

The report on research work on a theme:
**ESTIMATION OF THE DAMAGE TO “BYCATCH” SPECIES OF FISHES, FOUND
IN THE CATCHES OF PINK AND CHUM SALMON NEAR ITURUP ISLAND**

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Introduction.

Our work in 2009–2010 was concentrated on the estimation of compliance of the fishery regulation system on salmons near Iturup Island according to the principles of the Marine Stewardship Counsel.

Main objective of this work was to estimate various fish species bycatch in the catches of pink and chum salmon near Iturup Island.

The samples collected during fishing season on pink and chum salmon in Kuril and Prostor Bays of Iturup Island were analyzed using the following indicators:

- 1) Specific structure of bycatch;
- 2) Number of specimens in bycatch;
- 3) Biological characteristics of fishes in bycatch (age, length, mass, sexes proportion etc.).

Chapter 1. The structure of ichthyofauna around Southern Kuril Islands and near the shore of Iturup Island.

Specific structure ichthyofauna around Southern Kurile Islands (according to the data from the bottom trawl catches in October-November, 2009) (report VNIRO ..., 2009) consists of 122 fish species from 37 families. Researches covered water area of South Kuril passage, Pacific and Okhotsk sea waters of Iturup Island and northern Kunashir Island. The given estimations of the general biomass of some target fish species are presented in table 1.

Table 1. The general biomass and square mileage for some fish species accumulations around Southern Kurile Islands in the autumn of 2009.

Species	Biomass, ×1000 ton	Sqare miles ×1000
<i>Alaska Pollock</i>	6,63	4,19
<i>Pacific Cod</i>	6,69	3,80
<i>Saffron cod</i>	5,72	3,09
<i>Atka mackerel</i>	1,13	0,99
<i>Father lashers</i> (<i>Myoxocephalus</i>)	3,04	3,40
<i>Yellow fin sole</i> <i>Limanda yokohamae</i> (<i>schrenki</i>)	2,21	3,16
<i>Rock sole</i> (<i>Lepidopsetta</i> <i>bilineata</i>)	0,95	2,96

<i>Lepidopsetta bilineata mochigarei</i>	2,87	3,00
<i>Brown sole(Limanda herzensteini)</i>	0,37	2,83
<i>Cleisthenes herzensteini</i>	0,90	2,84
<i>Piked dogfish (Acanthias vulgaris)</i>	1,48	2,85

Total number of fish species in trawl catches in South Kuril passage and Pacific Ocean has made 110, in sea of Okhotsk - 70. The most frequently occurred, with biggest biomass and most abundant four species in Pacific Ocean and South Kuril passage were: Saffron cod, Pacific cod, Alaska Pollock and Atka mackerel (tables 1.2-1.4). In the sea of Okhotsk dominated 6 species: Saffron cod, Pacific cod, Atka mackerel, Japanese staghorn sculpin (*Gymnocantus hertzensteini*), Rock sole and Yellow fin sole.

Directly in the coastal waters of Iturup Island number of species is much lower (close to 70).

In 2009 we estimated bycatch in chum salmon fishery from the middle of September to the middle of October, and in 2010 – bycatch in the fishery of pink salmon from July 19th till September 13th. The samples were taken at two fish processing factories belonging to “Gidrostroy”: RP3 "Yasnoe" and RP3 "Rejdovo". Because sampling on the traps is highly complicated this work was done directly in the facilities of fish processing factories. All fish from the traps was transferred to the transporting vessels (kungas) with the capacity of 8 - 10 tons of fish and was delivered to the factories: fish from the Kuril Bay to RP3 "Yasnoe", fish from a Prostor Bay to RP3 "Rejdovo". Fish from the kungases was moved to the scale by hydropump and then distributed to the storage bunkers of processing factory. The samples were taken from the moving conveyors. Salmon bycatch (chum salmon, sockeye salmon, and brown trout) was transported to the processing facilities along with the target species – pink salmon. The rest of bycatch species presented in very small numbers were subject of biological analysis. In 2010 we had 15 pink salmon traps in the Kuril Bay, and 22 traps in Prostor Bay.

During 2 years of bycatch sampling in pink and chum salmon fisheries of Prostor and Kuril Bays 41 species of fishes from 18 families were found (table 2).

