

COASTAL PELAGIC SPECIES MANAGEMENT TEAM REPORT ON AMENDMENT 17:  
LIVE BAIT FISHERY ALLOWANCE

**Live Bait Fishery Operations**

California

The live bait fleet consists of approximately 15 boats distributed along the California coast to service recreational fishing markets. Two types of gear are used in the fishery: (1) the lampara net, which is set in shallow water and cannot be used effectively in deep water offshore, and (2) the more versatile purse seine, which can be set in deep as well as shallow water. Purse seines can be hauled in with a side winch or with a stern-mounted drum (“drum seine”). These net gears are used to harvest the two principal bait species, sardine and anchovy, that comprise > 99 percent of the reported live bait catch by weight since 2000. The live bait boats also fish for a variety of species that can include squid, mackerel, white croaker, and queenfish. Typically, vessels will fish for live bait within a few miles of bait barges in order to reduce stress and holding time for the fish. These barges are located near docks and marinas, and contain holding pens (‘receivers’) that hold the live bait fish. The live bait vessels and bait barges are typically company owned. The barges are found inside larger harbors with a recreational fishing presence.

Live bait is used by recreational anglers on commercial passenger fishing vessels (CPFVs), private boats, and kayaks. There are 308 CPFVs that operate throughout California. Of this total, 206 vessels (68 percent) operate in southern California (south of Point Conception) and 102 vessels (34 percent) operate north of Point Conception. In San Diego County alone, 117 vessels operate out of three ports and accounts for the majority of recreational fishing activity that occurs in California. Between 2016 and 2017, logbook data and fishermen interviews indicate over 66 percent of the total estimated sardine and anchovy live bait in California was delivered to San Diego County ports.

In Northern California, there is much less demand by the recreational fishing sector for live bait overall because CPFVs and private boaters mainly target groundfish, which is caught with frozen dead bait or salmon caught with lures. However there is a small market for anchovy live bait which is used by recreational anglers targeting species such as striped bass or albacore tuna.

Live bait is sold to recreational anglers in “scoops”, small bait nets placed into the bait barge and scooped into the live bait hold of the vessel. A small proportion of the live bait harvest is sold to anglers aboard private boats for approximately \$45 per scoop. Live bait haulers sell the rest of their bait to CPFVs. The value of these sales is difficult to estimate because bait haulers historically have received 12.5 percent to 16.0 percent of CPFV gross revenues rather than a fixed price from bait sales (Thomson et al. 1994). The amount of bait a CPFV will require for a trip is based on many factors such as the size of its live bait hold, the number of anglers fishing, size of bait, and length of fishing trip. Single day CPFVs can take on as little as one scoop for a trip and some long range boats require 200 scoops of live bait.

The overall demand for live bait, as well as the type of species, shifts throughout the year, depending on location and recreational target fishing species. Most of the live bait harvest occurs

from June to September when recreational fishing is at its peak. During this time, live bait fishing vessels may fish several times during the week to keep up with demand with the larger vessels typically catching no more than five metric tons (mt) per trip. For the rest of the year, when demand drops, most live bait haulers reduce their trips or cease completely. In the summer, with warmer water target species (e.g., tunas), smaller sardines may be preferred as live bait for multi-day trips or partial day trips. Long-range trips on CPFVs, which usually run out of San Diego into Mexico during this peak season, may last up to 16 days and typically use sardines because they are hardier and can survive for extended periods in a bait tank. Anchovies may be used for day trips or be more desirable by target species commonly encountered within cooler ocean temperature earlier in the season (e.g., rockfish). The live bait fishery targets pure loads of either species because that is how the live bait is sold and stored at the bait barges and post-catch sorting is not possible.

The Southern California recreational fishery is part of an extremely valuable statewide fishery generating over \$1.2 billion in value added impact to California in 2015 (NMFS 2017). Since 2000, the live bait fishery in California has averaged an annual total catch of approximately 3,000 mt per year, of which 75 percent is sardine (CDFW Logbook data). Anglers often check fishing reports and will plan trips based on catch by species, which can be strongly affected by available bait species. Therefore, the appeal of recreational fishing trips from looking at reported CPFV catch can be adversely affected by an inconsistent supply of varied bait species. A reliable and varied supply of live bait is an essential component of this fishery.

