

California Recreational Fishery Survey Catch and Effort Estimates for 2004
Selected Groundfish Species or Species Groups
March 2005

SUMMARY

The California Recreational Fishery Survey (CRFS) program provides catch and effort estimates for all fisheries in both boat (private boats, rental boats and party/charter boats) and shore (pier, jetty, beach and bank) modes of fishing. It is a joint effort between the California Department of Fish and Game (CDFG) and the Pacific States Marine Fisheries Commission (PSMFC). The program is designed to meet the specific data needs for managing California's numerous and diverse recreational fisheries. Begun in January 2004, CRFS combines the prior party/charter boat (PC) sampling program, CDFG's Ocean Salmon Project (OSP), and several new methodologies specifically designed for CRFS into a single, coordinated, statewide program.

CDFG believes that the preliminary CRFS estimates provided in this document will not change significantly, and are a reliable representation of the recreational fishery removals for groundfish species of concern and species with harvest targets in 2004. Information from the prior sampling program indicate that most of the take of these groundfish species comes from the primary private and rental boat sites (PR1) and PC fishing modes. Validation of the CRFS estimates is complete for the PR1 survey and comparisons between the different sources of party/charter boat data also show no major differences. California recreational harvest guidelines or allocations for overfished species were not exceeded in 2004.

The CDFG is committed to producing timely, precise and accurate catch and effort estimates for California's recreational fishery. In collaboration with the PSMFC, the CDFG will be making necessary changes or enhancements to the CRFS program in 2005 to fulfill that goal.

METHODOLOGY

CRFS includes several different methodologies for sampling different modes of fishing.

- Private and rental boats (PR) are divided into primary (PR1) and secondary (PR2) sampling sites. Primary sites are sampled using a public launch ramp access point survey for effort and catch at high use sites during daylight hours. These sites are defined as those where 90 percent or more of the catch of important species are landed. Secondary sites are sampled using a roving access point survey for effort and catch. These

- sites are defined as those sites in a particular month where less than 10 percent of the total catch of important species is landed.
- Man-made (MM) sites, composed of piers, jetties and breakwaters, are sampled using a roving access point survey for catch and effort.
- Beach and Bank (BB) sites are sampled using two surveys: a roving access point survey at publicly accessible beaches and banks during daylight hours for catch rates and an angler license database (ALD) telephone survey for all effort.
- Party and charter vessels (PC) are sampled using two surveys: a weekly telephone survey of all PC vessels for effort and on board sampling for catch.
- Estimates of private access and night fishing (PAN) effort and catch for PR, MM and BB by trip type are derived using the ALD telephone survey for effort and catch rates from access point surveys for catch.

DATA IMPROVEMENTS OF THE CRFS

CRFS offers several improvements over the previous program used to estimate recreational catch in California. First, CRFS was designed to produce accurate and precise annual estimates. By expanding species catch rates based upon trip types and stated target species, estimates of catch and effort will be more accurate than those from the prior program (where catch rates were expanded and applied to all trip types). This gives managers the ability to examine specific changes in catch rates and effort for each of these trip types. Second, by increasing the number of field samples conducted by CRFS (in excess of three times that sampled by the previous program), catch estimates will be more accurate and precise, especially for overfished species such as bocaccio and canary rockfish, or fish that are rarely taken. Third, by reporting in monthly intervals, fishery managers can track changes in fishing activities and progress towards annual harvest limits in a shorter time period. This could allow fishery managers to respond more quickly to time-sensitive issues. Finally, by reporting catch and effort by six geographical regions in the State, finer regional differences in fishing activity and catch can be determined. This will eventually provide fishery managers with the ability to examine shifts in catch rates, average fish weights and fishing activities on a finer scale. It may also allow managers to tailor regulations and seasons to each region, thus providing increased fishing opportunities while protecting overfished stocks.

2004 CRFS PROGRAM RESULTS

CRFS field supervisors and samplers worked diligently in 2004 to maximize the field sampling effort. As a result, fifty-four CRFS samplers interviewed 120,008 individual marine anglers in the state. Over 75,000 interviews were in the PR1 mode and another 7,700 were in the PR2 mode. The

PC mode accounted for 13,990 interviews and shore sampling (MM and BB) accounted for 22,326. Samplers visited 664 individual sites with a large majority of those sites being in the shore mode. As expected, the greatest number of fish was measured in the PC mode (40,838) since anglers on these vessels are generally more successful than other anglers. On the other end of the scale, only 2,476 fish were measured in the BB mode due to the relatively lower success rate of those anglers and because they are more difficult to intercept. The MM fishery yielded the most forms because pier anglers are readily available for interviews. The PR1 form number is deceptively low because several boats can be recorded on the same form and there may be many anglers on a single vessel (information is taken as a group).

