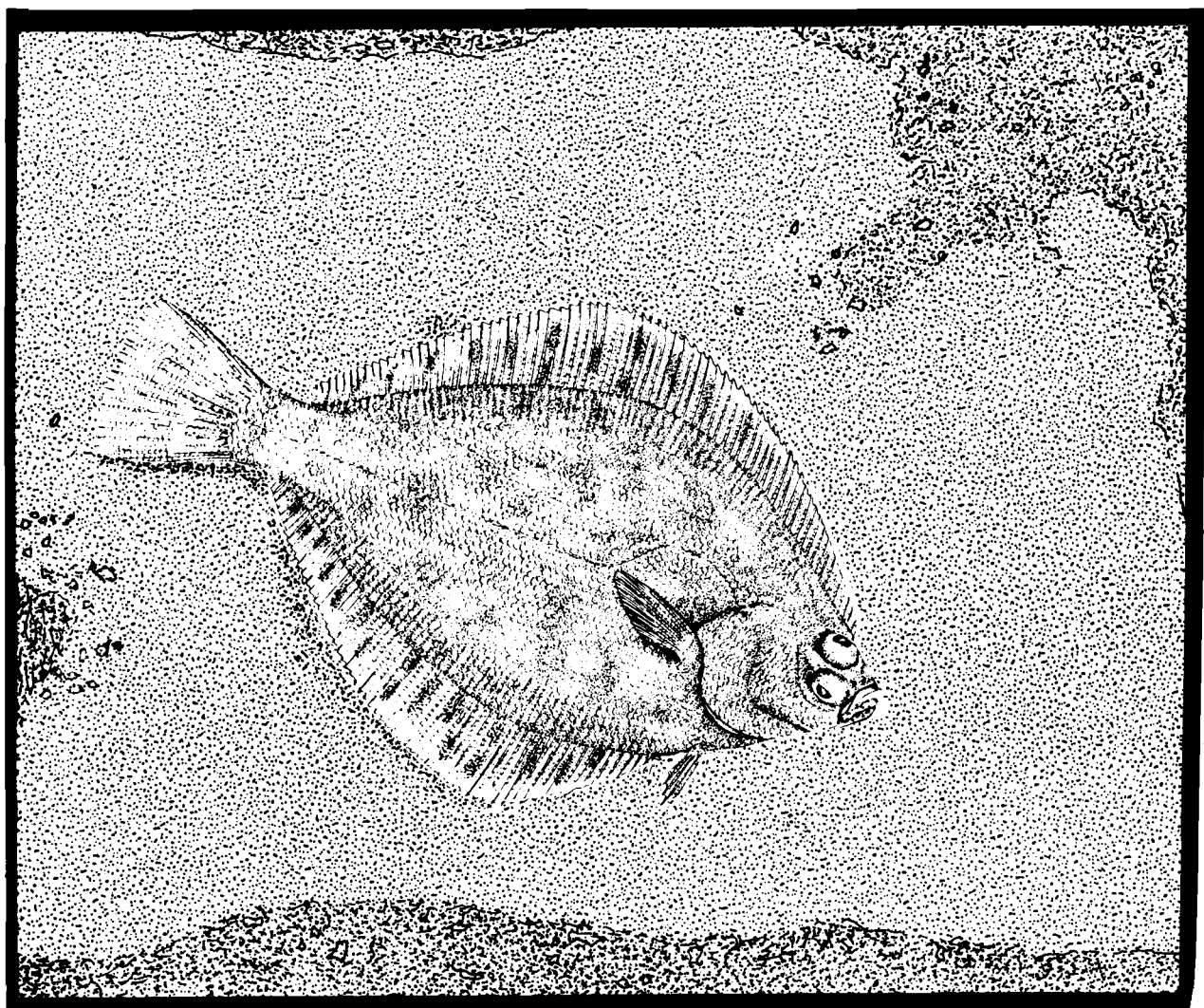


Species Profiles: Life Histories and Environmental Requirements of Coastal Fishes and Invertebrates (Pacific Northwest)

