













common close to shore during winter months when prey and ice conditions are more favorable. Very little is known of marine fish distribution, abundance, diversity, or habitat use patterns in the winter. Anadromous and amphidromous fishes overwinter in unfrozen pockets of fresh or brackish water in rivers and river deltas.

## **Background**

In 1996, the Sustainable Fisheries Act amended the Magnuson-Stevens Act to require the description and identification of EFH in FMPs, adverse impacts on EFH, and actions to conserve and enhance EFH. Guidelines were developed by NMFS to assist fishery management councils in fulfilling the requirements set forth by the MSA.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. For the purpose of interpreting the definition of essential fish habitat: “waters” includes aquatic areas and their associated physical, chemical, and biological properties that are used by fish, and may include areas historically used by fish where appropriate; “substrate” includes sediment, hard bottom, structures underlying the waters, and associated biological communities; “necessary” means the habitat required to support a sustainable fishery and a healthy ecosystem; and “spawning, breeding, feeding, or growth to maturity” covers a species’ full life cycle.

With respect to type, the information available for almost all species consist primarily of broad geographic distributions based on specific samples from surveys, which have not been linked with habitat characteristics. Furthermore, our ability to precisely define the habitat (and its location) of each life stage of each managed species in terms of its oceanographic (temperature, salinity, nutrient, current), trophic (presence of food, absence of predators), and physical (depth, substrate, latitude, and longitude) characteristics is very limited. Consequently, the information is restricted primarily to the species’ position in the water column (e.g., demersal, pelagic), broad biogeographic and bathymetric areas (e.g., 100-200 m zone), and occasional references to known bottom types associations.

Identification of EFH for some species includes historical range information. Traditional knowledge and sampling data have indicated that fish distributions may contract and expand due to a variety of factors including, but not limited to, temperature changes, current patterns, changes in population size, and changes in predator and prey distribution.

The Council first identified EFH in 1998. In preparation of the 1999 EFH Environmental Assessment, EFH Technical Teams composed of stock assessment authors compiled scientific information and prepared the 1999 Habitat Assessment Reports. These reports provided the scientific information baseline to describe EFH. However, where new information does exist, new data helps to fill information gaps in the region’s limited habitat data environment.

EFH descriptions were updated in 2005 for the Bering Sea and Aleutian Islands management area and for the Gulf of Alaska for crab, scallops, and groundfish and for all Alaska waters for salmon, including the Arctic Management Area. Stock assessment authors reviewed information contained in the 1999 summaries and applied stock expertise, along with data contained in reference atlases (ADF&G 2007; NOAA 1988 and 1990; NMFS 2005), fishery and survey data (NOAA 1998), and fish identification books (Eschmeyer and Herald 1983; Hart 1973; Mecklenburg et al. 2002), to describe EFH for each life stage using best scientific judgment and interpretation.

In 2005, EFH text and map descriptions for most Council managed species were revised using an analytical approach. The approach focused on fish survey and fishery observer data. For adult and late juvenile life stages, each data set was analyzed for 95 percent of the total accumulated population for the species using GIS. For eggs and larvae, the EFH description is based on presence/absence data from surveys. Where information existed, the area described by these data is identified as EFH. The analyzed

EFH data and area were further reviewed by scientific stock assessment authors for accuracy. This review ensures that any outlying areas not considered were included and gaps in the data were considered.

The EFH section of the Arctic FMP will undergo similar but simpler review. Fish survey and observer data are not available to analyze in this same manner. However, information does exist to describe EFH in the same manner as was completed for other Council FMPs in 1999 and as revised in 2005. Thus, Arctic EFH for each target species by life stage will be described as a general distribution using the best scientific information available.

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