



## Annual Summary of CPFV Morning Star Halibut Catch 2012

**Summary:** Department marine biologist Kristine Lesyna collected information on length, weight, gender, and age from all California halibut encountered while sampling onboard the CPFV Morning Star in San Francisco Bay from July to October 2012. Lesyna also collected sublegal-sized halibut for a maturity study. This information will help the Department monitor the halibut resource in central California and determine size and age at first maturity for this species.

**Methods:** Each halibut was measured to the nearest mm (fork length) and weighed to the nearest tenth of a kilogram; gender was determined and otoliths were removed. Sublegal-sized halibut additionally had their gonads removed, analyzed for stage of maturity, and preserved for further analysis. Ages were determined from examining thin sections of otoliths using a high-magnification microscope. Thin sections, which are cut with a special laboratory saw that is very precise, and then polished, reveal ring-like deposits which indicate annual growth.

**Results:** Table 1 lists ages and lengths from 29 legal-sized halibut collected from the Morning Star this season. Four otoliths could not be aged due to crystallization which often causes the outer annuli to be blurred. Three sublegal-sized halibut were also collected for the maturity study; they have not been aged yet, but the stage of maturity has been determined. The two females were mature at 526 and 527 mm (~ 20.7 inches). The one male was mature at 506 mm (~ 19.9 inches).

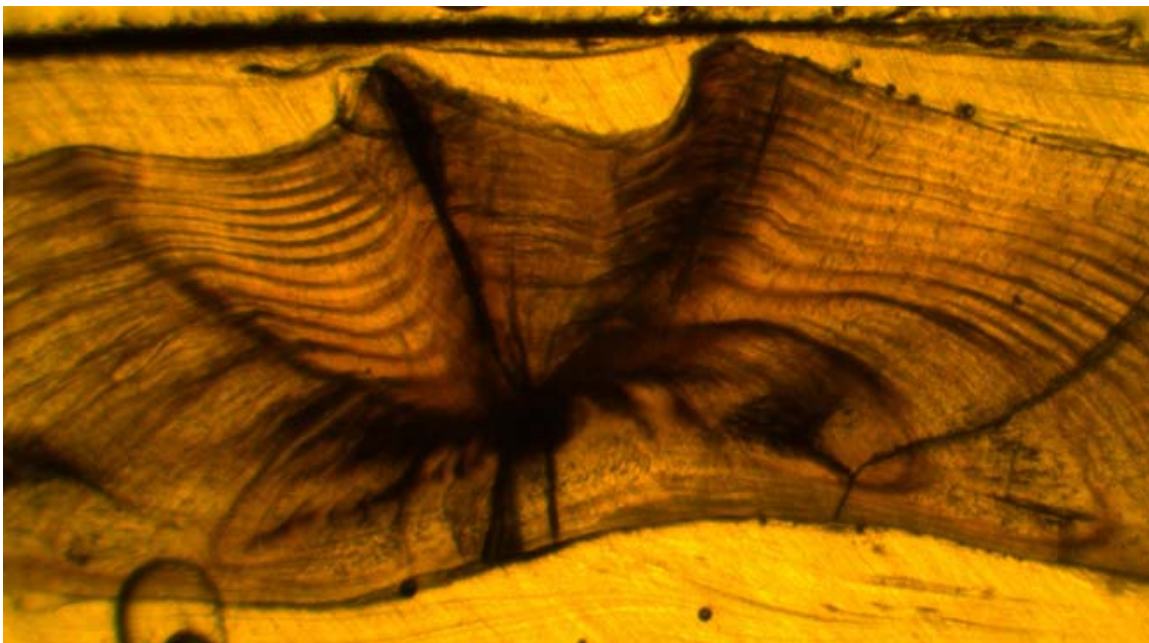


Table 1. Table of age and length of halibut collected by DFG from the Morning Star in 2012.

Fish Number	Age (yrs)	Length (mm)	Length (inches)	Sex	Month Caught in 2012
1	7	706	27.8	Male	July
2	6	732	28.8	Male	July
3	6	670	26.4	Male	July
4	6	946	37.2	Female	July
5	7	631	24.8	Male	July
6	7	896	35.3	Female	July
7	5	596	23.5	Male	July
8	7	799	31.5	Female	July
9	5	751	29.6	Female	July
10	7	774	30.5	Male	July
11	7	800	31.5	Female	July
12	4	614	24.2	Female	August
13	9	723	28.5	Female	August
14	7	832	32.8	Female	August
15	7	667	26.3	Male	August
16	8	641	25.2	Male	August
17	7	914	36.0	Female	September
18	7	716	28.2	Male	September
19	8	834	32.8	Female	September
20	7	621	24.4	Male	September
21	7	814	32.0	Female	September
22	5	575	22.6	Male	September
23	8	642	25.3	Male	September
24	7	850	33.5	Female	September
25	7	615	24.2	Male	September
26	7	737	29.0	Male	September
27	12	1017	40.0	Female	September
28	7	664	26.1	Male	October
29	7	871	34.3	Female	October



**Conclusion:** The majority of the halibut (59%) collected from the Morning Star this season were 7-yr olds from the 2005 year class. A year class means all fish born during one year. This year class started to show up in the fishery at a legal size of 22 inches around 2009. Typically, but not always, females will grow at a faster rate than males of the same age, which is why it is important to determine gender of fish aged. The three halibut collected from the Morning Star that were less than 22 inches were mature. Figure 1 shows one of the better-quality otoliths aged by the Department.



**Figure 1.** Photo of a halibut otolith cross-section from the 12-yr old female as viewed under the microscope (magnification approximately 25x). **Photo credit:** Travis Tanaka, CDFW.

**Future Work:** The Department intends to continue this study for 2 more years in order to obtain sufficient numbers of halibut from which to make conclusions about the relationships among age, length, and sexual maturity. Our target is to collect up to 100 sublegal-sized fish along with carcasses from additional legal-sized fish. The ultimate goal is to verify that the current minimum legal size is appropriate, in that it allows halibut to reproduce at least once before being susceptible to take in the fisheries. We will compare our results of length- and age-at-maturity with those from historical studies from southern California.