DOVER AND ROCK SOLES



Fish and Wildlife Service

U.S. Department of the Interior

Coastal Ecology Group
Waterways Experiment Station

U.S. Army Corps of Engineers

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Species Profiles: Life Histories and Environmental Requirements
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DOVER AND ROCK SOLES

by

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PREFACE

This species profile is one of a series on coastal aquatic organisms, principally fish, of sport, commercial, or ecological importance. The profiles are designed to provide coastal managers, engineers, and biologists with a brief comprehensive sketch of the biological characteristics and environmental requirements of the species and to describe how populations of the species may be expected to react to environmental changes caused by coastal development. Each profile has sections on taxonomy, life history, ecological role, environmental requirements, and economic importance, if applicable. A three-ring binder is used for this series so that new profiles can be added as they are prepared. This project is jointly planned and financed by the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service.

Suggestions or questions regarding this report should be directed to one of the following addresses.

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National Wetlands Research Center
NASA-Slidell Computer Complex
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Slidell, LA 70458

or

U.S. Army Engineer Waterways Experiment Station
Attention: WESER-C
Post Office Box 631
Vicksburg, MS 39180

CONVERSION TABLE

Metric to U.S. Customary

<i>Multiply</i>	<i>By</i>	<i>To Obtain</i>
millimeters (mm)	0.03937	inches
centimeters (cm)	0.3937	inches
meters (m)	3.281	feet
meters	0.5468	fathoms
kilometers (km)	0.6214	statute miles
kilometers	0.5396	nautical miles
square meters (m ²)	10.76	square feet
square kilometers (km ²)	0.3861	square miles
hectares (ha)	2.471	acres
liters (l)	0.2642	gallons
cubic meters (m ³)	35.31	cubic feet
cubic meters	0.0008110	acre-feet
milligrams (mg)	0.00003527	ounces
grams (g)	0.03527	ounces
kilograms (kg)	2.205	pounds
metric tons (t)	2205.0	pounds
metric tons	1.102	short tons
kilocalories (kcal)	3.968	British thermal units
Celsius degrees (° C)	1.8 (° C) + 32	Fahrenheit degrees

U.S. Customary to Metric

inches	25.40	millimeters
inches	2.54	centimeters
feet (ft)	0.3048	meters
fathoms	1.829	meters
statute miles (mi)	1.609	kilometers
nautical miles (nmi)	1.852	kilometers
square feet (ft ²)	0.0929	square meters
square miles (mi ²)	2.590	square kilometers
acres	0.4047	hectares
gallons (gal)	3.785	liters
cubic feet (ft ³)	0.02831	cubic meters
acre-feet	1233.0	cubic meters
ounces (oz)	28350.0	milligrams
ounces	28.35	grams
pounds (lb)	0.4536	kilograms
pounds	0.00045	metric tons
short tons (ton)	0.9072	metric tons
British thermal units (Btu)	0.2520	kilocalories
Fahrenheit degrees (° F)	0.5556 (° F - 32)	Celsius degrees

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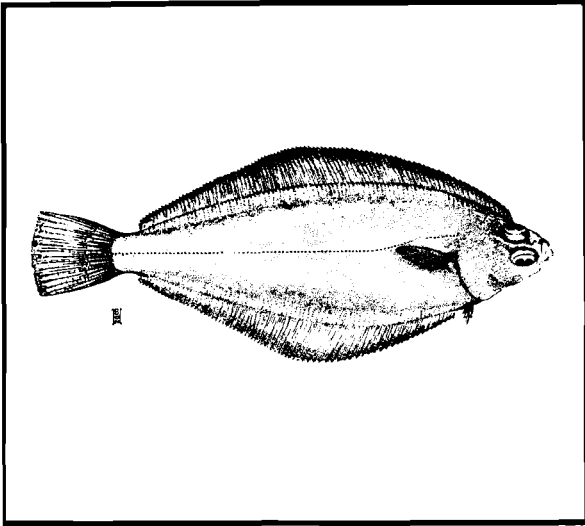


Figure 1. Dover sole (*Microstomus pacificus*) (illustration from Hart 1973).

