

## CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE SUPPLEMENTAL REPORT ON PACIFIC HALIBUT MANAGEMENT MEASURES AND CATCH TRACKING FOR 2015

Following the Pacific Fishery Management Council's (Council) discussion in September and recognizing the recommendation of the GAP ([http://www.pcouncil.org/wp-content/uploads/K1b\\_Sup\\_GAP\\_Rpt\\_SEPT2014BB.pdf](http://www.pcouncil.org/wp-content/uploads/K1b_Sup_GAP_Rpt_SEPT2014BB.pdf)) that California provide timely monitoring and reporting of progress in-season, and to manage the fishery in a manner that the California quota is not exceeded, the California Department of Fish and Wildlife (CDFW) has examined how best to implement active monitoring and management for California's Pacific halibut sport fishery in 2015 to ensure catches remain within the state's allocation. Rather than establishing a fixed season during the Catch Sharing Plan (CSP) preseason process as has been done previously, CDFW recommends implementing an inseason monitoring approach similar to that used in coastal fisheries in both Oregon and Washington. This approach is preferred over the method employed for the Washington Inner Waters (i.e., the Puget Sound methodology) as recommended by the Washington Department of Fish and Wildlife.

CDFW believes the inseason monitoring approach described below will be effective in ensuring catches are actively tracked during the season to allow for timely and responsive management; i.e., closure of the fishery when attainment of the 2015 California sport allocation is projected.

Beginning in 2015, CDFW will implement a weekly inseason monitoring process similar to the one CDFW uses to actively track fishery impacts on yelloweye rockfish (<http://www.dfg.ca.gov/marine/groundfishcentral/tracking.asp>). This tracking/monitoring process uses sample data from the CDFW recreational sampling program, catch estimates from prior months and years generated from the sampling program, and the relationship between field observations (sample data) and final catch estimates.

### **California Recreational Fishery Survey Program (CRFS)**

CDFW's California recreational fishery survey program (CRFS) began collecting recreational catch information in 2004. CRFS provides a comprehensive approach to recreational fishery data collection throughout the state, and the information is used to estimate total marine recreational catch and effort in California. It is a coordinated sampling survey designed to gather information for all finfish species, including Pacific halibut, from anglers in all modes of recreational fishing. Anglers are intercepted by CRFS samplers on the water or onshore to collect fishery data. Field staff record the number, lengths, and weights (when possible) of fish observed in the catch (type A fish), along with the angler's demographic and fishing activity information. In addition, field staff record the number and condition of "type B1" fish which are kept fish reported by the angler but can't be directly examined by the sampler due to condition or other circumstances (e.g., filleted). Location of fishing activity is also recorded by samplers onboard vessels or when interviewing anglers at the dock.

Pacific halibut are primarily encountered in three recreational fishing modes (Figure 1). The primary Private/Rental boat mode (PR1), which consists of public launch ramps and docks where at least 90 percent of the fishing effort and catch of important management species by private and rental boats is known to occur in California. Each PR1 site is generally sampled seven days per month, with assignments stratified into weekend and weekday samples and spread throughout the month to maintain a minimum sample rate of 20 percent per half-month period. This coverage rate equates to at least 56 PR1 samples per month (Table 1) in the area between Point Arena and the Oregon-California border where Pacific Halibut are contacted. During May through October 2014, there were 335 total PR1 samples (Table 1), in which almost 12,500 anglers were interviewed and their catch sampled.

The Party/Charter (PC) mode of the CRFS program is comprised of the Commercial Passenger Fishing Vessels (CPFVs). Catch information is collected by CRFS field staff during onboard trips or dockside visits. Up to five percent of CPFV trips are sampled onboard per month while dockside coverage is generally between 20 and 30 percent of all trips. Each PC site is checked several times a week. During May through October 2014, CRFS monitored CPFV activity on 370 days in the area north of Point Arena (Table 1) and sampled more than 650 CPFV trips. In addition, CPFV operators are required to submit logbook records to CDFW each month, documenting the number of anglers who fished on the trip and the target species.

CRFS sampling also occurs at less active private boat launch facilities (e.g., small launch ramps, hoists, beach tractors) that have historically contributed less than 10 percent of the private/rental boat catch of important management species in California. Designated as secondary Private/Rental boat mode (PR2), these sites are randomly sampled a few days a month; however, landings of Pacific Halibut have been relatively rare in this mode (Figure 1).

