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SUPPLEMENTARY MATERIAL

Aquatic food web research in mesocosms: a literature survey

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List of the 34 research articles surveyed

Ahlgren G, Nieuwerburgh LV, Wänstrand I, Pedersén M, Boberg M, Snoeijs P, 2005. Imbalance of fatty acids in the base of the Baltic Sea food web a mesocosm study. Can. J. Fish. Aquat. Sci. 62:2240–2253.

Allard B, Danger M, Ten-Hage L, Lacroix G, 2011. Influence of food web structure on the biochemical composition of seston, zooplankton and recently deposited sediment in experimental freshwater mesocosms. Aquat. Sci. 73:113–126.

Carneiro LS, Caliman A, Guariento RD, Rocha A de M, Quesado LB, da Silva Fonte E, Santangelo JM, Leal JJF, Lopes PM, Meirelles-Pereira F, de Assis Esteves F, Bozelli RL, 2013. Effects of food web structure and resource subsidies on the patterns and mechanisms of temporal coherence in a tropical coastal lagoon: an experimental mesocosm approach. Acta Limnol. Bras. 25:315–325.

Calbet, A., Martínez, R. A., Isari, S., Zervoudaki, S., Nejstgaard, J. C., Pitta, P., Sazhin, A. F., Sousoni, D., Gomes, A., Berger, S. A., Tsagaraki, T. M., Ptacnik, R, 2012. Effects of light availability on mixotrophy and microzooplankton grazing in an oligotrophic plankton food web: Evidences from a mesocosm study in Eastern Mediterranean waters. Journal of Experimental Marine Biology and Ecology, 424-425, 66–77.

Cothran RD, Radarian F, Relyea RA, 2011. Altering aquatic food webs with a global insecticide: arthropod–amphibian links in mesocosms that simulate pond communities. J. North Am. Benthol. Soc. 30:893–912.

Danger M, Lacroix G, Oumarou C, Benest D, Mériguet J, 2008. Effects of food-web structure on periphyton stoichiometry in eutrophic lakes: a mesocosm study. Freshw. Biol. 53:2089–2100.

Gall A, Uebel U, Ebensen U, Hillebrand H, Meier S, Singer G, Wacker A, Striebel M, 2017. Planktotrons: A novel indoor mesocosm facility for aquatic biodiversity and food web research. Limnol. Oceanogr. Methods 15:663–677.

Genitsaris S, Moustaka-Gouni M, Kormas KA, 2011. Airborne microeukaryote colonists in experimental water containers: diversity, succession, life histories and established food webs. Aquat. Microb. Ecol. 62:139–152.

Gimenez A, Baklouti M, Bonnet S, Moutin T, 2016. Biogeochemical fluxes and fate of diazotroph-derived nitrogen in the food web after a phosphate enrichment: modeling of the VAHINE mesocosms experiment. Biogeosciences 13:5103–5120.

Hansen BW, Hygum BH, Brozek M, Jensen F, Rey C, 2000. Food web interactions in a Calanus finmarchicus dominated pelagic ecosystem—a mesocosm study. J. Plankton Res. 22:569–588.

Harrault L, Allard B, Mériguet J, Carmignac D, Huon S, Gauzens B, Lacroix G, 2014. Bottom-up effects of lake sediment on pelagic food-web compartments: a mesocosm study. Freshw. Biol. 59:1695–1709.

Havskum H, Thingstad TF, Scharek R, Peters F, Berdalet E, Sala MM, Alcaraz M, Bangsholt JC, Zweifel UL, Hangström Å, Perez M, Dolan JR, 2003. Silicate and labile DOC interfere in structuring the microbial food web via algal—bacterial competition for mineral nutrients: Results of a mesocosm experiment. Limnol. Oceanogr. 48:129–140.

Hitchman RB, Jones HL, 2000. The role of mixotrophic protists in the population dynamics of the microbial food web in a small artificial pond. Freshw. Biol. 43:231–241.

Jasser I, Kostrzewska-Szlakowska I, 2012. Fading out of the trophic cascade at the base of the microbial food web caused by changes in the grazing community in mesocosm experiments. Oceanol. Hydrobiol. Stud. 41:1–11.

Jenkins B, Kitching RL, Pimm SL, 1992. Productivity, disturbance and food web structure at a local spatial scale in experimental container habitats. Oikos:249–255.