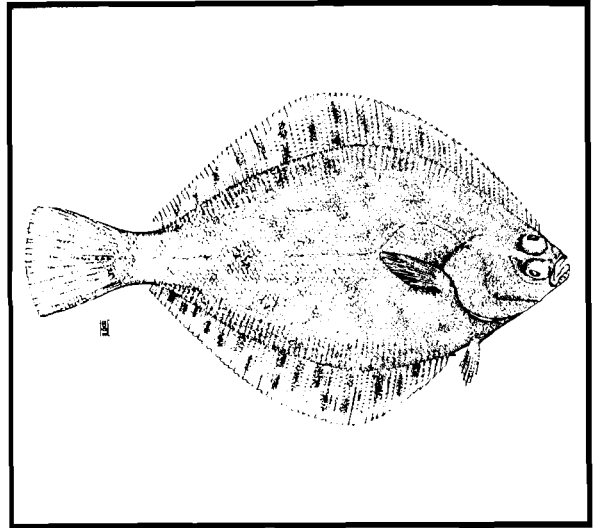


Figure 2. Rock sole (*Lepidopsetta bilineata*) (illustration from Hart 1973).

DOVER AND ROCK SOLES

NOMENCLATURE/TAXONOMY/RANGE

Scientific name *Microstomus pacificus* (Lockington).

Preferred common name Dover sole (Figure 1).

Other common names Slime sole, slippery sole, smear dab, tongue sole, rubber sole, short-finned sole.

Scientific name *Lepidopsetta bilineata* (Ayres).

Preferred common name Rock sole (Figure 2).

Other common names Roughback sole, broadfin sole, gravel sole.

Class Osteichthyes

Order Pleuronectiformes

Family Pleuronectidae

Geographic ranges:

Dover sole (Figure 3): Occurs along the Pacific Coast from northern Baja California to the

Bering Sea (Hart 1973). Most common on the southern California continental shelf (Mearns and Harris 1975), and off northern California, Coos Bay, Oregon, and the Columbia River (Demory 1975). Moderately abundant off northern Washington, British Columbia, and the western Shumagin Island area (Demory 1975; Ronholt et al. 1986). Caught incidentally while fishing for other species in the eastern Bering Sea and the Aleutian Islands region (Bakkala et al. 1981; Walters and Halliday 1987b).

Recorded from the surface (Hart 1973) to a depth of 1,189 m (Allen and Mearns 1976). Adults rarely found shallower than 36 m (Demory 1975) and most of the commercial catch off northern California comes from depths of 82-823 m (Allen and Mearns 1976). Strongly prefers silt, mud, and muddy-sand bottom (Demory 1975; Demory et al. 1976b; Barss et al. 1977). Concentrates near deep-water municipal wastewater outfalls off southern California (Mearns and Harris 1975; Allen and Mearns 1976).