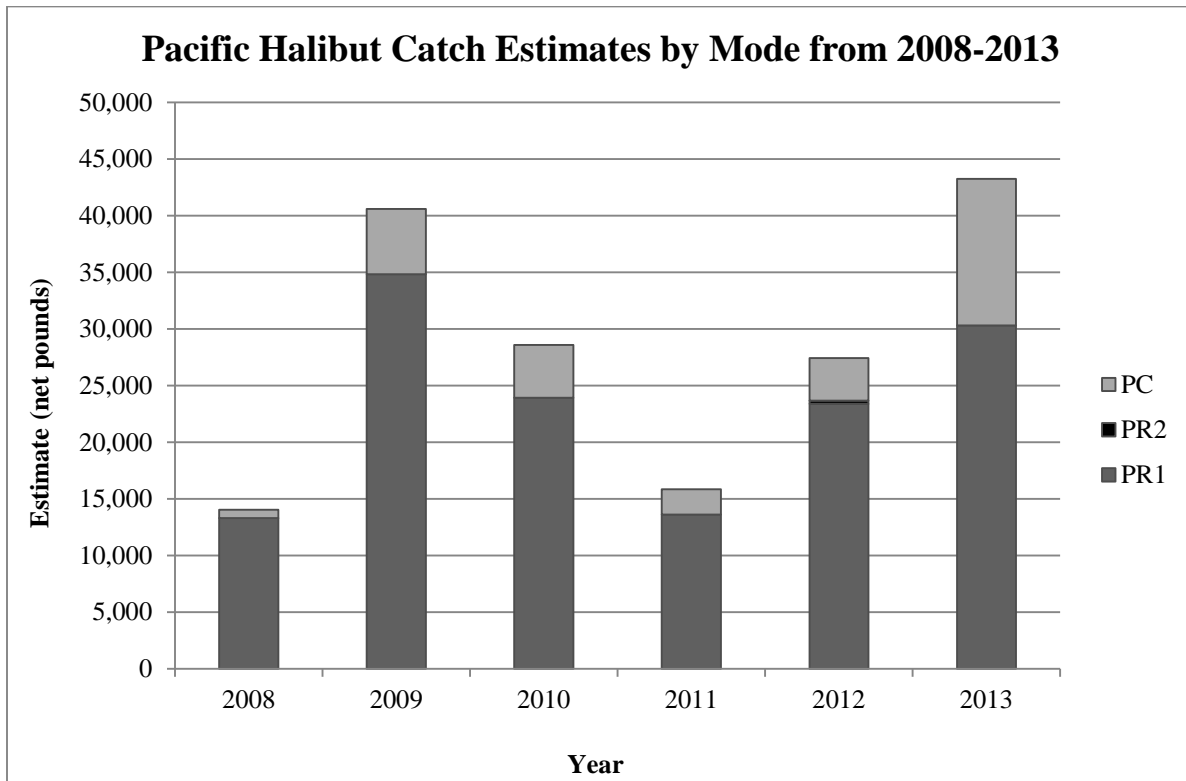
### **Effort and Catch Estimates for Pacific Halibut**

Determining Pacific halibut fishing effort and catch is a multi-step process that varies slightly by mode of fishing. The first step involves determining total angler effort by trip type. While CRFS does not have a specific Pacific halibut trip type, field samplers record if an angler targeted Pacific halibut either as a primary or secondary target. Most trips where Pacific halibut are targeted fall into the general “bottomfish” category, although a small proportion are categorized as “salmon” trips. A Pacific halibut catch-per-unit of effort (CPUE) for type A and type B1 fish is then calculated for each trip type based on CRFS sample data.

The CPUE information for each of trip type is multiplied by the estimated total effort of each trip type within each mode to produce an estimate of total catch each month by mode (**Figure 1**). Total weight is then calculated using average weights of Pacific Halibut sampled by CRFS field staff.

Since 2011, effort estimates for the PC mode have been derived from mandatory CPFV logbook records. Effort data (target species, number of anglers, and days fished) is provided by operators and submitted to CDFW each month. Logbook submission is checked against a field survey of vessel activity to estimate compliance, and an under-reporting adjustment made if necessary.

For the PR modes, field counts of sampled boats or trailers are used to estimate total effort. The monthly estimate is generated by expanding the total number of boats sampled during assigned days to total days available by strata per month. The daily counts are also expanded to cover missed boats that were not sampled due to high activity at the site or trailers remaining in the parking lot at the end of the sample day.