Jovanović B, Bezirci G, Çağan AS, Coppens J, Levi EE, Oluz Z, Tuncel E, Duran H, Beklioğlu M, 2016. Food web effects of titanium dioxide nanoparticles in an outdoor freshwater mesocosm experiment. Nanotoxicology 10:902–912.
Kankaala P, Peura S, Nykänen H, Sonninen E, Taipale S, Tiirola M, Jones RI, 2010. Impacts of added dissolved organic carbon on boreal freshwater pelagic metabolism and food webs in mesocosm experiments. Fundam. Appl. Limnol. Für Hydrobiol. 177:161–176.
Lane PA, Collins TM, 1985. Food web models of a marine plankton community network: an experimental mesocosm approach. J. Exp. Mar. Biol. Ecol. 94:41–70.
Larsen A, Egge JK, Nejstgaard JC, Di Capua I, Thyrhaug R, Bratbak G, Thingstad TF, 2015. Contrasting response to nutrient manipulation in A rctic mesocosms are reproduced by a minimum microbial food web model. Limnol. Oceanogr. 60:360–374.
Mazzeo N, Iglesias C, Teixeira-de Mello F, Borthagaray A, Fosalba C, Ballabio R, Larrea D, Vilches J, García S, Pacheco JP, Jeppesen E, 2010. Trophic cascade effects of Hopliasmalabaricus (Characiformes, Erythrinidae) in subtropical lakes food webs: a mesocosm approach. Hydrobiologia 644:325–335.
Meunier CL, Liess A, Andersson A, Brugel S, Paczkowska J, Rahman H, Skoglund B, Rowe OF, 2017. Allochthonous carbon is a major driver of the microbial food web–A mesocosm study simulating elevated terrestrial matter runoff. Mar. Environ. Res. 129:236–244.

Pendleton RM, Hoeinghaus DJ, Gomes LC, Agostinho AA, 2014. Loss of rare fish species from tropical floodplain food webs affects community structure and ecosystem multifunctionality in a mesocosm experiment. PLoS One 9:e84568.
Pitta P, Giannakourou A, Divanach P, Kentouri M, 1997. Planktonic food web in marine mesocosms in the Eastern Mediterranean: bottom-up or top-down regulation? Hydrobiologia 363:97–105.
Pitta P, Kanakidou M, Mihalopoulos N, Christodoulaki S, Dimitriou PD, Frangoulis C, Giannakourou A, Kagiorgi M, Lagaria A, Nikolaou P, Papageorgiou N, Psarra S, Santi I, Tsapakis M, Tsiola A, Violaki K, Petihakis G, 2017. Saharan dust deposition effects on the microbial food web in the Eastern Mediterranean: a study based on a mesocosm experiment. Front. Mar. Sci. 4:117.
Pree B, Larsen A, Egge JK, Simonelli P, Madhusoodhanan R, Tsagaraki TM, Våge S, Erga SR, Bratbak G, Thingstad TF, 2017. Dampened copepod-mediated trophic cascades in a microzooplankton-dominated microbial food web: A mesocosm study. Limnol. Oceanogr. 62:1031–1044.
Pulido-Villena E, Baudoux A-C, Obernosterer I, Landa M, Caparros J, Catala P, Georges C, Harmand J, Guieu C, 2014. Microbial food web dynamics in response to a Saharan dust event: results from a mesocosm study in the oligotrophic Mediterranean Sea. Biogeosciences 11:5607–5619.
Romo S, Miracle MR, Villena M-J, Rueda J, Ferriol C, Vicente E, 2004. Mesocosm experiments on nutrient and fish effects on shallow lake food webs in a Mediterranean climate. Freshw. Biol. 49:1593–1607.
Sanders RW, Cooke SL, Fischer JM, Fey SB, Heinze AW, Jeffrey WH, Macaluso AL, Moeller RE, Morris DP, Neale PJ, Olson MH, Pakulski JD, Porter JA, Schoener DM, Williamson CE, 2015. Shifts in microbial food web structure and productivity after additions of naturally occurring dissolved organic matter: Results from large-scale lacustrine mesocosms. Limnol. Oceanogr. 60:2130–2144.
Taipale S, Kankaala P, Jones RI, 2007. Contributions of Different Organic Carbon Sources to Daphnia in the Pelagic Foodweb of a Small Polyhumic Lake: Results from Mesocosm DI13C-Additions. Ecosystems 10:757–772.

Verschoor AM, Takken J, Massieux B, Vijverberg J, 2003. The Limnotrons: a facility for experimental community and food web research. Hydrobiologia 491:357–377.
Weber MJ, Brown ML, 2018. Effects of resource pulse magnitude on nutrient availability, productivity, stability, and food web dynamics in experimental aquatic ecosystems. Hydrobiologia 814:191–203.
Wilbur HM, Fauth JE, 1990. Experimental Aquatic Food Webs: Interactions between Two Predators and Two Prey. Am. Nat. 135:176–204.
Yu J, Li Y, Liu X, Li K, Chen F, Gulati R, Liu Z, 2013. The fate of cyanobacterial detritus in the food web of Lake Taihu: a mesocosm study using 13 C and 15 N labeling. Hydrobiologia 710:39–46.
Zingel P, Cremona F, Nõges T, Cao Y, Neif ÉM, Coppens J, Işkın U, Laurifsen TL, Davidson TA, Søndergaard M, Beklioğlu M, Jeppesen E, 2018. Effects of warming and nutrients on the microbial food web in shallow lake mesocosms. Eur. J. Protistol. 64:1–12.