A couple months out of the year, commercial vessels will buy anchovies from live bait barges. The albacore fleet will troll for albacore and once a school of albacore is located, will use live anchovies as chum to attract the albacore closer to the vessel. Once the albacore is near the vessel, the crew will use baited hooks, sometimes with live bait to catch the albacore. Recreational anglers also use anchovies during albacore fishing season, but not widely because trolling and lures are more effective. However, if provided the option, recreational anglers will use live bait.

### Oregon

In state waters, fishing for CPS to use as live bait is minimal. Commercial vessels, such as the albacore fleet, are allowed to catch anchovy for use as live bait on their vessel. This fishery is allowed in coastal Oregon waters and selected inland waters. For inland waters, it is allowed in four bays during July 1 to October 31 and year round at the mouth of the Columbia River. This activity is required to be reported in logbooks and none has been reported. Also, vessels are required to notify Oregon State Police in advance of fishing for anchovy in the four inland bays, and none have done so. A small commercial beach seine operation allowed only in the Umpqua River estuary harvests CPS and other species for bait for recreational anglers. Most are sold as dead bait, but some are sold alive, with total bait harvest reported on fish tickets. Since 2011, the only CPS landed and sold by the beach seine fishery are sardines with annual landings less than 0.6 mt.

### Washington

Northern anchovy support important live bait fisheries on the Washington Coast (including the ocean, lower Columbia River, Grays Harbor and Willapa Bay). Distinguished by gear type, fisheries for anchovy include a lampara gear fishery and a seine gear fishery. The lampara-gear fishery is primarily comprised of albacore tuna fishermen that catch and hold anchovy in onboard live wells to meet their own bait needs. The purse seine fishery harvests and holds live bait in

dockside net pens for retail sale to recreational and commercial fishermen, primarily participants in the albacore tuna fishery, and processes some fish as packaged bait. Baitfish fishing is permitted in Federal waters (3-200 miles), inside three miles (state waters) on the southern Washington coast, as well as within the estuaries of Grays Harbor and Willapa Bay, and in the lower Columbia River. In recent years most harvest has occurred in state waters.

Other forage fish species (e.g. sardine, herring) are limited to incidental catch by purse seine gear and have species specific per landing allowances. Since quality is paramount in the live bait fishery, fishermen avoid encountering non-forage fish species; any that are encountered are released quickly. To protect out-migrating salmon, regulations include seasonal closures of Grays Harbor and Willapa Bay. Herring may be targeted using lampara gear.

Except for herring which is under a license limitation program, participation in other Washington bait fisheries is not limited. About two dozen baitfish-lampara gear licenses and two or three baitfish-purse seine licenses are issued annually.

## **Catch History**

### California

Levels of live bait catch of sardine and anchovy since 1967 have varied inversely (Table 1). Trends in bait catch have as much to do with preferences in the market as with abundance or availability. The sardine live bait fishery has also operated under specific quotas, ranging from 83 mt to 1,810 mt for years 1984 – 1993. Since 2000, the total catch level of all species by the live bait fishery in California has been fairly consistent, averaging approximately 3,000 mt per year. The species composition over that time frame has varied somewhat, likely associated with the regional availability or abundance levels of either sardine or anchovy. The dominant species caught has been Pacific sardine which was 75 percent of the total catch over that time (CDFW Logbook data). This relative consistency in total live bait catch has also occurred over a time period (since 2008) when the large-scale directed commercial fishery for sardine has been either severely restricted or completely prohibited, while directed live bait fishing has been allowed. The directed large-scale commercial sardine fishery has been closed since July 2015 and between 2008 and 2014 there were five years when the commercial fishery was closed to directed fishing approximately half of the year or more, while live bait directed fishing was allowed to continue over this time period.

### Washington

Total landings of anchovy in the bait fishery have averaged 190 metric tons since 2000. This average reflects all fish landed regardless of whether the fish were sold or used as live bait or packaged.

Table 1. Estimates of Pacific sardine and Northern anchovy live bait harvest in California from submitted logbooks. Data for 1939-1992 from Thomson et al. (1994), and 1993-2017 from CDFW live bait logs. Values are in metric tons with the assumption that 1 scoop = 12.5 lbs.