Table 2. Fish species found in pink and chum salmon fisheries in Prostor and Kuril Bays in 2009–2010

Family	Genus	Species / Subspecies
1	2	3
Salmonidae Cuvier, 1816	<i>Oncorhynchus</i>	<i>O. keta</i> (Walbaum, 1792)
	Suckley, 1861	<i>O. gorbuscha</i> (Walbaum, 1792)

		<i>O. nerka</i> (Walbaum, 1792)
		<i>O. kisutch</i> (Walbaum, 1792)
	<i>Salvelinus</i>	<i>S. malma curilus</i> (Pallas, 1814)
	Richardson, 1836	<i>S. leucomaenis</i> (Pallas, 1814)
Cyprinidae Fleming, 1822	<i>Tribolodon</i> Sauvage, 1883	<i>T. brandtii</i> (Dybowski, 1872)
Hexagrammidae	<i>Hexagrammos</i> Tilesius, 1810	<i>H. lagocephalus</i> (Pallas, 1810)
		<i>H. octogrammus</i> (Pallas, 1814)
		<i>H. stelleri</i> (Tilesius, 1810)
	<i>Pleurogrammus</i> Gill, 1861	<i>P. azonus</i> (Jordan & Metz, 1913)
Scorpaenidae Risso	<i>Sebaster</i> Cuvier, 1829	<i>S. glaucus</i> (Hilgendorf, 1880)
		<i>S. steindachneri</i> (Hildendorf, 1880)
		<i>S. owstoni</i> (Jordan et Thompson, 1914)
		<i>S. trivittatus</i> (Hildendorf, 1880)
<i>Pleuronectidae</i> Rafinesque, 1815	<i>Limanda</i> Gottsche	<i>L. punctatissimus</i> (Steindachner, 1879)
	<i>Lepidopsetta</i> Gill	<i>L. mochigarei</i> (Snyder, 1911)
	<i>Pseudopleuronectes</i> Bleeker	<i>P. schrenki</i> (Schmidt, 1904)
		<i>P. obscurus</i> (Herzenstein, 1890)
		<i>P. herzensteini</i> (Jordan & Snyder, 1901)
	<i>Eopsetta</i>	<i>E. grigorjewi</i> (Herzenstein, 1890)
	<i>Liopsetta</i> Gill, 1864	<i>L. pinnifasciata</i> (Kner, 1870)
	<i>Cleisthenes</i> Jordan et Starks	<i>C. herzensteini</i> (Schmidt, 1904)
	<i>Glyptocephalus</i> Gottsche	<i>G. stelleri</i> (Schmidt, 1904)
	<i>Acanthopsetta</i>	<i>A. nadeshnyi</i> (Schmidt, 1904)

	Schmidt	
	<i>Platichthys</i> Girard, 1854	<i>P.stellatus</i> (Pallas, 1787)
	<i>Verasper</i> Jordan et Gilbert, 1898	<i>V. moseri</i> (Jordan et Gilbert, 1898)
Liparidae	<i>Liparis</i> Scopoli	<i>L. ochotensis</i> (Schmidt, 1904)
Cottidae Bonaparte, 1831	<i>Myoxocephalus</i> Tilesius, 1811	<i>M. stelleri</i> (Tilesius, 1811)
	<i>Gymnocanthus</i> Swainson	<i>G. herzensteini</i> (Jordan et Starks, 1904)
	<i>Hemilepidotus</i> Cuvier	<i>H. gilberti</i> (Jordan et Starks, 1904)
Hemitripterae	<i>Blepsias</i> Cuvier	<i>B. bilobus</i> (Cuvier, 1829)
Carangidae Rafinesque	<i>Seriola</i> Cuvier	<i>S. lalandi</i> (Valenciennes, 1833)
Cyclopteridae Bonaparte	<i>Aptocyclus</i> La Pylaie	<i>A. ventricosus</i> (Pallas, 1769)
Stichaeidae	<i>Ascoldia</i> Pavlenko	<i>A. variegata</i> (Pavlenko, 1910)
	<i>Stichaeus</i> Reinhardt	<i>S. grigorjewi</i> (Herzenstein, 1890)
Coryphaenidae	<i>Coryphaena</i> Linnaeus, 1758	<i>C. hippurus</i> (Linnaeus, 1758)
Tetraodontidae Bonaparte	<i>Takifugu</i> Abe	<i>T. porphyreus</i> (Temminck & Schlegel, 1850)
Trichodontidae	<i>Arctoscopus</i> Jordan et Evermann	<i>A. japonicus</i> (Steindachner, 1881)
Anarhichatidae Gill	<i>Anarhichas</i> Linnaeus	<i>A. orientalis</i> (Pallas, 1814)
Pholidae Gill	<i>Rhodymenichthys</i> Jordan et Evermann	<i>R. dolichogaster</i> (Pallas, 1814)
Gagidae Rafinesque,	<i>Eleginus</i> Fisher, 1830	<i>E. gracilis</i> (Tilesius, 1810)

