

COASTAL PELAGIC SPECIES MANAGEMENT TEAM STATEMENT ON PACIFIC SARDINE HARVEST GUIDELINE SUBALLOCATION

At the June Council meeting, the Coastal Pelagic Species Management Team (CPSMT) was directed to examine several items related to suballocation of the annual Pacific sardine harvest guideline (HG). Specifically, we were asked to: 1) analyze seasonal distribution of sardine biomass along the West Coast, 2) revisit the suballocation options proposed by Oregon Department of Fish and Wildlife (ODFW), 3) study effects of delaying start of the season, 4) review catch data to determine how much of the northern allocation is taken Jan-May.

Data on the seasonal coast-wide distribution of sardine biomass are not available in a form suitable for resolving fishery allocation questions. Historical tagging studies have demonstrated regular seasonal movement northward in the late-spring/early-summer and southward again in autumn. North-south movements were thought to be a feeding-spawning migration typical of older/larger individuals, as was evidenced by abbreviated summer fishing season to the north. Unfortunately, seasonal biomass distribution cannot be derived from these early studies. While sardine have re-occupied waters north of California, there is no clear evidence to date that a regular north-south migration pattern has resumed. Even if reliable coast-wide biomass distribution were available, distribution is likely to vary widely within and among years. Since we have no current information on relative biomass distribution off of California, Oregon, and Washington, it is not possible for the CPSMT to provide an objective opinion regarding the relative merit of ODFW's proposed allocation options.

The ODFW report raises a concern over the possibility of northern California's fishery preempting the northern suballocation before Oregon and Washington have an opportunity to prosecute their summer fisheries. To examine this likelihood, we reviewed historical (1935-1948) and recent landings data for the Oregon and California fisheries. Monthly catch data from Washington's sardine fishery were not available at the time of this analysis. Historically, the State of California imposed seasonal closures on their northern fishery from March through July and the southern fishery from March through August, therefore, evaluating availability information for California during the historical period is not appropriate. For this reason, only California catch data for 1992-1999 were applicable.

Oregon's monthly landings for 1999 and 2000 were identical in pattern to their seasonal catch for the period 1935-1948. Ninety-eight percent of Oregon's landings are made from July through September, peaking in August, with only minor quantities taken in other months (Figure 1). California sardine landings for the 1992-1999 period reflect a different seasonality than the Oregon fishery (Figure 2). The northern California fishery has a pronounced season beginning in mid-summer and peaking in the early fall, with landings tapering off in November and December. The southern California season is spread more evenly throughout the calendar year, with peaks in late winter and fall and a low during mid-summer months (Figure 2).

Catch data were also examined with respect to average cumulative percentage taken by each region throughout the calendar year in recent years (Figure 3). For the January-May period in question, Oregon had landed no sardine, northern California landed only 19% of their total annual take, and southern California landed 55% of the annual yield. By the end of August, Oregon's fishery took 99% of their landings, and northern California had landed 46% of their annual yield. With the exception of Jan-Feb 1999, the majority of northern California catch during the first semester amounts to only a few hundred tons per month (Table 1) where quality is relatively poor (e.g. small fish, low oil content). Hence, the incentive for northern California catch to increase in this time period is unlikely given current information.

Based on past experience, the northern fishery (OR/WA/Canada) will probably not persist once biomass drops below 700,000 tons (Table 2). It is unlikely that the northern California fishery will take all of the

northern allocation before Oregon/Washington fisheries have a chance to complete their season. Moreover, if a significant fishery builds up in the open access region (north of 39 N), there is a chance that the Oregon/Washington fisheries could take the bulk of the northern allocation before the Monterey fishery has an opportunity to fish during its fall peak season. As an example, the combined Oregon and Washington fisheries landed at least 14,309 mt by the conclusion of their 2000 fishing season, but the northern California fishery had only taken 4,976 mt through September 2000.

