

**Evaluation of chum salmon stocks in the Kodiak  
Management Area as candidates for stock of concern  
classification**

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**S. G. Honnold**

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December 2008

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Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries





***REGIONAL INFORMATION REPORT. 4K08-7***

**EVALUATION OF CHUM SALMON STOCKS  
IN THE KODIAK MANAGEMENT AREA AS CANDIDATES  
FOR STOCK OF CONCERN CLASSIFICATION**

by

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333 Raspberry Road, Anchorage, Alaska, 99518-1565

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ALASKA DEPARTMENT OF FISH AND GAME

*DIVISION OF COMMERCIAL FISHERIES  
DIVISION OF SPORT FISH*

MEMORANDUM

TO: John Hilsinger  
Director  
Division of Commercial Fisheries  
Headquarters – Juneau  
and  
Charles Swanton  
Director  
Sport Fish Division  
Headquarters – Juneau

DATE: September 24, 2007

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SUBJECT: Chignik and Kodiak  
stocks of concern  
recommendation

THRU: Jim McCullough  
Regional Supervisor  
Division of Commercial Fisheries  
Region IV – Kodiak

FROM: Steven G. Honnold  
Regional Finfish Research Supervisor  
Division of Commercial Fisheries  
Region IV – Kodiak  
and  
James J. Hasbrouck  
Regional Supervisor  
Sport Fish Division  
Region II – Anchorage

The Sustainable Salmon Fisheries Policy (5 AAC 39.222) directs the department to provide the Alaska Board of Fisheries (BOF), at regular meetings, with reports on the status of salmon stocks and to identify any salmon stocks that present a concern related to yield, management, or conservation. No candidate stocks of concern have been identified for the Chignik Management Area (CMA). One aggregate chum salmon stock (Northwest Kodiak District) in the Kodiak Management Area (KMA) has been identified. This memorandum provides the department's assessment of this candidate stock of concern.

## *Northwest Kodiak District chum salmon*

### Stock Assessment

The Northwest Kodiak District, located on the westside and north end of Kodiak Island, is one of the most important districts in the KMA for commercial salmon harvests (Figure 1). Chum salmon are not directly targeted for subsistence or sportfish purposes and the majority of the commercial harvest is incidental to sockeye and pink salmon harvests.

The current SEG for Northwest Kodiak District chum salmon, adopted in 2005, is 53,000 fish (Nelson et al. 2005; Figure 2). Most chum salmon escapement estimates are estimated using aerial surveys. Chum salmon escapements have been variable and escapements from 1967 to 2006 ranged from 2,500 (1970) to 417,100 (1989) and averaged 78,203 fish (Table 1; Figure 2). Chum salmon escapements in the late 1960s and 1970s were frequently less than the current SEG (Figure 2). During the 1980s and through the 1990s escapements were generally near or above the SEG; however, in 2002 and from 2004 through 2006 the estimated chum salmon escapements for the Northwest Kodiak District have not met the current chum salmon SEG (Figure 2).

The chum salmon commercial harvest for the Northwest Kodiak District from 1967 to 2006 ranged from 34 (1989) to 574,665 (1995) and averaged 221,601 (Table 1). The average chum salmon harvest from 2002 to 2006 (305,315; range = 204,303 to 477,039) was greater than the previous 10-year average from 1992 to 2001 (263,268; Table 1).

In May 2007 a salmon escapement goal interdivisional review team, including staff from the Division of Commercial Fisheries and Sport Fish Division, was formed to comprehensively review the existing salmon escapement goals in the KMA based on the Policy for the Management of Sustainable Salmon Fisheries and the Policy for Statewide Salmon Escapement Goals (5 AAC 39.223). The review team assessed chum salmon stock assessment data and discussed current management strategies with area salmon managers and decided to reanalyze escapement data for all Kodiak districts to estimate an island-wide aggregate chum salmon goal. Team members agreed that, due to the lack of active management and difficult survey conditions caused by the abundance of pink salmon, district SEG thresholds were not necessary. An island-wide chum salmon SEG threshold would be more useful to managers based on current escapement estimation methods. Furthermore, this change would be consistent with the results of the last escapement goal review, which eliminated district SEG ranges for pink salmon and established a Kodiak Archipelago pink salmon aggregate SEG. Thus, the review team plans to recommend eliminating the SEG thresholds for the Kodiak districts and to establish an island-wide aggregate SEG threshold of 151,000 chum salmon. Results of this escapement goal review will be presented at the January BOF meeting. Approval and adoption of the new escapement goal recommendation by the department may affect the stock of concern determination (yield, management, or conservation).