1815		
Scombridae	<i>Scomber</i> Linnaeus, 1758	<i>S.japonicus</i> (Houttuyn, 1782)

Dominant families in the bycatch were *Pleuronectidae* (12 species), *Salmonidae* (6 species), *Scorpaenidae* (4 species), *Hexagrammidae* (4 species) and *Cottidae* (3 species), the rest of the families were presented by 1 species each. There is seasonal dynamics in numbers of various fish species near the coast of Iturup Island. In the catches of September 2009 we found 18 species from 6 families: *Tribolodon brandtii*, *Hexagrammus lagocephalus*, *Hexagrammus stelleri*, *Pleurogrammus azonus*, *Sebaster glaucus*, *Sebaster steindachnery*, *Lepidopseta mochigarei*, *Pseudopleuronectes shrenki*, *Eopseta grigorjewi*, *Liopsetta pinnifasciata*, *Acanthopsetta nadeshnyi*, *Liparis ochotensis*, *Seriola lalandi*, *Oncorhynchus gorbusha*, *Oncorhynchus nerka*, *Oncorhynchus kisutch*, *Salvelinus leucomaenis*, *Myoxocephalus stelleri*.

In 2010, from the middle of July to the end of September we found 35 species from 17 families: *Tribolodon brandtii*, *Oncorhynchus keta*, *Oncorhynchus nerka*, *Salvelinus malma curilus*, *Salvelinus leucomaenis*, *Hexagrammus lagocephalus*, *Hexagrammus octogrammus*, *Pleurogrammus azonus*, *Sebaster glaucus*, *Sebaster steindachnery*, *Sebaster owstoni*, *Sebaster trivittatus*, *Limanda punctatissimus*, *Lepidopseta mochigarei*, *Pseudopleuronectes shrenki*, *Pseudopleuronectes obscurus*, *Pseudopleuronectes herzensteini*, *Cleisthenes herzensteini*, *Platichthis stellatus*, *Glyptocephalus stelleri*, *Verasper moseri*, *Liparis ochotensis*, *Myoxocephalus stelleri*, *Gymnocanthus herzensteini*, *Hemilepidotus gilberti*, *Blepsias bilobus*, *Aptocyclus ventricosus*, *Ascoldia variegata*, *Stichaeus grigorjevi*, *Coryphaena hippurus*, *Eleginus gracilis*, *Arctoscopus japonicus*, *Anarhichas orientalis*, *Rhodymenichthys dolichogaster*, *Takifugu japonicus*.

Chapter 2. Bycatch estimate of various fish species in pink and chum salmon catches near Iturup Island in 2009–2010

There was bycatch of chum salmon in pink salmon fishery in 2009: July – 2,246 т; August – 21,62 т; September (till 19.09.2009) – 3,13 т.

The total bycatch of the chum salmon during pink salmon fishery season of 2009 (from July, 1st till September, 19th) has made the tenth shares of one percent from the total pink salmon catch which is inside of the limits, set by the laws of fisheries.

There is no fishery on *Oncorhynchus nerka*, *Salvelinus leucomaenis* and *Salvelinus malma curilus* as the target species near Iturup Island. They are present only in bycatches with the main target species – pink and chum salmon.

Out of all fish species in bycatch the most abundant were *Salvelinus leucomaenis* and *Oncorhynchus nerka*. It is necessary to notice that the main bycatch of *Salvelinus leucomaenis* and *Oncorhynchus nerka* falls on summer months during pink salmon fishery season. The combined bycatch of *Salvelinus leucomaenis* and *Oncorhynchus nerka* compared to pink salmon catches makes the 100-th shares of one percent. Because the “General admissible catch” does not have to be set for salmon from 2009, the bycatch in the period from 2009 to 2011 could be up to 49% from the total catch of the pink salmon according to the “Rules of Fisheries”.