The catch data analyses presented in this report address ODFW's concern regarding preemption from the northern suballocation. The data also highlight other potential problems with respect to north-south allocation which may arise when HGs are lowered. The Council may wish to consider avoiding these eventualities by considering alternatives to the current subarea allocation schemes. For example, in years when the HG is more than sufficient to accommodate the coast-wide fishery, the Council may consider removing all suballocations to avoid preemption of localized fisheries. When HGs are lowered, subarea HG preemption may be addressed by timing the release of the coast-wide HG to accommodate regional seasons.

Table 1. Monthly sardine landings (metric tons) in Washington, Oregon, and northern California and southern California, 1992-2000.

WASHINGTON LANDINGS (MT)									
MONTH	1992	1993	1994	1995	1996	1997	1998	1999	2000
Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Feb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jun	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	62.3
Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	912.8
Aug	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2239.2
Sep	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1455.2
Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	122.4
Nov	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	n/a
Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	n/a
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4,791.9

OREGON LANDINGS (MT)									
MONTH	1992	1993	1994	1995	1996	1997	1998	1999	2000
Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Feb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Apr	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Jun	0.0	0.0	0.0	0.0	0.0	0.0	0.8	50.4	205.0
Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0	238.5	2,456.8
Aug	0.0	0.0	0.0	0.0	0.0	0.0	0.0	383.0	3,959.5
Sep	3.7	0.0	0.0	0.0	0.0	0.0	0.0	103.5	2,593.2
Oct	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.0	302.8
Nov	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	n/a
Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	n/a
TOTAL	3.9	0.2	0.0	0.0	0.0	0.0	1.0	775.6	9,517.2

NORTHERN CALIFORNIA LANDINGS (MT)									
MONTH	1992	1993	1994	1995	1996	1997	1998	1999	2000
Jan	0.0	0.0	10.5	0.0	75.1	90.8	61.4	5,833.3	376.2
Feb	0.0	15.0	11.1	112.0	163.6	0.0	0.0	1,815.7	0.0
Mar	18.4	205.7	29.2	50.8	121.5	0.0	103.8	225.1	0.0
Apr	41.9	26.2	109.1	0.0	532.6	76.2	231.8	102.3	0.0
May	378.6	122.4	255.5	1.8	176.8	98.3	657.8	59.6	119.1
Jun	674.4	0.0	127.9	232.9	969.4	76.7	1,319.2	13.9	640.5
Jul	84.0	18.9	200.9	136.6	406.3	831.4	1,372.3	507.2	1,216.3
Aug	317.6	21.2	393.6	297.3	948.4	1,003.1	5,043.6	908.7	1,590.6
Sep	386.9	257.5	768.9	2,535.5	1,299.7	2,568.8	1,201.8	2,400.2	1,033.3
Oct	862.7	2.9	321.6	1,587.4	1,140.8	4,333.7	348.8	2,462.5	n/a
Nov	285.8	0.4	42.5	555.9	1,069.4	2,381.0	0.0	602.8	n/a
Dec	77.4	5.5	24.3	171.0	1,084.5	1,899.7	132.0	2,123.0	n/a
TOTAL	3,127.6	675.6	2,295.0	5,681.2	7,988.1	13,359.7	10,472.4	17,054.4	4,976.0