Year	Sardine	Anchovy
1967	0	4,898
1968	0	6,644
1969	0	4,891
1970	0	5,543
1971	0	5,794
1972	0	5,307
1973	0	5,639
1974	0	5,126
1975	0	5,577
1976	0	6,202
1977	0	6,410
1978	107	6,013
1979	0	5,364
1980	12	4,921
1981	6	4,698
1982	38	6,978
1983	193	4,187
1984	53	4,397
1985	11	3,775
1986	17	3,956
1987	216	3,572
1988	50	4,189
1989	100	4,594
1990	543	4,842
1991	272	5,039
1992	1,807	2,572

Year	Sardine	Anchovy
1993	1,756	2,670
1994	1,506	2,076
1995	2,055	1,278
1996	1,801	703
1997	2,344	1,077
1998	2,037	304
1999	2,411	453
2000	1,997	1,410
2001	1,226	1,347
2002	1,767	1,012
2003	3,128	978
2004	3,900	192
2005	2,776	1,519
2006	3,561	522
2007	3,395	708
2008	2,989	723
2009	2,820	833
2010	2,249	704
2011	2,057	1,045
2012	2,497	350
2013	1,849	745
2014	1,562	1,142
2015	1,996	723
2016	1,208	266
2017	1,465	155

## Catch Reporting

### California

A live bait logbook program began in 1939 with logs submitted by live bait fishermen on a voluntary basis (Maxwell 1974). Following the collapse of the sardine fishery in the early 1950s, the state of California implemented a moratorium on directed commercial sardine fishing in 1967. Beginning in the late 1970s, live bait and mackerel fishermen, as well as fish surveys, in Southern California began seeing more sardine. In 1984, AB 3403 established a 75-short ton (st) live bait quota for sardine under a revocable permit and a requirement for live bait fishermen to submit logbooks. The moratorium on commercial directed sardine fishing was lifted in 1986 with a quota set at 1,000 st (live bait quota set at 150 st).

A requirement for sardine live bait to be reported on logbooks was placed in state regulations in 1989, but the code under which authority this requirement operated was repealed in 2000,

effectively making logbooks voluntary once again. The monthly log book forms sent to live bait haulers asked for estimated scoops of total bait by fishing date, range in lengths of catch by date, and notes on scoops of young sardine (“firecrackers”) and anchovy (“pinheads”), as well as other species.

In 2015, the California Department of Fish and Wildlife (CDFW) met with live bait and CPFV fishery participants to increase participation in the log program and discuss improving the log form to better describe live bait catch. In fall of 2015, a revised log form was issued to bait haulers, and by 2016 was used by all log submitters. The new form calls for reported catch in pounds, not scoops, to better standardize reporting (although the reported pounds are still estimates because catch is not weighed). The revised log form also specifies catch by species and catch location.

Currently, live bait haulers fill out voluntary live bait logs which are submitted to CDFW every month. At present, there are eight live bait haulers submitting logbooks out of approximately 15 operational live bait haulers. While this is approximately 50 percent of the haulers, discussions with the industry regarding vessel sizes and locations and examination of numbers of CPFV fishing trips suggest that the sardine catch reported on logbooks for 2016-2017 represents approximately 75 percent of that season’s total. CDFW staff have conducted outreach to live bait haulers that have not submitted logbooks and found that they are willing to submit logbooks.

#### Washington

Landings must be documented on state landing receipts (fish tickets) when offloaded, or for live bait, at the time fish are transferred from the vessel to the net pens. Since 2007 WDFW has required commercial fishermen to document all personally captured forage fish used for bait in another fishery (i.e., albacore tuna) on the fish receiving ticket for the target species. Since 2010 anchovy landings averaged 154 mt annually. A voluntary logbook program for the baitfish fishery was initiated in 2018.

#### Oregon

Logbooks have been required under Oregon Administrative Rules for anchovy fishing for live bait in inland waters since 2009. For anchovy fishing by albacore vessels, the fishermen are allowed to use either an “anchovy bait” log or a purse seine log, which are both required to be submitted monthly.

#### **References**

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