### Regulatory History

Commercial fisheries targeting Northwest Kodiak District chum salmon are managed under the guidelines of the Westside Kodiak Salmon Management Plan (MP) (5 AAC 18.362. (c) (1) (2) (3) (4) (f) (2)). This regulatory plan was approved by the BOF in 1990. Management of “westside” Kodiak fisheries is very complex due to the mixing of various local salmon stocks during inshore migration. Both set gillnet and seine gear are legal in part of the westside fishery

(the Central Section), and occasional allocative disputes arose. Harvest strategies evolved until 1990, when a specific management plan governing fisheries along the westside of Kodiak was established.

The Westside Kodiak Salmon MP guides early-run and late-run sockeye salmon fisheries, including those targeting the major systems of Ayakulik and Karluk, and the minor systems of Little River, Uganik, and Malina. This MP also guides the local pink, chum, and coho salmon fisheries of the Southwest Afognak Section and the Northwest and Southwest Kodiak districts. The intent of the Westside Kodiak MP is to harvest salmon bound to local systems in traditional fisheries located in the westside sections. This MP is effective for the entire salmon season.

The management of chum salmon primarily utilizes aerial survey information and harvest data to measure the strength of the chum salmon run. If chum salmon escapements appear to be weak, Kodiak management has the ability to close inner bays while leaving most of the westside open for harvest of sockeye and pink salmon. The Westside Kodiak Salmon MP guides chum salmon management in eight sections within the Northwest Kodiak District, the Anton Larsen Bay, Sheratin Bay, Kizhuyak Bay, Terror Bay, Inner Uganik Bay, Spiridon Bay, Zachar Bay, and Uyak Bay sections.

Specifically, KMA managers have prosecuted closures in the inner bay sections with perceived low chum and pink salmon abundance. In 2002 and 2004 to 2006 each of the inner bay sections were closed for varying length of times depending on the strength of returns for both pink and chum salmon.

#### Stock of Concern Recommendation

Although management has not changed and has included restrictions and closures to protect chum salmon, aggregate peak aerial surveys in 2002 and from 2004 to 2006 resulted in escapement estimates for the Northwest Kodiak district below the current SEG threshold of 53,000 chum salmon. However, the escapement goal review team plans to recommend eliminating the current SEG threshold for this district, along with other Kodiak districts, and to establish an island-wide aggregate chum salmon SEG. Management objectives would be used as escapement benchmarks for individual Kodiak districts, including the Northwest Kodiak District. During the escapement goal review, it was also noted that the current SEG threshold was based on data from 1977 to 2004; data from 1967 to 1976 were excluded due to non-stationarity and autocorrelation. Although appropriate at the time, exclusion of these data resulted in a higher SEG and did not account for the observed low period of production during the late 1960s and 1970s, which may parallel the current productivity of the stock. There is, however, considerable uncertainty with the recent escapement data for this stock. Low counts are also likely due to the relative inexperience of the staff during part of the 2005 and all of the 2006 season. Chum salmon are difficult to survey in the best of conditions in the KMA, and the 2006 season was an exceedingly problematic season for surveying due to poor weather conditions. Kodiak has also seen a relative high abundance of pink salmon escapement in recent years, which can mask the abundance of chum salmon. Low escapement estimates are likely influenced by aerial survey inexperience, inclement weather conditions, high relative abundance of pink salmon thereby masking chum salmon returns, and the general decline of aerial surveys due to declining budgets.

Therefore, although Northwest Kodiak District chum salmon peak aerial survey estimates were below the current SEG for four of five years from 2002 through 2006, we do not recommend

designating the stock as a Stock of Management Concern as described in 5 AAC 39.222 as “a concern arising from a chronic inability, despite use of specific management measures, to maintain escapement for a salmon stock with the bounds of the SEG, BEG, OEG, or other specified management objective for a fishery.” The department will continue to monitor this chum salmon aggregate stock and manage to reach the district management objective. Escapement trends will be reported to the BOF in three years or as requested.

Literature Cited

Nelson, P.A., M.J. Witteveen, S.G. Honnold, I. Vining, and J.J. Hasbrouck. 2005. Review of salmon escapement goals in the Kodiak Management Area. Alaska Department of Fish and Game, Fishery Manuscript No. 05-05, Anchorage.

Table 1. Northwest Kodiak District chum salmon escapements and commercial harvests 1967-2006.