SOUTHERN CALIFORNIA LANDINGS (MT)									
MONTH	1992	1993	1994	1995	1996	1997	1998	1999	2000
Jan	2,256.9	2,716.1	507.6	5,900.0	3,533.7	1,754.2	2,198.1	5,702.8	7,071.4
Feb	1,118.7	2,676.1	1,356.9	5,037.7	2,606.7	2,316.8	2,293.3	6,402.0	10,760.3
Mar	1,280.1	3,180.0	2,608.2	2,622.2	3,475.7	2,286.7	5,558.9	6,902.6	11,951.2
Apr	450.8	2,430.0	2,145.0	3,942.9	2,790.9	2,268.9	7,869.6	2,279.3	5,154.1
May	31.0	537.0	884.6	5,824.8	432.4	1,379.3	509.8	1,843.8	2,636.9
Jun	80.9	10.4	16.6	3,613.9	1,489.1	180.3	114.7	169.1	1,071.4
Jul	5.1	6.3	65.5	824.9	679.6	1,080.2	117.1	2,766.5	582.6
Aug	59.9	8.6	0.3	58.9	18.0	799.5	168.8	2,998.0	1,503.6
Sep	244.1	3.1	26.1	222.1	1,395.9	3,343.1	980.7	3,989.2	841.5
Oct	1,649.3	2,700.5	1,284.4	4,581.5	7,033.0	7,494.9	3,423.7	3,327.4	n/a
Nov	5,871.6	279.1	328.1	773.6	1,038.0	4,441.3	3,440.3	2,375.9	n/a
Dec	1,765.2	122.5	204.6	1,508.6	71.4	2,178.2	5,789.9	3,265.1	n/a
TOTAL	14,813.6	14,669.6	9,428.0	34,911.1	24,564.5	29,523.3	32,464.7	42,021.8	41,573.1

Table 2. Historical sardine biomass and harvest (metric tons) for the 1933-34 to 1950-51 fishing seasons (June-May). Biomasses from MacCall (1979); Landings from Radovich (1981).

Season	Biomass	Canada	Washington	Oregon	California	Total
1933-1934	3,414,000	3,674	0	0	347,845	351,519
1934-1935	3,624,000	39,009	0	0	539,829	578,839
1935-1936	2,844,000	41,114	9	23,796	508,480	573,399
1936-1937	1,688,000	40,325	5,951	12,882	658,735	717,893
1937-1938	1,206,000	43,618	15,513	15,114	377,904	452,149
1938-1939	1,201,000	46,965	24,023	15,440	521,897	608,325
1939-1940	1,607,000	5,008	16,112	20,258	487,405	528,782
1940-1941	1,760,000	26,100	735	2,867	417,839	447,541
1941-1942	2,457,000	54,477	15,513	14,379	532,861	617,230
1942-1943	2,064,000	59,766	526	1,769	457,825	519,887
1943-1944	1,677,000	80,504	9,471	1,651	433,756	525,382
1944-1945	1,206,000	53,633	18	0	503,407	557,058
1945-1946	720,000	31,117	2,096	82	366,219	399,513
1946-1947	566,000	3,620	5,570	3,593	212,104	224,886
1947-1948	405,000	445	1,234	6,287	110,080	118,045
1948-1949	740,000	0	45	4,826	166,675	171,547
1949-1950	793,000	0	0	0	307,471	307,471
1950-1951	780,000	0	0	0	320,319	320,319