In the beginning of the chum salmon season numbers of *Salvelinus leucomaenis* and *Oncorhynchus nerka* in bycatch are very low. There is limited number of the other species in bycatch, and combined bycatch (table 3) is essentially reduced in comparison to the summer

“General admissible catch” must be set for some species in bycatch: *Pleuronectidae*, *Hexagrammidae*, *Scorpaenidae*, *Eleginus gracilis* and *Hemitripterae*. Families with the highest number of species were *Pleuronectidae* - 7 species, *Scorpaenidae* - 4 species, *Salmonidae* - 4 species, *Hexagrammidae* - 3 species, *Hemitripterae* - 3 species. Representatives of other families are found in individual numbers. The main fish species (except *Salmonidae*) found in bycatch of pink salmon catches in Kuril and Prostor Bays, are presented in tables 4 and 5.

Table 4.

Main fish species in bycatch of pink salmon catches. Sea traps in Kuril Bay 2009-2010.

Month	Volume of pink salmon catch analysed ton	Bycatch		including: main fish species in bycatch, ton								
		ton	% from analysed volume	<i>Coryphaena hippurus</i>	<i>Tribolodon brandtii</i>	<i>Stichaeidae</i>	<i>Hemitripterae</i>	<i>Hexagrammidae</i>	<i>Pleuronectidae</i>	<i>Scorpaenidae</i>	<i>Anarhichas orientalis</i>	<i>Arctoscopus japonicus</i>
July	50,5	0,4282	0,847	-	0,0055	0,0017	0,088	0,219	0,0842	0,024	0,0057	0,0001
August	680,22	0,2598	0,382	0,0739	0,0028	0,0003	0,0709	0,0218	0,0784	0,0068	0,0049	-
September	429,0	0,0387	0,009	0,0286	0,0077	-	-	0,00148	0,0009	-	-	-
Total	1159,72	0,7267	0,063	0,1025	0,016	0,002	0,1589	0,2423	0,1635	0,0308	0,0106	0,0001

Main fish species in bycatch of pink salmon catches. Sea traps in Prostor Bay 2009-2010.

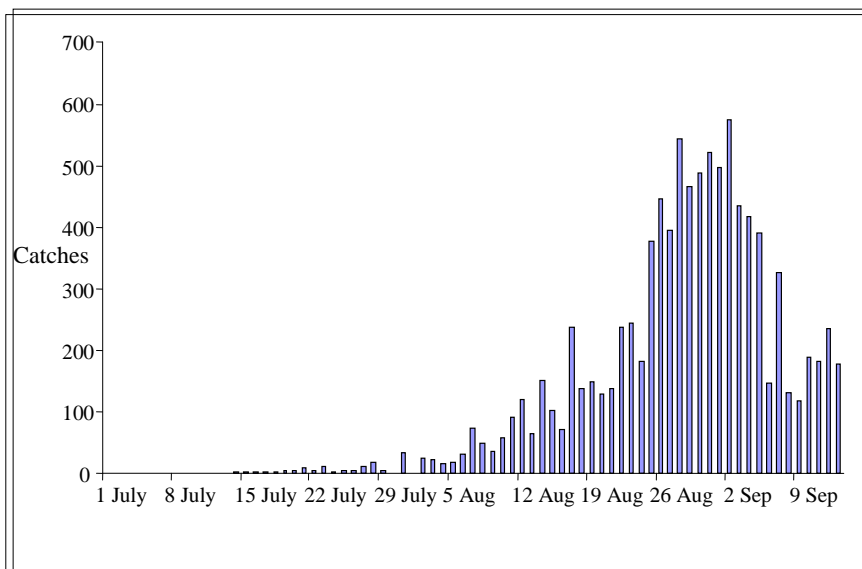
Month	Volume of pink salmon catch analysed ton	Bycatch		including: main fish species in bycatch, ton								
		ton	% from analysed volume	<i>Coryphaena hippurus</i>	<i>Tribolodon brandtii</i>	<i>Stichaeidae</i>	<i>Hemitripterae</i>	<i>Hexagrammidae</i>	<i>Pleuronectidae</i>	<i>Scorpaenidae</i>	<i>Eleginus gracilis</i>	<i>Arctoscopus japonicus</i>
July	21,76	0,2097	0,964	-	0,0003	-	0,0057	0,028	0,052	0,0943	0,0074	0,022
August	500,28	0,5549	0,111	-	-	0,0008	0,0236	0,268	0,130	0,087	0,0315	0,014
September	219,0	0,0816	0,037	0,0017	-	0,0013	0,0045	0,0034	0,028	0,00015	0,0025	0,04
Total	741,04	0,8462	0,014	0,0017	0,0003	0,0021	0,0338	0,2994	0,21	0,1815	0,0414	0,076