**Figure 1. Recreational estimated catch (net pounds) of Pacific halibut in California by mode (PR1, PR2, and PC) from 2008-2013. Data from RecFIN and CDFW.**

**Table 1. Number of CRFS sample days for PC and PR1 modes by month between OR-CA border and Point Arena during May through Oct 2014.**

Mode	Major port area	Sample Site	May	Jun	Jul	Aug	Sep	Oct	Total
PC	Klamath Zone	Crescent City	11	13	14	10	12	8	68
PC	Klamath Zone	Trinidad	12	12	12	13	9	closed	58
PC	Klamath Zone	Eureka	14	14	18	18	16	11	91
PC	Fort Bragg	Shelter Cove	8	8	8	9	8	8	49
PC	Fort Bragg	Fort Bragg	14	20	26	22	14	8	104
Total			59	67	78	72	59	35	370

Mode	Major port area	Sample Site	May	Jun	Jul	Aug	Sep	Oct	Total
PR1	Klamath Zone	Crescent City docks	7	7	7	7	7	7	42
PR1	Klamath Zone	Crescent City launch	7	7	7	7	7	7	42
PR1	Klamath Zone	Trinidad docks	7	7	7	7	7	7	42
PR1	Klamath Zone	Trinidad hoist	7	7	7	7	7	7	42
PR1	Klamath Zone	Eureka launch	7	7	7	7	7	7	42
PR1	Klamath Zone	Field's Landing launch	7	7	7	7	7	7	42
PR1	Fort Bragg	Shelter Cove tractor	7	7	7	7	7	7	42
PR1	Fort Bragg	Fort Bragg launch	7	7	7	7	7	7	42
Total			56	56	56	56	56	56	336

### **Monthly Estimate Production**

The CRFS program produces monthly estimates of Pacific halibut taken in California's recreational fishery that become available approximately six weeks after the end of a fishing month. The basic formula to produce estimates involves using the Pacific Halibut CPUE for each trip type and multiplying it by the total estimated effort by trip type within each mode. As described above, CPUE and effort data come directly from the field survey for the PR1+PR2 modes. For the PC mode, CPUE data comes from the field survey while total effort data comes from the logbook data.

### **Relationship Between Sampled Pacific Halibut and Monthly Estimates**

In order to provide weekly preliminary estimates of catch, CDFW proposes to use a regression to determine approximately how many pounds of estimated catch are equivalent to one sampled fish. CDFW examined the number of sampled fish (A+B1) in each month/year against the corresponding catch estimate for each month/year (Table 2). There is a very strong correlation (Figure 2) between the number of fish observed/reported (A+B1 fish) and the resulting monthly catch estimate ( $r$ -squared = 0.88). The strength of this relationship suggests that tallies of observed samples in the field alone can be used to adequately predict what the catch estimates will be by using this relationship.

The regression analysis indicates that each sampled Pacific halibut in the field equates to 103.4 pounds of estimated catch – independent of month or year. CDFW proposes that beginning in 2015, it will use this regression relationship to monitor catches inseason on a weekly basis, generate a preliminary estimate of the total cumulative catch, and compare that relative to the California quota.

Table 2a-b. Numbers of sampled (A+B1) fish (a) and total catch estimates (b; net pounds) for recreationally caught Pacific halibut in California by month and year from 2008-2014 for PR and PC modes. Data from CRFS; 2014 data are preliminary and incomplete.

(a)

	2008	2009	2010	2011	2012	2013	2014
<b>May</b>	17	17	22	8	27	18	45
<b>June</b>	25	123	16	31	44	34	21
<b>July</b>	57	111	70	13	39	56	198
<b>August</b>	74	114	81	51	128	176	0
<b>September</b>	35	46	17	21	79	23	44
<b>October</b>	0	1	0	10	11	13	NA
<b>Yearly Total</b>	208	412	206	134	328	320	308

(b)

	2008	2009	2010	2011	2012	2013	2014
<b>May</b>	1,384	638	2,608	2,716	1,523	1,282	4,795
<b>June</b>	1,977	11,652	2,513	3,154	4,119	5,419	2,779
<b>July</b>	3,326	11,548	10,347	1,347	5,369	12,446	20,124
<b>August</b>	5,743	11,758	10,918	5,170	12,306	19,179	0
<b>September</b>	1,611	4,862	2,202	2,663	3,270	2,554	3,293
<b>October</b>	0	149	0	801	856	2,374	NA
<b>Yearly Total</b>	14,040	40,607	28,587	15,852	27,442	43,254	30,991