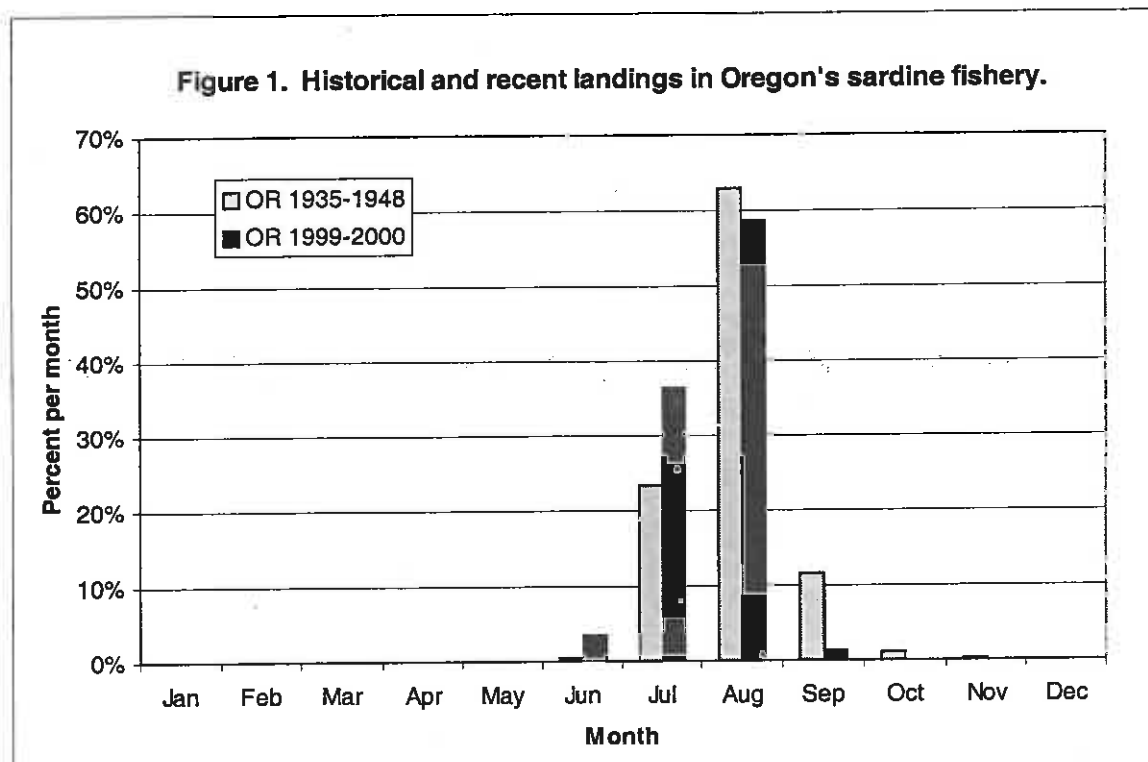


Figure 2. Recent landings in northern and southern California's directed sardine fishery.

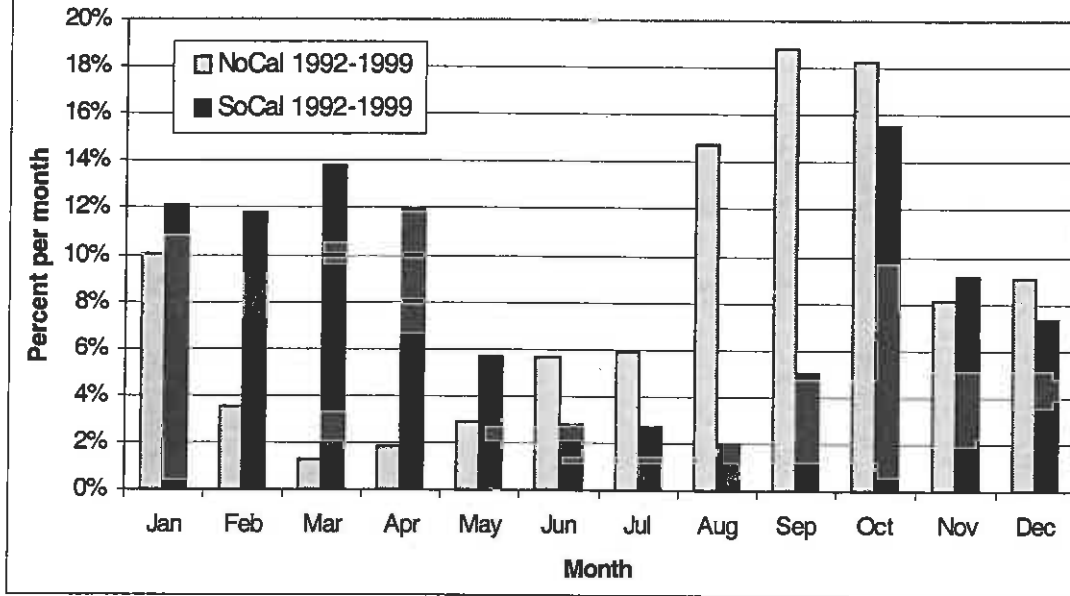


Figure 3. Percent cumulative landings by the directed sardine fisheries in Oregon and California.