Table 1. Selected CRFS statistics for 2004.

Mode of Fishing	Number of Anglers Interviewed	Number of Sites Sampled	Number of Fish Measured	Number of Forms Submitted
PR1	75,498	34	36,023	*8,525
PR2	7,744	112	4,485	7,712
PC	13,990	65	40,838	13,812
MM	19,221	188	8,088	19,362
BB	3,105	265	2,476	3,121
TOTAL	120,008	664	91,910	52,532

*all anglers on a boat as well as multiple boats are captured on one form.

Likewise the dedication of the PSMFC and CDFG staff involved in producing the catch and effort estimates and parallel validation programs allows the CDFG to report the following:

Table 2. California Recreational Fishery Survey Estimate of Angler Days for 2004 by Region and Mode

Region	Fishing Mode				Area Total
	PR	PC	MM	BB	
OR/CA Border to 40° 10' N. lat.	52,996	6,795	44,840	4,482	109,113
40° 10' N. lat to 34° 27' N. lat.	208,895	148,358	1,581,140	103,956	2,042,349
34° 27' N. lat. to CA/Mexico	411,074	570,166	6,540,057	194,030	7,715,327
Statewide	672,965	725,319	8,166,038	302,468	9,866,789

Catches for selected groundfish species, and how those catches compared with established PFMC 2004 harvest targets are reported in Table 3 on the following page.

Table 3. California Recreational Fishery Survey Estimated 2004 Recreational Take (MT) for Groundfish Species of Interest*

Species Group by Area in California (CA)	Recreational Fishing Survey Type					Total Catch Estimate (MT)	Harvest Target ^{a/}	Recreational Reserve ^{b/}
	PR	CPFV	MM	BB	PAN			
Statewide								
Lingcod	48.5	42.5	2.0	12.2	17.2	122.5	268.9	38.9
Black Rockfish	56.6	28.4	0.7	3.7	17.1	106.4	186	
Canary Rockfish	1.2	0.6	0.0	0.0	4.5	6.3	9.3	
Widow Rockfish	0.0	14.6	0.0	0.0	0.0	14.6	8.2	
Yelloweye Rockfish	0.5	0.0	0.0	2.9	0.0	3.5	3.7	
Cabezon ^{c/}	10.9	4.1	1.9	12.4	5.3	34.7	53.7	
Greenlings ^{/c/d/}	2.1	2.7	1.1	3.2	1.4	10.5	15.5	
Oregon/CA Border to 40°10' N. lat								
Black Rockfish	42.7	7.7	0.6	0.0	1.8	52.9	72	
Other Nearshore Rockfish	8.3	3.5	0.2	0.0	0.5	12.4	6.6	
40°10' N. lat. to CA/Mexico Border								
Minor Nearshore Rockfish ^{e/}	63.9	251.6	3.8	19.0	23.4	361.7	375	
Shallow Nearshore Rockfish ^{f/}	11.9	26.3	2.1	8.8	6.4	55.4	66	
Deeper Nearshore Rockfish ^{g/}	48.8	187.6	1.3	10.1	16.1	263.9	245.1	
California Scorpionfish	3.2	37.7	0.4	0.1	0.9	42.4	63.9	
Black Rockfish	13.9	15.2	20.7	0.1	3.7	53.6	114	
Bocaccio Rockfish	5.5	53.9	0.0	0.0	1.8	61.1	62.8	75.4
36°00' N. lat. to CA/Mexico Border								
Cowcod Rockfish	0.1	0.3	0.0	0.0	0.0	0.5	1.8	

PR= Private/Rental Boat Sites CPFV= Party/Charter Boats BB= Beach/Bank Sites MM= Man-Made Sites

PAN= Private Access & Night Fishing at PR, BB, & MM Sites

* California Recreational Fishery Survey Estimates for retained and discarded catch from all marine areas; estimates extracted 2/9/05.

a/ Harvest targets are recreational estimates for all species except cabezon and greenlings.

b/ A recreational reserve is available for harvest by the recreational sector should the projected annual harvest be exceeded.

c/ State harvest limits set by California.

d/ Greenlings include all species within the Genus Hexagrammos.

e/ Minor Nearshore Rockfish consists of Shallow and Deeper Nearshore Rockfish and California Scorpionfish.

f/ Shallow Nearshore Rockfish consists of black and yellow, China, gopher, grass, and kelp rockfish.

g/ Deeper Nearshore Rockfish consists of blue, brown, calico, copper, olive, quillback, and treefish rockfish.