Northwest Kodiak District		
Year	Aggregate	
	Peak Aerial Survey	Commercial Harvest
1967	43,000	
1968	6,800	
1969	6,445	
1970	2,500	115,772
1971	21,000	128,609
1972	90,340	174,577
1973	45,848	45,872
1974	15,600	29,849
1975	38,350	33,796
1976	8,000	67,993
1977	57,602	108,802
1978	47,700	111,408
1979	75,200	58,231
1980	43,050	90,174
1981	99,100	232,110
1982	147,700	412,671
1983	169,225	366,163
1984	75,600	135,013
1985	61,600	214,752
1986	162,890	497,530
1987	76,950	228,783
1988	192,550	536,483
1989	417,100	34
1990	43,920	167,773
1991	123,503	283,582
1992	131,710	225,973
1993	53,825	219,003
1994	52,950	250,938
1995	104,800	574,665
1996	84,900	248,993
1997	70,900	181,730
1998	28,250	121,412
1999	53,300	189,509
2000	145,800	302,753
2001	112,550	317,701
2002	41,200	204,303
2003	67,700	262,436
2004	30,700	477,039
2005	36,150	229,454
2006	41,800	353,342
Average		
1967-2006	78,203	221,601
2002-2006	43,510	305,315
1992-2001	83,899	263,268

Source: ADF&G commercial fisheries fish ticket database

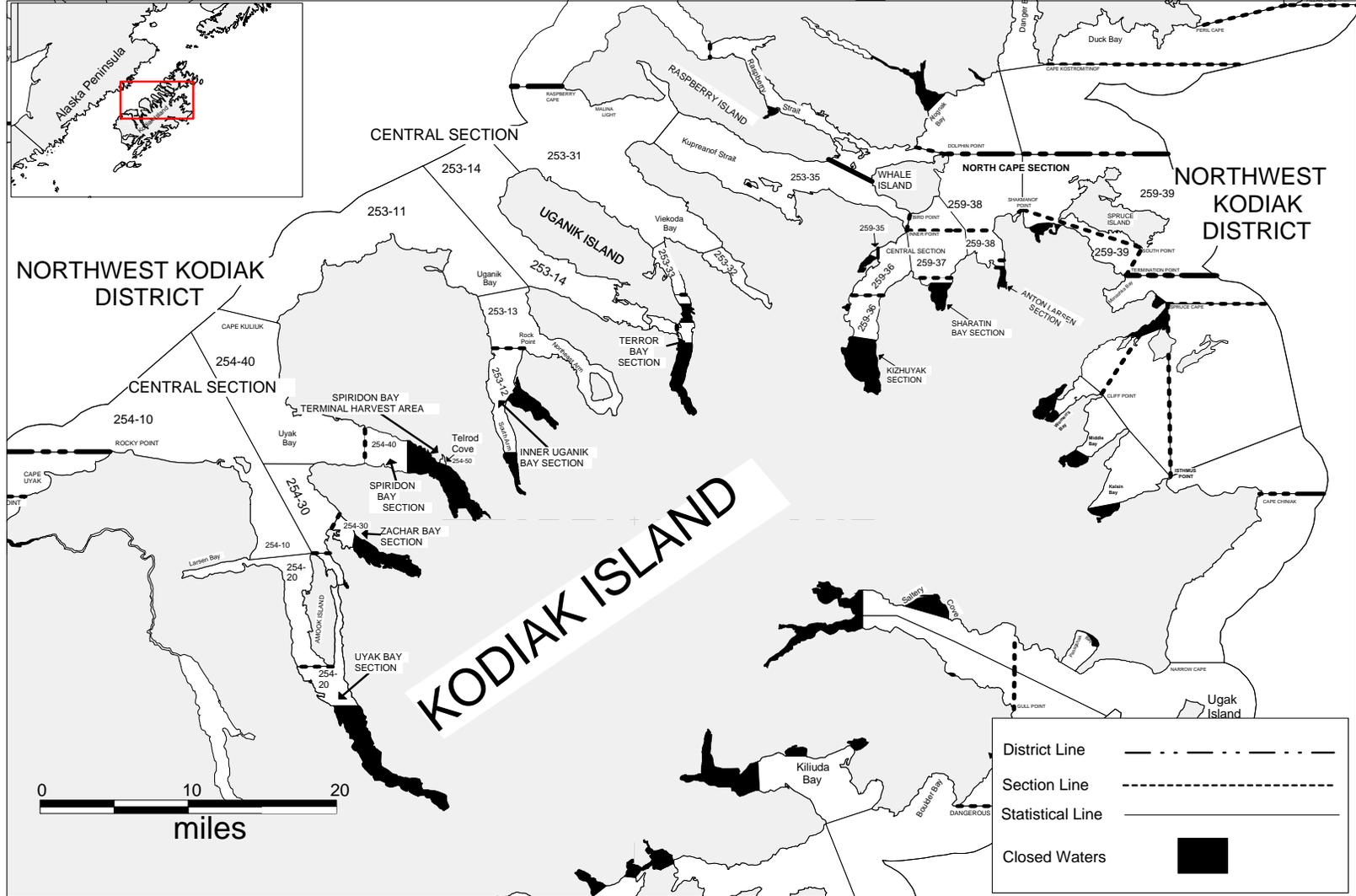


Figure 1. Map of the Northwest Kodiak District identifying commercial salmon fishing sections and statistical areas