In 2010 leading family on number of species in bycatch was *Salmonidae* (the most abundant were *Salvelinus leucomaenis* and *Oncorhynchus keta*), then *Hexagrammidae* (the most abundant

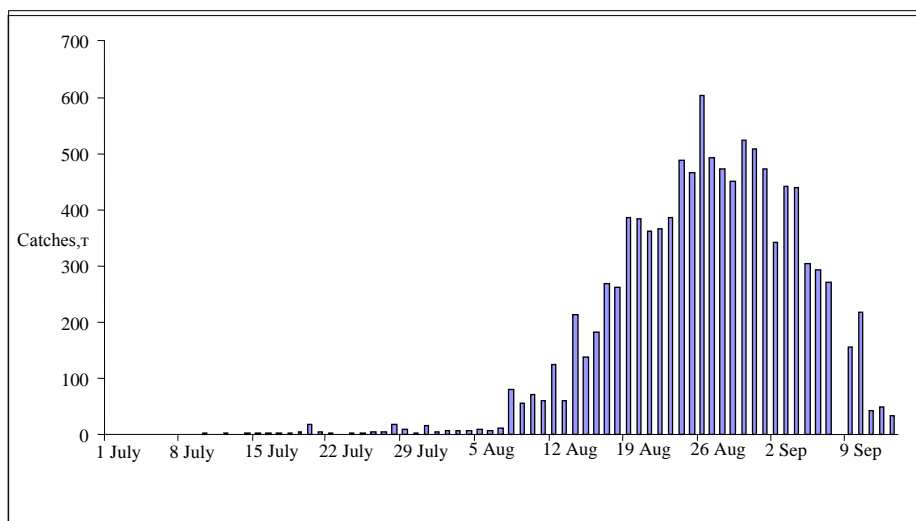
was *Pleurogrammus azonus*) and *Pleuronectidae* (the most abundant were *Pseudopleuronectes schrenki*, *Pleuronectes japonicus*, and *Pseudopleuronectes obscurus*).

Pink salmon fishery season of 2010 near Iturup Island started on July, 2nd, however pink salmon runs were insignificant and catches in July made from 0,1 τ to 14 τ in the Kuril Bay and from 0,4 τ to 33 τ in Prostor Bay. In August and September we had mass approaches of pink salmon when the catches reached 500-600 τ a day. In the end of September the pink salmon season comes to an end.

Dynamics of pink salmon catches in Kuril and Prostor Bays is presented in drawings 1. And 2.



Drawing 1. – Dynamics of pink salmon catches in the Kuril Bay



Drawing 2. – Dynamics of pink salmon catches in a Prostor Bay

The combined bycatch of *Oncorhynchus nerka* and *Salvelinus leucomaenis* against pink salmon catches in 2010 has made the 100-th shares of percent.

Percentage of bycatch of Salmonids in pink salmon catches is presented in table 6.

Table 6. Percent of Salmonids bycatch in pink salmon catches.

Species	Kuril Bay			Prostor Bay		
	July	August	September	July	August	September
<i>O. nerka</i>	0	0	0	0,074	0,01	0
<i>O. keta</i>	0	0,035	0,12	0,58	0,11	0,6
<i>Salvelinus leucomaenis</i>	0,77	0,010	0,044	6,9	0,06	0,005

Salvelinus leucomaenis. This species is widespread in the coastal zone of Iturup Island. Both – adults and younger fishes are present in bycatch. Spawning run of *Salvelinus leucomaenis* starts at the same time with Pacific salmon (the end of July), that is why we can see the specimens of various sizes in bycatch. The most intensive spawning run in the rivers occurs in the end of August – beginning of September. Fishes on different stages of the lifecycle can be found in a river - spawning fishes, fishes skipping the spawn and younger specimens. Spawning will stretch and usually occurs in October-November.

Oncorhynchus nerka. The most abundant bycatch of sockeye salmon is found in pink salmon fishery in Prostor Bay from the third decade of July to second decade of August. Anadromous migration of sockeye salmon starts in the beginning of July and ends in the middle of August. The main spawning grounds of Iturup Island sockeye salmon are situated in the lake Krasivoe, the lake of Sopochnoe and the river Slavnaya. Some spawning specimens can be found in the rivers Gorelaya, Kurilka, Reidovaya and Kujbyshevka.