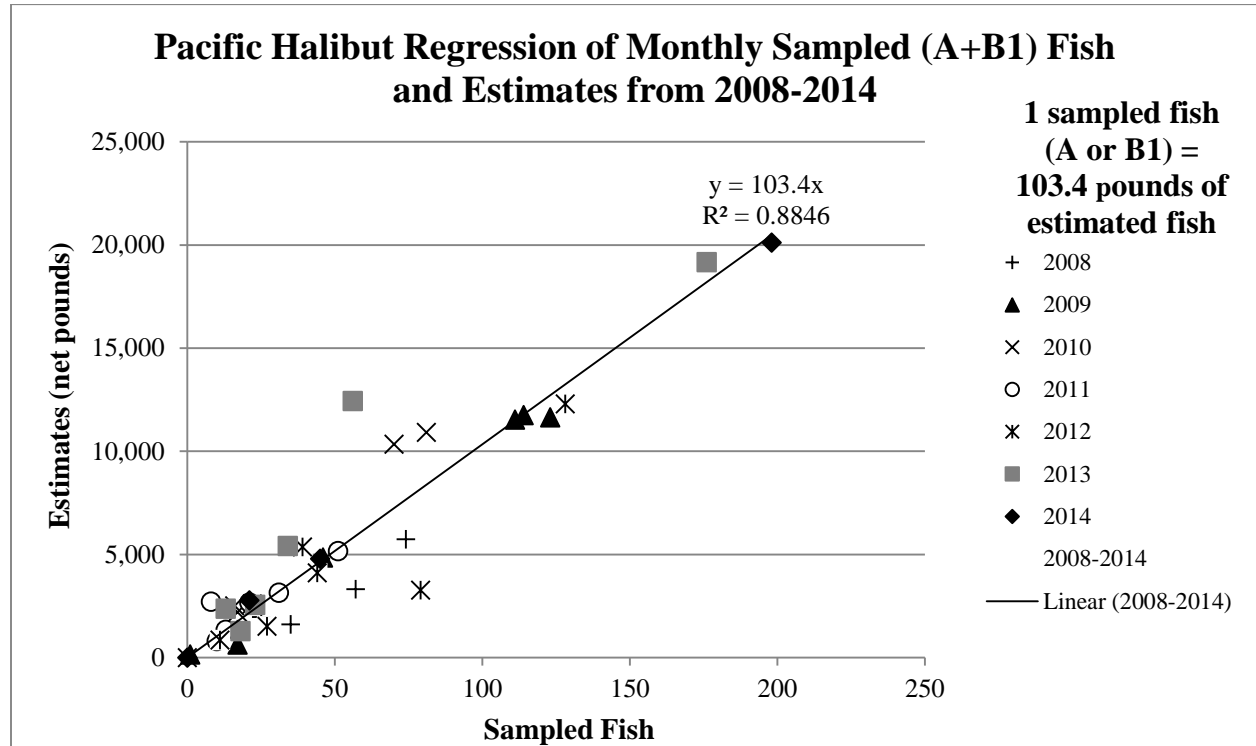


Figure 2. Regression of sampled (sampler examined, A, and angler reported kept, B1) Pacific halibut and monthly catch estimates from 2008-2014 for PR and PC modes. Data from CRFS; 2014 data are preliminary and incomplete.

### **Inseason Monitoring, Reporting and Coordination with NMFS and Other Agencies**

Each week, CDFW staff will tally observations of sampler examined (A fish) and angler reported kept fish (B1) received on Tuesday or Wednesday from the prior week and multiply this number by 103.4 pounds to generate a preliminary projected estimate of total catch for that prior week. This preliminary estimate will be provided weekly by CDFW Pacific halibut staff to NMFS and the IPHC.

Meanwhile, the CRFS program generates monthly estimates of catch for all species approximately six weeks after a month has ended, incorporating effort information from all modes using methods described above. Once a Pacific halibut monthly estimate is determined, this value will replace the weekly projected preliminary estimates. For example, if during the first five weeks of the season that opens May 1, CRFS samples 30 fish during field sampling activities, the preliminary projected total catch estimate for these five weeks would be 3,102 lbs (30 fish \* 103.4 pounds per fish). However, in mid-July when the monthly Pacific halibut catch estimate for May becomes available from CRFS, that value will replace the inseason estimate calculated above for this month, in lieu of the prior corresponding cumulative projected estimate of 3,103 pounds. Any significant differences between catch estimates and weekly projections will also be investigated and reported.

