

NPAFC

Doc. 106

Rev. 1

# **Driftnet Salmon Fisheries in the Bering Sea in 1992**

by

V.V. Volobuev and S.V. Putivkin

Magadan Branch

Pacific Research Institute of Fishery

and Oceanography (TINRO)

submitted to the

**North Pacific Anadromous Fish Commission**

by

Russian Party

1994 October

THIS MAY BE CITED IN THE FOLLOWING MANNER: Volobuev, V.V. and Putivkin, S.V. Driftnet Salmon Fisheries in the Bering Sea in 1992. (NPAFC Doc. 106) Magadan Branch, Pacific Research Institute of Fishery and Oceanography (TINRO) 1994. Vladivostok, Russia 5pp.

(NPAFC)  
(Doc.106)

DRIFTNET SALMON FISHERIES IN THE BERING SEA IN 1992

by

V.V.Volobuev and S.V.Putivkin

Abstract

General description of driftnet salmon fisheries by 10 boats in Navarin region of the Bering Sea during 10 June - 5 July, 1992 is presented. Chum predominated in catch - 61.0-65.0%; sockeye share constituted till 27%, pink - 2.8-5.7%. Considerable part of Anadyr's chum with age 3+ in catch was conditioned by fishing of mainly older fishes. Visible fish losses due to falling from net varied from 7 to 12%.

## DRIFTNET SALMON FISHERIES IN THE BERING SEA IN 1992

Driftnet salmon fisheries began their development in 1926 (Vronsky, Kazarnovsky, 1986). The peak of high-seas driftnet catch of salmon of Asian origin was occurred in 1950s, when it reached 200 thousand tons. The main part of high-seas catch was constituted by juvenile fish. That led to considerable loss of salmon production. Salmon high-seas catch has been reduced to 42 thousand tons in 1983 and then to 15 thousand tons (Zilanov, Spivakova, 1992) as a result of establishing of 200-miles economic zones in 1978.

Efforts of fisheries organizations, diplomats has actually made stop for salmon high-seas fisheries since 1992. In the Russian economic zone realization of quotas by foreign partners is conducted under the strick control now.

Driftnet salmon fishing in the Russian economic zone in the Bering sea was carried out in 2 areas. This report presents general characteristic of salmon fishing in the Navarin region (60 N, 176 E; 61 N 176 E; 62 N 178 E; 62 N 180 E; 60 N 180 E).

Fishing was conducted by 10 driftnet boats from June 10 till July 15 of 1992. The duration of fishing period lasted 12 - 14 days excluding stormy days. Each boat used till 10 net sets (one net set consists of about 80 multifiled dillnets called "tans" with meshnet size 59-64 mm, 42-45 m long and 9 m high each), generally set from south-west to north-east.

With the growth of sea surface temperature from 3.2 C to 6.2 C fishing intensity increased in this area. In the beginning of fishing period catches reached 1.5 - 3.0 tons (average 0.5 - 1.0 specimen per tan) and increased to 22.0 tons per boat (average 9 - 10 specimen per tan) at the finish.

The species composition of salmon catches differed in the eastern and western parts of fishing ares (table 1).

Table 1

Species	Species composition of catch, %	
	western part	eastern part
Sockeye	24.4	27.0
Chum	65.1	61.0
Pink	5.7	2.8
Chinook	4.8	9.2

During the fishing period in Navarin area the decreasing of Sockeye share from 55% to 2-3% and increasing of Chum portion from 12-15% to 88-90% have been fixed. It was related with the Sockeye's run to spawning grounds and Chum's migration to the fishing area in the process of homeward travel from the main zone of oceanic distribution. Bycatch of Pink was a little higher in the western fishing area, but in general Pink's portion in the total catch was not significant - about 2.8 - 5.7%. On the contrary, Chinook was found more frequently in the eastern part of fishing area - till 9.2%.

Sockeye and Pink were represented by specimens in III and III - IV stages of maturity in the fishing area. Chum juveniles constituted about 27% of catch; The Chinook catch consisted of juveniles on 95 - 97% in the eastern part and 90 - 95% in the western part. Chinook specimens weighting above 10 - 12 kg were rare.

The fluctuation of salmon body weight is given in table 2.

Species	Average daily rate of body weight fluctuation, kg	Average seasonal rate of body weight, kg
Sockeye	3.2 - 3.8	3.50
Chum	2.8 - 3.6	2.97
Pink	1.3 - 1.5	1.37
Chinook	2.3 - 3.3	2.54

Age composition of driftnet salmon catch was defined with

help of fish scales studies. Scales were taken from 50 fishes of each species every 2 - 3 days.

Age composition of Chum was represented by 5 age groups: 2+ (0.2%), 3+ (35.0%), 4+ (58.5%), 5+ (6.2%), 6+ (0.1%). The share of age 3+ fish ranged from 22% to 60% from the beginning to the end of fishing period; age 4+ fish portion ranged from 70 to 30%, i.e. during homeward travel the typical feature of Chum age composition dynamics with predominance of mature age groups in the beginning of migration was observed.

In 1992 the age composition of Chum of Anadyr River was following: 2+ (1.2%), 3+ (91.2%), 4+ (7.1%), 5+ (0.5%). Substantial percentage of age 3+ (annual average part of this age group is 57%) would be explained by driftnet fisheries catching the age 4+ fish mainly because the driftnet fishing in the Navarin area covered the first half of Chum migration to the spawning grounds. Higher average weight of Chum in high - seas catches (2.97 kg) in comparison with the average weight of Chum in the Anadyr River (2.77 kg) confirms this supposition.

We suppose that great bulk of Chum migrating through this area spawns in streams flowing into Anadyr Bay.

We fixed 8 age groups of Sockeye: 3+, 3+, 4+, 4+, 5+, 5+, 5+, 6+. Age groups 4+ and 5+ dominated and constituted 72% of total species catch. Qualitative characteristics and age composition of Sockeye from driftnet catches in the Navarin area are close to such of Sockeye of the Chukotka reservoirs.

Chinook age composition was presented by 5 age groups: 3+ (23.8%), 4+(55.1%), 4+(3.4%), 5+(9.5%), 5+(8.2%). The lack of fish scale samples didn't allow to identify the regional belonging of Chinook.

During the fishing period the visible loss of fish owing to falling out from nets when ones were taken aboard in heavy seas days is evaluated from 7 to 12%.

We can note some facts following the gradual shortening and removal of the foreign driftnet fisheries from offshore ocean regions into the 200-miles economic zone of Russia: 1) some increase of value of salmon anadromous run, 2) quantitative shortening of total native salmon catch because fish with high

body weight predominate in catches and after that 3) the trend to growth of abundance of Pink, Chum and Coho stocks of Okhotsk sea continental coast. So the value of Pink anadromous run increased in 3.3 times in even years and in 2 times in odd years; of Chum - in 2 times and of Coho - 15-20% above after reducing the high-seas fisheries.

During the time of driftnet fisheries in the Navarin area (1991-1992) the considerable reducing of values of Sockeye anadromous run of Tumanskaya River, Seutakhan and Achen Lakes belonging to reservoirs of the Bering sea coast of Chukotka was fixed while former their stability. In 1991-1992 total high sea catch of Sockeye was close to values of Sockeye anadromous runs into these reservoirs last 4-5 years.