Spawning run of sockeye salmon to the lake Krasivoye through the river Urumpet begins in the end of June - the first of July, and comes to an end in the middle of August. Spawning of sockeye salmon in lake begins in the end of September - in the beginning of October, mass spawning occurs from the middle of October to the middle of the third decade of November.

In the river Slavnaya and the Lake Sopochnoe the spawning run begins earlier: in the middle - the end of June, and continues to the beginning - the middle of July. Apparently, in these basins the most of the population belongs to early or spring race, and in the Lake Krasivoe dominates late or summer race of sockeye salmon. These conclusions are confirmed by the sea researches (Jarzhombek, Kochkin, 1999). The most abundant catches in the Kuril Islands area occur from the last decade of June to the third decade of July. After July, 25th catches start to decrease and by August, 10th there is no mature fishes in the catches.

Oncorhynchus keta. In spite of the fact that the South Kuril chum salmon is a population with an autumn spawning run, its migration is noticeably stretched and heading parts of population appear at the Kuriles in the spring, and the run comes to the end in the autumn. The chum salmon uses sea of Okhotsk as fattening reservoir more than the other salmon before the spawning migration to the rivers.

Other fish species. The combined bycatch of the other fish species essentially differs from the salmon's bycatch. Species included in "General admissible catch" made 100-th shares of percent from pink salmon catches in the beginning of season. With the mass approaches of pink salmon in August and September the size of all bycatches was essentially reduced and has made thousand shares of percent from the pink salmon catches.

Percentage of bycatch of the other fish species in pink salmon catches is presented in tables 7-8.

Table 7. Percent of the other fish species in bycatch of pink salmon catches in Kuril Bay.

Family	July	August	September
<i>Cyprinidae</i>	0,008	0,0003	0,002
<i>Hexagrammidae</i>	0,32	0,0026	0,0003
<i>Scorpaenidae</i>	0,035	0,0008	0
<i>Pleuronectidae</i>	0,12	0,009	0,0002
<i>Tetraodontidae</i>		0,00007	
<i>Scombridae</i>			
<i>Hemipteridae</i>	0,13	0,009	
<i>Anarhichatidae</i>	0,008	0,0006	
<i>Stichaeidae</i>	0,025	0,0004	
<i>Trichodontidae</i>	0,00015		
<i>Coryphaenidae</i>		0,009	0,007
<i>Salmonidae (Salvelinus malma curilus)</i>	0,0012		

Table 8. Percent of the other fish species in bycatch of pink salmon catches in Prostor Bay.

Family	July	August	September
<i>Cyprinidae</i>	0,0014		
<i>Hexagrammidae</i>	0,13	0,05	0,0015
<i>Scorpaenidae</i>	0,43	0,017	0,00007

<i>Pleuronectidae</i>	0,24	0,0026	0,0013
<i>Liparidae</i>	0,002		
<i>Tetraodontidae</i>	0,002	0,00014	
<i>Scomdridae</i>		0,00014	
<i>Hemitripteridae</i>	0,026	0,005	0,002
<i>Anarhichatidae</i>		0,0001	
<i>Stichaeidae</i>		0,00016	0,0006
<i>Zoarcidae</i>			0,0003
<i>Cyclopteridae</i>	0,02	0,00016	
<i>Trichodontidae</i>	0,1	0,003	0,0007
<i>Gagidae</i>	0,03	0,006	0,0011
<i>Coryphaenidae</i>			0,0008
<i>Salmonidae (Salvelinus malma curilus)</i>	0,00045		

From the species brought into the “Red book” or fishing on which is forbidden, the only one which could be possibly found in the salmon traps around Iturup Island is Sakhalin taimen (*Parahucho perryi*), however, over the last 10 years there has not been a single reported case of its finding in a salmon trap.

Chapter 3. Legal bases of fisheries realization and a regulation of catches of the target and "non-target" species of water biological resources.

According to the article 16 «Types of fisheries» of the Federal law of the Russian Federation from December, 20th, 2004 N 166-FZ «About fishery and preservation of water biological resources»:

2. Fishery is carried out according to the rules regulating extraction of water bioresources (further - fishery rules).

3. Typical rules of fishery and a rules of fishery for every fishery region are established by the federal enforcement authority which is carrying out legal regulation in the field of fishery and preservation of water bioresources.