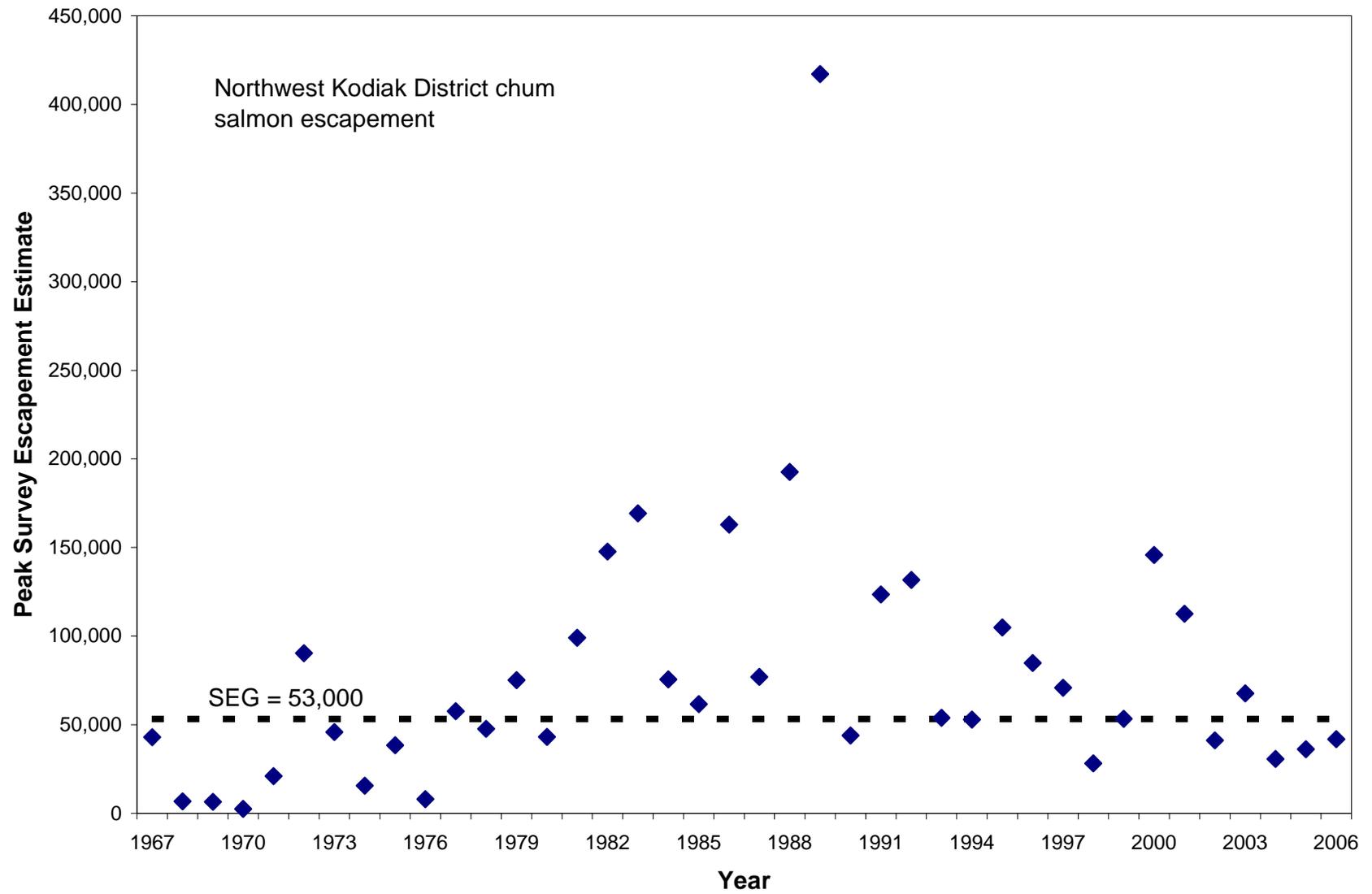


Figure 2. Northwest Kodiak chum salmon escapement compared to the current sustainable escapement goal, 1967 to 2006.