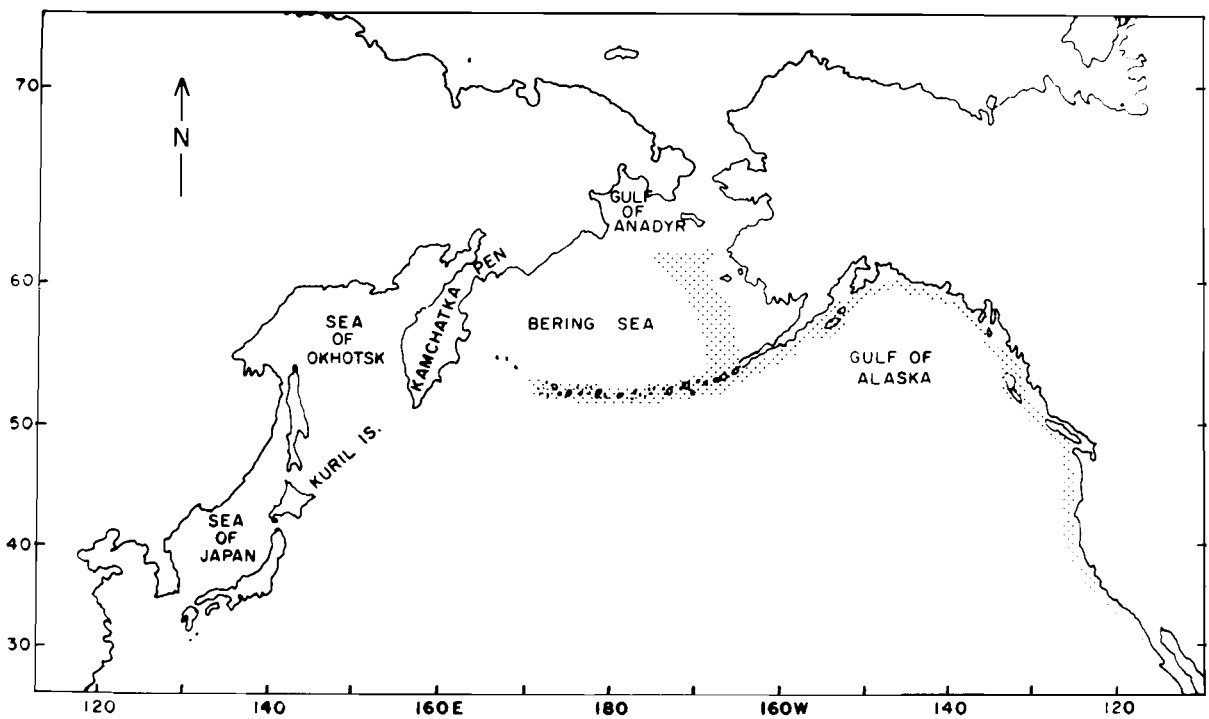


Figure 3. Distribution of the Dover sole.

Rock sole (Figure 4): Distributed from southern California to the Gulf of Alaska, along the Aleutian Chain, and as far north as the Gulf of Anadyr in the Bering Sea; then south off Kamchatka, the Kurile Islands, the eastern Okhotsk Sea, the Sea of Japan, and the east coast of Korea (Roedel 1953; Alton and Sample 1976). Centers of abundance off Kamchatka, in the southeastern Bering Sea and the western Gulf of Alaska, and along the coast of British Columbia (Alton and Sample 1976). Occurs from the surface to 732 m, but is a shallow-water species scarcely below 300 m (Alverson et al. 1964; Hart 1973; Ronholt et al. 1986). Commercial fishery concentrated at depths of 18-73 m in British Columbia (Forrester 1969), and from shallow depths to slightly over 200 m in Alaskan waters (Alton and Sample 1976; Ronholt et al. 1986). Found on mud and sand substrata in the Bering Sea, on sandy or gravel bottom along the Pacific coast, and on

rocky or firm, rapidly-sloping bottom in Puget Sound, Washington, waters (Nishishimamoto 1958; Alverson 1960; Ronholt et al. 1986).

MORPHOLOGY/IDENTIFICATION AIDS

Dover Sole

Body elongate, slender, compressed; caudal peduncle very short (Figure 1). Head slender, short; mouth terminal, small, asymmetrical, gape narrow, nearly equal on each side; teeth chiefly on blind side of jaws, never more than three in either jaw on eyed side; snout bluntly rounded; eyes small, lower eye in advance of upper eye; gill opening not extending above base of uppermost pectoral fin ray (Clemens and Wilby 1961). Eyes dextral, with few exceptions (Follett et al. 1960). Lateral line nearly straight, with a short unconnected supratemporal branch (Norman 1934). On eyed side, color is rich and uniform in shades of