CRFS IMPLEMENTATION SUCCESSES AND CHALLENGES

CRFS has faced many challenges in 2004 including implementation of an expanded field sampling program, the management of an increased stream of data, production of expansion programs to generate catch and effort estimates, validation of catch and effort estimates, and implementation of a limited Angler License Database (ALD) to provide effort estimates for angler activities that cannot be estimated by direct observation. The biggest challenge and success of the program has been the implementation of the extensive coastwide field sampling program including its numerous field sampling methods. Each fishing mode has required a different approach in interviewing anglers, with PR sampling being the most intensive because of time constraints for an interview and because it requires the most biological knowledge (numerous fish species encountered). Also, despite the complexity of the sampling protocols and the associated expansion programs, the production of catch and effort estimates for all modes of fishing has been successfully completed.

Perhaps the greatest challenge that any new program like CRFS faces is validating the catch and effort estimates. While the CDFG believes the CRFS estimates are significantly more accurate and precise compared with estimates from the previous program, we continue to identify and address data shortcomings. CDFG is most confident in the PR1 estimates because for 2004, these can be compared directly against parallel estimates generated by the OSP. Confidence in the estimates from the party/charter boats is high also because these estimates too can be checked against estimates of party/charter catch from the previous program, the CDFG Commercial Passenger Fishing Vessel logbook program, and another OSP estimate. One weakness in the party/charter estimates, however, centers around the effort estimate which is generated using a telephone survey of active boats. Over the last two years, the number of boats participating in the survey has been decreasing, thereby reducing the precision of the effort estimate. CDFG currently has no other programs, except the prior program, against which to compare the estimates from the PR2, MM, and BB modes. In addition the CDFG is unable to validate the PAN estimates of effort (and corresponding catch), as there are no other programs against which to compare these estimates. In addition, they are calculated using results from the ALD survey, not actual field observations of effort.

MANAGEMENT CONSIDERATIONS ASSOCIATED WITH THE 2004 CRFS NUMBERS

Several issues must be considered when contemplating using the CRFS estimates to support fishery management processes such as inseason actions in 2005. As with the bi-monthly estimates from the prior program, the CRFS catch and effort estimates are preliminary and may be adjusted to reflect corrections of errors in the database. These estimates may also be adjusted to reflect changes to the ALD effort estimates after California closes its 2004 license sales

accounting. The major consideration however, should be that the estimates from these two programs are not directly comparable because most survey methodologies from the CRFS program are significantly different from those of the previous program. In addition, because the current stock assessments and harvest targets are based on data from the previous program, it is unknown what role the CRFS data may play. CDFG will be working with NOAA Fisheries staff, the RecFIN Technical Committee, and the RecFIN Statistical Sub-committee to determine how the CRFS data can best be used in managing the groundfish fisheries in 2006. At the very least, the CDFG believes these CRFS estimates to be the best readily available data for accounting for the groundfish removals by the recreational fishery in 2004.

CHANGES TO CRFS IN 2005

The only major change to CRFS in 2005 will take place in the ALD telephone survey. Sample size will be doubled to provide more accurate estimate of effort, especially for private access anglers in the PR mode and night time anglers in PR, MM and BB modes. The data pool of annual license holders contacted each month will also be expanded to include all anglers who purchased a license previous to the month interviewed. In 2004 only annual license anglers who purchased a license in the previous month were interviewed leading to an overestimate of effort, which was corrected mathematically for the 2004 effort estimate.

In addition to the ALD work, the CDFG along with the PSMFC will undertake tasks to increase, where appropriate, the confidence level of the estimates by conducting sampler deployment reviews, enhancing data processing, evaluating the estimation program, conducting validation exercises, exploring methods to sample PAN, and finding ways to get better compliance with the PC phone survey.