

## Supporting Information

Table S1

Survey results of fish eggs, larvae in Yellow River estuary and its adjacent areas. Data of fish eggs, larvae in the references often showed in the form of number. Besides, there were two different trawling results, vertical trawling and horizontal trawling, in Bian *et al* (2010) and our study. In order to compare the results of different references, we use the horizontal trawling results and unify the units to be the mean abundance of each station followed the equation (1). The total species number of fish eggs, larvae was the sum of fish eggs species number and fish larvae, ignoring the same species of fish egg and larvae. The blank indicates that the relevant information was not listed in the reference. The trawling time of 7 stations was 10 min and the other 6 stations was 15 min in our survey voyage of May 2012.

Time	Study area	Number of stations	Net mouth area (m <sup>2</sup> )	Trawling speed (nmile/h)	Trawling time (min)	Filter water volume (m <sup>3</sup> )	Number of fish species eggs	Abundance of fish eggs (ind·m <sup>-3</sup> )	Number of fish species larvae	Abundance Of fish larvae (ind·m <sup>-3</sup> )
1982.6							34	2.22	18	0.29
1982.6	119°-119°30'E, 37°30'-38°30'N	12	0.5	2.5	10	386				
1989.6	118°-120°E, 37°-38°30'N	35								
1993.5	119°-119°30'E, 37°30'-38°30'N	12	0.5	2.5	10	386				
2003.5	119°-119°30'E, 37°30'-38°30'N	12	0.5	2.5	10	386				
2007.5	119°05'-119°31'E, 37°35'-37°57'N	19	0.2	2	10	123		2.96		0.0026
2007.5	119°-120°30'E, 37°10'-37°50'N	12	0.5	2	10	309	16	0.95	8	0.022
2007.6	119°-120°E, 37°12'-38°N	14	0.5	2	10	309	20	0.82	11	0.06
2008.5	119°-120°30'E, 37°20'-38°20'N	12	0.5	2	10	309	17	1.83	8	0.40
2008.5	118°30'-119°30'E, 37°20'-38°20'N	12	0.5	2.5	10	386				
2008.6	119°-120°E, 37°12'-38°N	14	0.5	2	10	309	25	0.71	11	0.35
2009.5	119°-120°30'E, 37°10'-37°50'N	12	0.5	2	10	309	6	0.39	5	0.13
2010.5	119°-120°30'E, 37°10'-37°50'N	12	0.5	2	10	309	3	0.17	6	0.10
2014.5	119°-119°40'E, 37°40'-38°09'N	24	0.2	2	15	185	10	11.81	5	0.11
2005.5	119°-119°30'E, 37°20'-38°05'N	12	0.2	2	10	100	2	0.094	2	0.14
2009.5	119°-119°30'E, 37°20'-38°05'N	13	0.2	2	10	93	8	0.76	5	0.095
2010.5	119°-119°30'E, 37°20'-38°05'N	13	0.2	2	15	185	7	0.21	7	0.13
2011.5	119°-119°30'E, 37°20'-38°05'N	12	0.2	2	10	91	4	0.40	5	0.14
2012.5	119°-119°30'E, 37°20'-38°05'N	12	0.2	2	10/15	121/182	2	0.0093	2	0.018
2013.5	119°-119°30'E, 37°20'-38°05'N	13	0.2	2	10	121	2	0.11	2	0.065
2014.5	119°-119°30'E, 37°20'-38°05'N	13	0.2	2	10	123	7	1.62	3	0.16
2015.5	119°-119°30'E, 37°20'-38°05'N	13	0.2	2	10	123	13	4.55	6	0.37
2016.5	119°-119°30'E, 37°20'-38°05'N	13	0.2	2	10	123	9	0.26	5	0.034

Table S1 (Continued)