Inseason action to close the fishery will be taken based on the weekly projections, added to any available monthly CRFS estimates. While production of final monthly catch estimates does involve that six-week lag time, the weekly projections will be used to estimate catch for any weeks for which monthly CRFS estimates are not yet available, allowing for very timely estimation of cumulative catch during the season (i.e., with one week lag time rather than six weeks). This method of catch tracking and estimation involves use of the best available science as it becomes available during the season, combining both the final monthly CRFS estimates with the weekly projections. This near real-time information will allow for CDFW, NMFS, and IPHC to coordinate on projection and determination of a closure date during the season.

### **Closure Process**

As weekly catch tracking progresses through the open season, and as the cumulative estimated catch approaches the California quota, CDFW in consultation with NMFS and IPHC, will project the date upon which the allocation will be attained, similar to the method used to project closure dates in other subareas. This projection will also consider expected weather, constituent input on expected effort, and available information on past participation for the specific time of the year as necessary. NMFS will act to close the California sport fishery through inseason action via the fishing hotline, with as much advance notice as possible, although this can be done in as little as 24 hours' notice. CDFW will also post weekly catch estimates to its website in a manner similar to ODFW and similar to the catch reporting CDFW currently utilizes for yelloweye, and will post closure notification information once a date has been established.

Once the fishery has been closed via the hotline for the remainder of the open season, it may not be reopened even if monthly CRFS estimates become available indicating that catches were lower than projected.

### **Expected Fishing Season Length in the California Subarea**

The actual length of the 2015 season will be dependent on three factors: 1) the decision on a California allocation; 2) the determination of the area 2A TAC, and 3) the rate at which A+B1 fish are intercepted by the CDFW recreational sampling program during the season as described above. Using the metric that each sampled fish equates to 103.4 pounds of estimated catch, looking at the average number of fish sampled in the two highest years for each month might generate a reasonable projection of fishery performance in 2015, given the continued trend of increased catches in recent years.

As an example, for the month of May in the 2008-2014 time period, 27 and 45 fish were the A+B1 totals observed for the month in the two highest years (see Table 2a – years 2012 and 2014) – this average is 36 fish, which results in a projection of 3,722 pounds for the month of May (i.e., 36 is multiplied by 103.4 pounds). Monthly projected estimated catches using this methodology are provided in Table 3. Dividing the monthly projected estimates by the number of days in the month may be used to project potential catches on a weekly time basis as depicted in Table 4, which also would allow for selection of season dates once the California allocation is determined.

Table 3. Projected catch (net pounds) of Pacific halibut in California using the highest two-year average number of sampled fish by month from 2008-2014. Data from CRFS; 2014 data are preliminary and incomplete.

	<b>Average Sampled Fish in Highest Two Years (from Table 2a)</b>	<b>Projected Catch (net pounds)</b>
<b>May</b>	36	3,723
<b>June</b>	84	8,636
<b>July</b>	155	15,980
<b>August</b>	152	15,721
<b>September</b>	63	6,464
<b>October</b>	12	1,241
<b>Yearly Total</b>		<b>51,767</b>

Table 4. Projected weekly catch (net pounds) and projected cumulative catch through the Pacific halibut season using an average of the two highest numbers of sampled fish by month from 2008-2014, and assuming an open season from May 1 through October 31. Based on data from CRFS; 2014 data are preliminary and incomplete.

<b>Week</b>	<b>Weekly Projected Catch (net pounds)</b>	<b>Cumulative Projected Catch (net pounds)</b>
May 1-7	841	841
May 8-14	841	1,682
May 15-21	841	2,522
May 22-28	841	3,363
May 29-June 4	1,512	4,875
June 5-11	2,015	6,890
June 12-18	2,015	8,905
June 19-25	2,015	10,920
June 26-July 2	2,470	13,391
July 3-9	3,608	16,999
July 10-16	3,608	20,608
July 17-23	3,608	24,216
July 24-30	3,608	27,824
July 31-Aug 6	3,558	31,383
Aug 7-13	3,550	34,933
Aug 14-20	3,550	38,483
Aug 21-27	3,550	42,033
Aug 28-Sept 3	2,675	44,708
Sept 4-10	1,508	46,216
Sept 11-17	1,508	47,724

Sept 18-24	1,508	49,233
Sept 25-Oct 1	1,333	50,566
Oct 2-8	280	50,846
Oct 9-15	280	51,126
Oct 16-22	280	51,406
Oct 23-29	280	51,687
Oct 30-31	80	51,767

California notes that this recommended approach of taking the highest two years for each month within the broader time series (2008 through 2014) results in projecting higher anticipated catches than simply taking the most recent two-year average (see Table 2b). Using the average of the top two monthly values should help provide a buffer in the projections and account for shifts in angler effort. Although the projections are based on catch levels previously witnessed in the fishery, variability across both months and years might be expected considering the variability in monthly estimates from prior years.