Fishery rules are corrected annually and affirmed by the orders of “Federal agency on fishery”.

Rules of Fishery on 2011 for the Far East region have been confirmed by the order of “Federal agency on fishery” from July, 06th, 2011 N 671

The list of water bioresources included into “Established admissible catch” is annually specified. Based on the materials given by the regional institutes of Rosrybolovstva, volumes of the “General admissible catches” are developed and affirmed for each zone and type of fishery annually.

According to the governmental order of the Russian Federation from September, 26th, 2005 № 583 «About definition and the statement of the “General admissible catches” of the water biological resources, and changes to them», clause 5.5.4. Positions about Federal agency on the fishery, confirmed by the governmental order of the Russian Federation from June, 11th, 2008 № 444, orders of Federal agency on fishery from September, 1st, 2008 № 131 «About the statement of the List of types of the water bioresources considered as objects of fishery» and from October, 2nd, 2008 № 219 «About the statement of the List of types of water biological resources for which the “General admissible catch” is established», and considering the conclusions of commissions of experts of the State Ecological Examination of the corresponding materials, confirmed by Federal Agency of ecological, technological and nuclear supervision, on 2009 and 2010 following volumes of the “General admissible catches” for the South Kuril zone (table 9) have been confirmed.

Table 9. Volumes of the “General admissible catches” of the water biological resources in the South Kuril zone in 2009 and 2010 (thousand tons), regulated by the orders from Rosrybolovstva № 382 from December, 5th, 2008 and № 874 from September, 30th, 2009.

Water biological resources	2009	2010
<i>Clupea harengus palasi</i>	-	-
<i>Gadus morhua</i>	4,200	4,200
<i>Theragra chalcogramma</i>	35,000	64,500
<i>Навага</i>	1,715	2,046
<i>Pleuronectidae</i>	0,840	1,220
<i>Atheresthes evermanni</i>	0,630	0,630
<i>Hippoglossus hippoglossus</i>	0,360	0,360
<i>Scorpaenidae</i>	0,150	0,100
<i>Sebastolobus macrochir</i>	0,105	0,130
<i>Hexagrammidae</i>	2,000	2,000
<i>Cololabis saira</i>	150,000	215,000
<i>Engraulidae</i>	20,000	20,000

<i>Hemitripterae, Gobiidae</i>	1,250	1,250
<i>Hyperoglyphe japonica</i>	0,010	0,010
<i>Rajidae</i>	0,470	0,470
Sharks	0,002	0,002

Bycatch should not exceed the established volumes of the “General admissible catch” for each species.

As we can see from the previous chapter, bycatch of the species included into “General admissible catch” in the pink and chum salmon fishery in Kuril and Prostor Bay is considerably below the allowed volumes.

The conclusion

Following the results of research work in 2009 – 2010 it is possible to draw following conclusions:

1. According to the results from trawling and net sampling around Southern Kuriles 122 species of fishes from 37 families are found. Directly in coastal waters of Iturup Island lives essentially smaller number of species (about 70). Numbers of fish of different species and their presence in Kuril waters depends on a season.

2. In 2 years of observations on pink and chum salmon fishery in Prostor and Kuril Bays 41 species of fishes from 18 families are found (table 2).

3. From the species included into “General admissible catch”, *Pleuronectidae* and *Hexagrammidae* were found in bycatch.

4. The main volume of bycatch is made by 2 species of salmon: *Oncorhynchus nerka* and *Salvelinus leucomaenis*, the total combined bycatch of which makes the 100-th shares of percent from the catches of target species – pink and chum salmons. All other species are presented by individual specimens.

5. The total amount of bycatch does not exceed recommended volumes of catches or “General admissible catch” of any species in bycatch.

6. There are no species brought into the “Red book” or species, fishing on which is forbidden by fishery Rules.

7. Thus, the fishery on pink and chum salmon, carried out by Joint-Stock Company "Gidrostroy" near Iturup Island does not render any influence on the number and condition of stocks of any species of the water biological resources found in coastal waters of Iturup Island.

8. Joint-Stock Company "Gidrostroy" carries out fishery in full conformity with the rules regulating extraction of water bioresources, confirmed by Rosrybolovstvo and according to the law of the Russian Federation «About fishery and preservation of water biological resources».