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Embryo biometry of three broadcast spawning euphausiid species applied to identify cross-shelf and seasonal spawning patterns along the Oregon coast

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Morphology and biometry of eggs spawned by females of Euphausia pacifica,Thysanoessa spinifera and Thysanoessa inspinata were compared with eggs collectedalong the Oregon coast to identify the eggs in preserved samples to species leveland to infer species spawning areas and intensity of spawning events in the field.The average chorion diameter (CD) and embryo diameter (ED) were significantlylarger for E. pacifica than for T. spinifera. Euphausia pacifica eggs usually have a significantlygreater perivitelline space, and the chorion is firm, transparent, smooth,elastic and completely spherical, while T. spinifera embryos are not completelyspherical and typically are soft and sticky with particles attached. Eggs of thetwitching stage embryo of T. spinifera have an elliptical shape, while those of E. pacificaare spherical to very slightly elliptical even after hatching as nauplii. The CDand ED of T. inspinata eggs were smaller than those of the other two species andthey were transparent and spherical with a non-sticky chorion. Biweekly timeseries of eggs (identified to species), of nauplii þ metanauplii and of ripe femalescollected along the Newport hydrographic line (448400N) during 1970–1972 showthat E. pacifica and T. spinifera spawn mainly ,40 km from the coast from March toOctober, but E. pacifica also spawns regularly at oceanic locations. A meta-analysisof the egg CD and ED values of 38 euphausiid species around the world indicatesthat these variables alone cannot be used to identify eggs to species, exceptingspecific regions where one or two broadcast spawners dominate the euphausiidassemblage.

Palabras clave: Thysanoessa spinifera, Euphausia pacifica, Oregon, embryo biometry, Spawning areas