Downstream migration Habitat Suitability Evaluation of Chum Salmon(*Oncorhg chus keta* Walbaum)in Wusuli River by the Method of Habitat Suitability Index

Liu Wei[1] Liang Xiong-wei[1,2] Zhan Pei-rong[1] Wang Ji-long[1]

[1] Heilongjiang River Fishery Research Institute, Chinese Academy of Fishery Sciences,Harbin 150070,China

[2]Wildlife Resource College，Northeast Forestry University，Harbin 150040，China

In this paper, we used a suitability index to evaluate the habitat of the Wusuli River, in April to May 2010, for downstream migration of chum mon fry. We sampled at the river sections of Hutou, Raohe and Haiqing. Water, sediment, phytoplankton, and zooplankton samples were ected. Using these variables in the models, including observed values of dissolved oxygen, temperature, and water velocity, we obtained a tat suitability index (HSI) and an Instream Flow Incremental Methodology (IFIM) model to validate and input into the HSI model. We sured water quality indicators and used a water pollution index to evaluate water quality, and the Shannon-Wiener index to assess phytoplankton zooplankton. We evaluated habitat suitability on the basis of the quality of the migration channel habitat and other relevant assessments. ults suggest the water at the sampling points in the Wusuli River have very light pollution and the aquatic environment is suitable for nstream migration of chum salmon because water quality meets migration requirements. We speculate on a preliminary basis that all sections he Wusuli River are suitable habitat for the downstream migration of chum salmon fry.

During the period of April to May in Wusuli River, the fry of chum salmon downstream to the ocean,at this time of the year,we sampling at the section of Hutou,Raohe and Haiqing in Wusuli River,water samples ,phyplankton and zooplankton were collected,Fig 3 is the sampling points.Take those indictors into models,we can get SI,and the we can evaluate the habitat quality,Fig 4 is the mothed.

Tab 1 are results of models,the results are suitable in Wusuli River for chum salmon in downstream migration, Tab 2 are results of water quality indicators, use integrated pollution index of water to evaluate, the results is light pollution, use the Shannon-Wiener index to assess the phytoplankton and zooplankton, the results suggests that the water quality is light pollution, the water quality meets the requirements

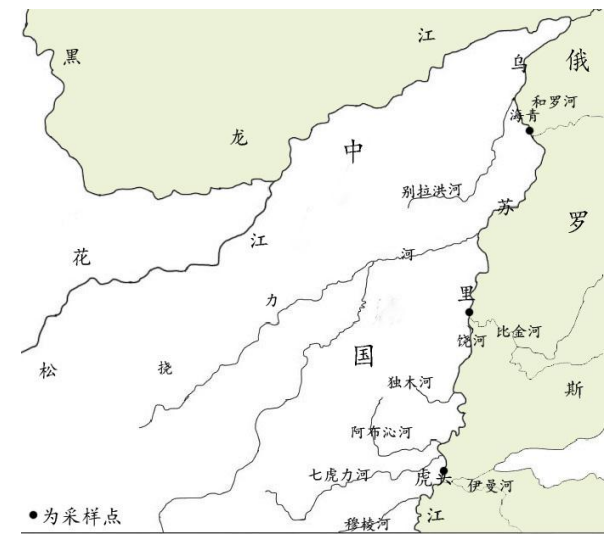

Fig 3.Sampling points

Fig 1.Section of Raohe in Wusuli River

Fig 2.Section of Hutou in Wusuli River

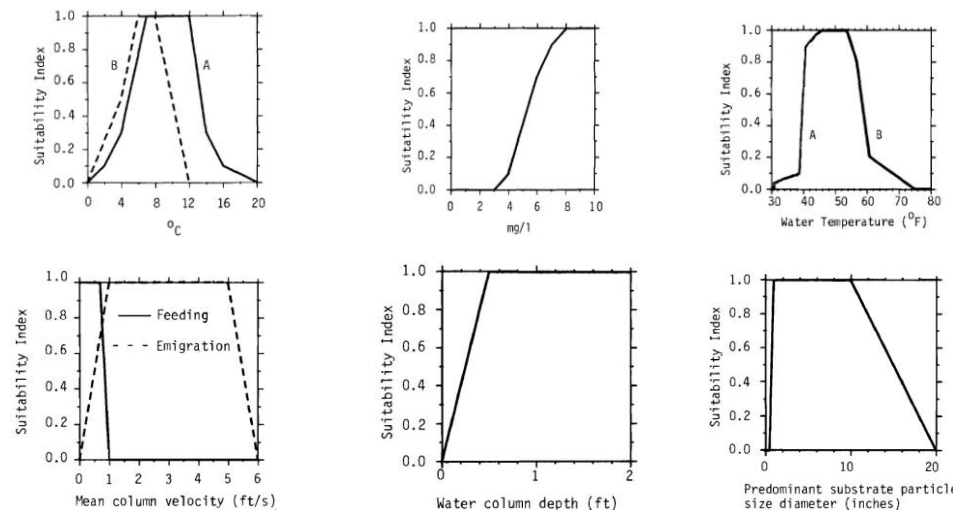

Fig.4 Models about HSI and IFIM

Tab 1.Results of models

Point	T(℃)	DO(mg/l)	Depth(m)	sub(cm)	V(m/s)	HSI	IFIM
Hutou	6.4-7.5	8.9	7	2	0.6	1(suit)	0.8(suit)
Taohe	5.6-6.5	9	8	3	0.7	0.9(suit)	0.95(suit)
Haiqing	5.4-6.2	9.1	8	2.5	0.7	0.85(suit)	0.93(suit)

Tab 2.Results of water quality indicators

Point	SD	pH	COD	NH_4^+	NO_2^-	TP	TN
Hutou	0.8	7.5	7.9	0.089	0.0003	0.24	0.053
Raohe	0.8	7.8	7.8	0.075	0.0003	0.22	0.013
Haiqing	1.2	7.8	8.3	0.1	0.0002	0.25	0.041

Shannon-Wiener index：Phytoplankton1.033；zooplankton：1.51.