Based on the above projected catch estimates, a season structure can be designed to stay within any allocation amount. For example, if the California allocation is approximately 18,000 pounds, the expected season could be between one and three months, depending on the months chosen. CDFW has provided several possible season structure scenarios (Table 5) using the same Area 2A TAC and allocation Alternative combinations used on page 24 in the Supplemental NMFS Report ([http://www.pcouncil.org/wp-content/uploads/G1b\\_Sup\\_NMFS\\_Rpt1\\_NOV2014BB.pdf](http://www.pcouncil.org/wp-content/uploads/G1b_Sup_NMFS_Rpt1_NOV2014BB.pdf)).

Table 5. Hypothetical season structure scenarios under different Area 2A TAC amounts and allocation Alternatives using estimated monthly catches for California’s recreational Pacific halibut fishery.

TAC/Alternative	Allocation	May	June	July	August	September	October	Total Projected Catch
960k and SQ	6,240	3,723					1,241	4,965
720k and Alt 1	14,040	3,723				6,464	1,241	11,429
960k and Alt 1, 2, 3	18,720				15,721		1,241	16,963
960k and Alt 4	24,960			15,980		6,464	1,241	23,685
960k and Alt 5	31,200		8,636	15,980		6,464		31,081
1,480k and Alt 2b	50,000	3,723	8,636	15,980	15,721	6,464		50,526

Following the determination of the 2015 Area 2A TAC, CDFW will conduct additional outreach with California constituents to recommend 2015 open fishing season dates to NMFS, from within the preliminary range identified of a 15-consecutive days to the full May through October season. A key topic of discussion will be whether the industry prefers to close the month of August as it did in 2014, or if other season structures are preferred once the California allocation amount is definitively known. Based on this input CDFW will formulate a recommendation to NMFS on the desired 2015 season structure in time for inclusion in the Final Rule.

**Use of Buffers and Maximum Limits**

California notes that pots of fish allocated under the CSP should not be viewed as “owned” by any one state. The CSP affords opportunities to buffer overages in one fishery subarea against underages in other subareas through use of rolling over unused quota from one subarea to another, in order to ensure the full



Area 2A TAC is utilized. Given the interest in ensuring that no fish are stranded and left unutilized, California is looking forward to exploring rollover/roll back or buffering alternatives using similar approaches in the future. For the 2015 season, given the range of allocation alternatives available, and noting that catch projections for California's sport fishery in 2015 described above do not exceed 75,000 pounds, California would support Maximum Limit B, which would establish a maximum limit of 75,000 pounds be allocated to the California sport fishery in 2015, acknowledging that in future years, California would instead support use of rollovers or rollbacks to other sectors or areas as the preferred mechanism to avoid stranding fish, rather than any maximum limit.

### **Draft Catch Sharing Plan Language**

(vii) California subarea.

This sport fishery subarea is allocated ~~1-0~~ [insert new value] percent of the non-Indian allocation [when the Area 2A TAC is less than one million pounds, and (insert value) percent of the non-Indian allocation when the Area 2A TAC is greater than one million pounds]. This area is defined as the area south of the Oregon/California Border (42° 00.00' N. lat.), including all California waters. ~~The structuring objective for this subarea is to provide anglers the opportunity to fish in a fixed season that is open from May 1 through July 31 and September 1 through October 31. The fishery will be structured to provide recreational fishing opportunity seven days per week, from May 1 until the date determined inseason when the quota is projected to be taken, or until October 31, whichever is earlier. Additional closed periods during this season, such as closed weeks or months and including a later opening date, may be established preseason by NMFS based on the subarea quota and projected catch. Based on the subarea quota, and considering stakeholder input, the California Department of Fish and Wildlife will provide recommendations to NMFS each year as soon as possible following the determination of the Area 2A TAC on the opening date and other closure dates, such as closed weeks or months, that would apply during the fishing season that year. Closure of the fishery or other inseason adjustments may be made by NMFS via an update to the recreational halibut hotline. The daily bag limit is one halibut per person, with no size limit. Due to inability to monitor the catch in this area inseason, a fixed season will be established preseason by NMFS based on projected seasonal catch; no inseason adjustments will be made, and estimates of actual catch will be made post season.~~