Time	H'	Dominant species	References
1982.6		<i>Engraulis japonicus</i>	Shandong Province Science and Technology Committee, 1991
1982.6	1.67	<i>Engraulis japonicus</i> ; <i>Platycephalus indicus</i>	Jiang <i>et al.</i> , 1988; Wang <i>et al.</i> , 2010
1989.6		<i>Engraulis japonicas</i> ; <i>Clupanodon punctatus</i> ; <i>Harengula zunasi</i> ; <i>Collichthys niveatus</i>	Jiao <i>et al.</i> , 1998
1993.5	0.25	<i>Engraulis japonicus</i>	Wang <i>et al.</i> , 2010
2003.5	0.56	<i>Engraulis japonicus</i> ; <i>Platycephalus indicus</i>	Wang <i>et al.</i> , 2010
2007.5	0.39	<i>Clupanodon punctatus</i> ; <i>Liza haematocheila</i>	Bian <i>et al.</i> , 2010
2007.5		<i>Clupanodon punctatus</i> ; <i>Engraulis japonicus</i>	Gao <i>et al.</i> , 2016
2007.6		<i>Clupanodon punctatus</i> ; <i>Coilia mystus</i>	Song <i>et al.</i> , 2010
2008.5		<i>Clupanodon punctatus</i> ; <i>Engraulis japonicas</i> ; <i>Liza haematocheila</i>	Gao <i>et al.</i> , 2016
2008.5	0.99	<i>Engraulis japonicas</i> ; <i>Liza haematocheila</i> ; <i>Platycephalus indicus</i>	Wang <i>et al.</i> , 2010
2008.6		<i>Clupanodon punctatus</i> ; <i>Coilia mystus</i> ; <i>Liza haematocheila</i>	Song <i>et al.</i> , 2010
2009.5		<i>Clupanodon punctatus</i> ; <i>Chaeturichthys stigmatias</i>	Gao <i>et al.</i> , 2016
2010.5		<i>Clupanodon punctatus</i> ; <i>Amblychaeturichthys hexanema</i>	Gao <i>et al.</i> , 2016
2014.5		<i>Engraulis japonicas</i> egg; <i>Thryssa chefuensis</i> egg and larva; <i>Clupanodon punctatus</i> egg; <i>Chaeturichthys stigmatias</i> larva; <i>Gobiidae</i> larva	Qin <i>et al.</i> , 2017
2005.5		<i>Clupanodon punctatus</i> larvae; <i>Clupanodon punctatus</i> egg; <i>Sciaenidae</i> egg	This study
2009.5	0.48	<i>Clupanodon punctatus</i> egg; <i>Callionymus</i> egg; <i>Sparidae</i> egg	This study
2010.5	0.86	<i>Harengula zunasi</i> egg; <i>Harengula zunasi</i> larva; <i>Chaeturichthys stigmatias</i> larva	This study
2011.5	0.97	<i>Acanthogobius hasta</i> larva; <i>Clupanodon punctatus</i> egg; <i>Pleuronectidae</i> egg	This study
2012.5	0.90	<i>Lateolabrax japonicus</i> larva; <i>Lateolabrax japonicus</i> egg; <i>Chaeturichthys stigmatias</i> larva	This study
2013.5	0.59	<i>Lateolabrax japonicus</i> egg; <i>Acanthogobius flavimanus</i> larva; <i>Scomberomorus niphonius</i> egg; <i>Lateolabrax japonicus</i> larva	This study
2014.5	1.27	<i>Harengula zunasi</i> egg; <i>Engraulis japonicas</i> egg; <i>Cleisthenes herzensteini</i> egg; <i>Harengula zunasi</i> larva	This study
2015.5	0.95	<i>Harengula zunasi</i> egg; <i>Pagrosomus major</i> egg; <i>Ilisha elongata</i> egg	This study
2016.5	1.08	<i>Saurida elongata</i> egg; <i>Callionymus</i> egg; <i>Clupanodon punctatus</i> larva	This study

## References

- Bian, X., Zhang, X., Gao, T., Wan, R., Zhang, P. 2010. Category composition and distributional patterns of ichthyoplankton in the Yellow River estuary during spring and summer 2007. *Journal of Fishery Sciences of China*, **17**(4): 815-827 (in Chinses). <https://www.researchgate.net/publication/276934922>
- Gao, Y., Lü, Z., Yang, Y., Wang, Y., Ren, Z. Cong, X. 2016. Structure and Species Diversity of Ichthyoplankton in Spring in Laizhou Bay. *Acta Ecologica Sinica*, **36**(20): 6565-6573 (in Chinses). <https://doi.10.5846/stxb201502020263>
- Jiang, Y., & Wan, R., Chen, R. 1988. Research on fish egg, larvae of osteichthyes in Bohai Sea. *Marine fisheries research*, **9**: 121-149 (in Chinses).
- Jiao, Y., Li H X.1998. Influence on fish diversity in the sea area off the Huanghe River estuary by the cutoff of water supply. *Transactions of Oceanology and Limnology*, **4**: 48-53 (in Chinses). <https://doi.10.13984/j.cnki.cn37-1141>.
- Qin, X., Zhang, C., Xiao, H., Ren, H., Xu, B. 2017. Composition and distribution of fish eggs and larvae in the Yellow River estuary. *Periodical of Ocean University of China*, **47**(7): 46-55 (in Chinses). <https://doi.10.16441/j.cnki.hdxh.20160023>
- Shandong Province Science and Technology Committee. 1991. Comprehensive survey report on coastal zone and sea painting resources of shandong province. Comprehensive investigation report of the Yellow River estuary. China Science and Technology Press. P (in Chinses).
- Song, X., Liu, A., Yang, Y., Yang, J., Ren, L., Liu, L., Sun, G. Liu, X. 2010. Distributing of ichthyoplankton and the correlation with environmental factors in Laizhou bay. *Oceanologia et Limnologia Sinica*, **41**(3): 378-385 (in Chinses).
- Wang, A., Wan, R., Jin, X. 2010. Decadal variations of ichthyoplankton biodiversity in spring in Laizhou Bay of the Bohai Sea. *Progress in Fishery Science*, **31**: 19-24 (in Chinses). <https://doi.org/10.3969/j.issn.1000-7075.2010.01.004>