CALIFORNIA DEPARTMENT OF FISH & WILDLIFE RECOMMENDATION FOR SACRAMENTO RIVER FALL CHINOOK ESCAPEMENT OBJECTIVES FOR 2022 FISHERY PLANNING

For the purposes of planning 2022 ocean salmon fishing seasons, the California Department of Fish and Wildlife (CDFW) recommends that all three alternatives be developed to achieve an escapement of no less than 180,000 natural and hatchery adult spawners for the Sacramento River Fall Chinook (SRFC) salmon stock. The conservation objective for SRFC, as described in the Pacific Coast Salmon Fishery Management Plan, sets an escapement goal range of 122,000 to 180,000 adult spawners 'to provide adequate escapement of natural and hatchery production for Sacramento and San Joaquin fall and late-fall stocks based on habitat conditions' (Salmon FMP, p. 21). CDFW believes the maximum of this range should be targeted for the following reasons:

(1) After being declared overfished in 2018 due to chronically low spawner abundance, the SRFC stock was only recently declared rebuilt during 2021. In this first season as a rebuilt stock, total spawning escapement totaled 104,483 adult spawners; below the 122,000-minimum level of the escapement goal range.

(2) The 2021 realized spawning escapement level (104,483) was approximately 78% of what was projected (133,913) to reach hatcheries and the natural spawning areas during the preseason planning process. While pre- vs. postseason escapement over time is well correlated (Figure 1, Table 1), the pattern of realized escapement falling below preseason expectations has persisted for several years.

(3) Over the longer time period (2006-2021), SRFC returns have failed to meet the minimum of the goal range in 9 of the last 16 years (Pre-I, Table B-1). In 2022, more assurance is needed that the minimum goal will be attained.

(4) Since 2010, looking at the relationship between the pre-season escapement forecast and the returns, although the relationship is strong, the forecast consistently under-projects the resulting escapement. Applying this relationship might suggest that to achieve a return of 122,000 adult returns, a pre-season escapement projection of 197,352 adults should be targeted (Figure 1).

(5) Given that drought is expected to prevail through 2022 (CCIEA Team Report 1, March 2022, H.2.a), and the role that persistent drought played in SFRC's past overfished determination (June 2019, G.1, Attach. 2), targeting a higher abundance this year will help buffer against the longer-term effects of drought on the abundance and productivity of the stock.

(6) In its annual guidance to the Council, the National Marine Fisheries Service requested that alternatives be developed to achieve an escapement 'at the upper end of the conservation objective range' (March 2022, D.3.b), however an exact numerical value was not specified.

The 2022 SRFC forecast exceeds the 2021 forecast by approximately 125,000 fish. While this is encouraging news, as a matter of policy, CDFW recommends that most of this surplus be set aside for escapement, rather than harvest, for the reasons enumerated above.

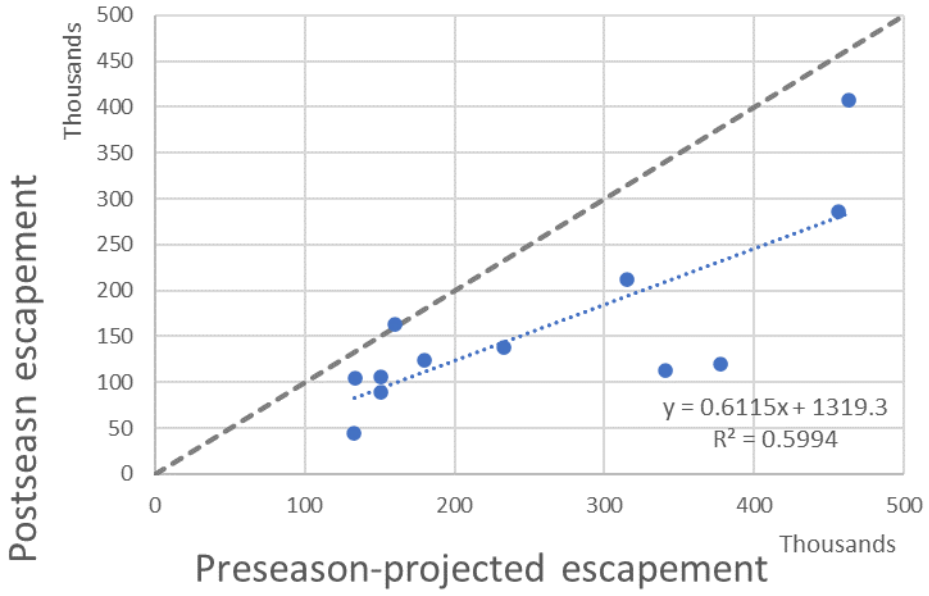

Figure 1. Preseason-projected vs. postseason actual escapement for SRFC, 2010-2021.

Table 1. Preseason-projected vs. postseason actual escapement for SRFC, 2010-2021.

Year	SI Forecast	Postseason SI	Pre / Post	Minimum Escapement Goal for Year	Management Objective for Year (Pre-III, table 5)	Preseason Projected Escapement	Postseason Escapement	Pre / Post
2010	245,483	152,857	1.6	180,000	2010 Council and NMFS guidance for natural and hatchery adult spawners	180,000	124,276	1.45
2011	729,893	199,308	3.7	180,000	2011 Council and NMFS guidance for natural and hatchery adult spawners	377,000	119,342	3.16
2012	819,400	627,900	1.3	245,820	2012 preseason ACL and minimum spawners under default rebuilding plan	455,800	285,429	1.60
2013	834,208	862,525	1.0	250,300	2013 preseason ACL	462,600	406,846	1.14
2014	634,650	554,932	1.1	190,400	2014 preseason ACL	314,700	212,476	1.48
2015	651,985	255,287	2.6	195,600	2015 preseason ACL	341,000	113,468	3.01
2016	299,609	205,023	1.5	122,000	2016 minimum hatchery and natural area adult escapement (FMP control rule)	151,100	89,699	1.68
2017	230,700	139,997	1.6	122,000	2017 minimum hatchery and natural area adult escapement (FMP control rule)	133,200	44,329	3.00
2018	229,432	223,854	1.0	151,000	2018 minimum hatchery and natural area adult escapement (Council guidance)	151,000	105,466	1.43
2019	379,632	505,535	0.8	160,000	2019 minimum hatchery and natural area adult escapement (NMFS guidance)	160,200	163,767	0.98
2020	473,183	351,925	1.3	142,000	2020 minimum hatchery and natural area adult escapement (FMP control rule)	233,200	138,091	1.69
2021	270,958	322,137	0.8	122,000	2021 minimum hatchery and natural area adult escapement (FMP control rule)	133,900	104,483	1.28