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Effects of an Environmental Estrogen on Male Gulf Pipefish, *Syngnathus scovelli* (Evermann and Kendall), a Male Brooding Teleost

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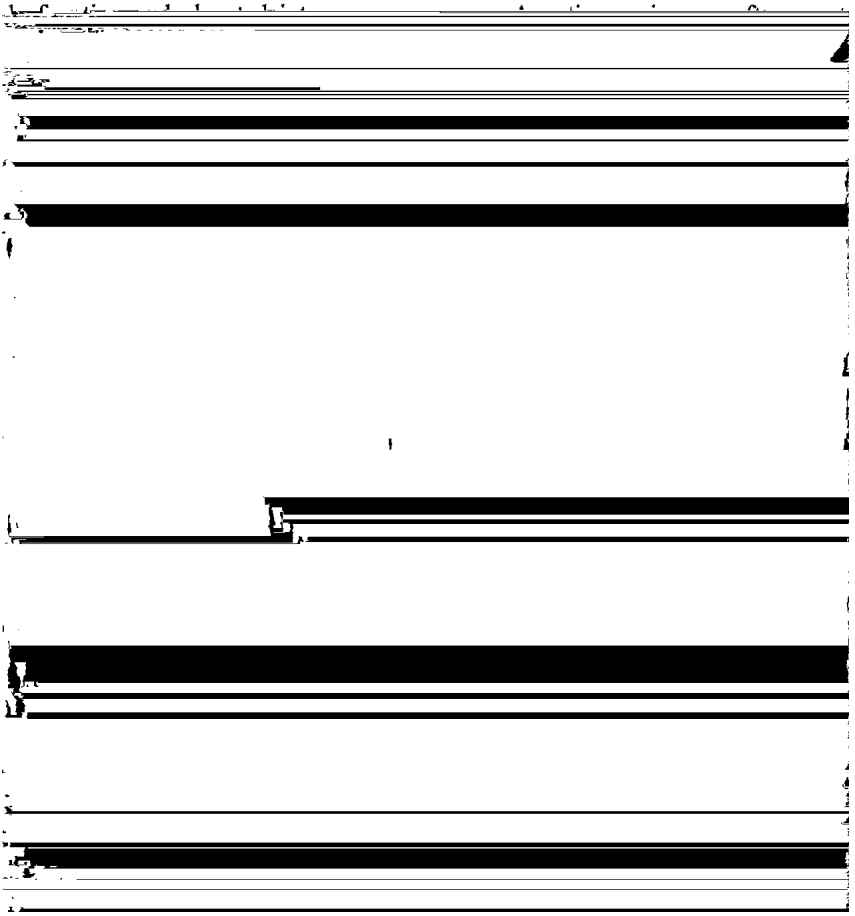
Environmental estrogens have been implicated in hormonal disruption in wildlife populations (McLachlan and Korach 1995). Reported effects include increased plasma levels of estrogen responsive proteins, testes atrophy, reproductive



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pipefish were examined in a laboratory based experiment. EE2 was chosen as a model for environmental estrogens because of its relative stability. Fish were held in the laboratory for more than two weeks prior to exposure, housed in 40 L aquaria at temperatures of 25 - 28°C. Reverse osmosis water supplemented with 0.54 mM $MgSO_4$, 0.058 mM KCl, 0.44 mM $CaSO_4$ and 1.32 mM $NaCO_3$ in order to obtain an alkalinity of 65 mg/L and a hardness of 100 mg/L was used. The salinity was brought to 5 psu by the addition of 51.3 mM NaCl to decrease

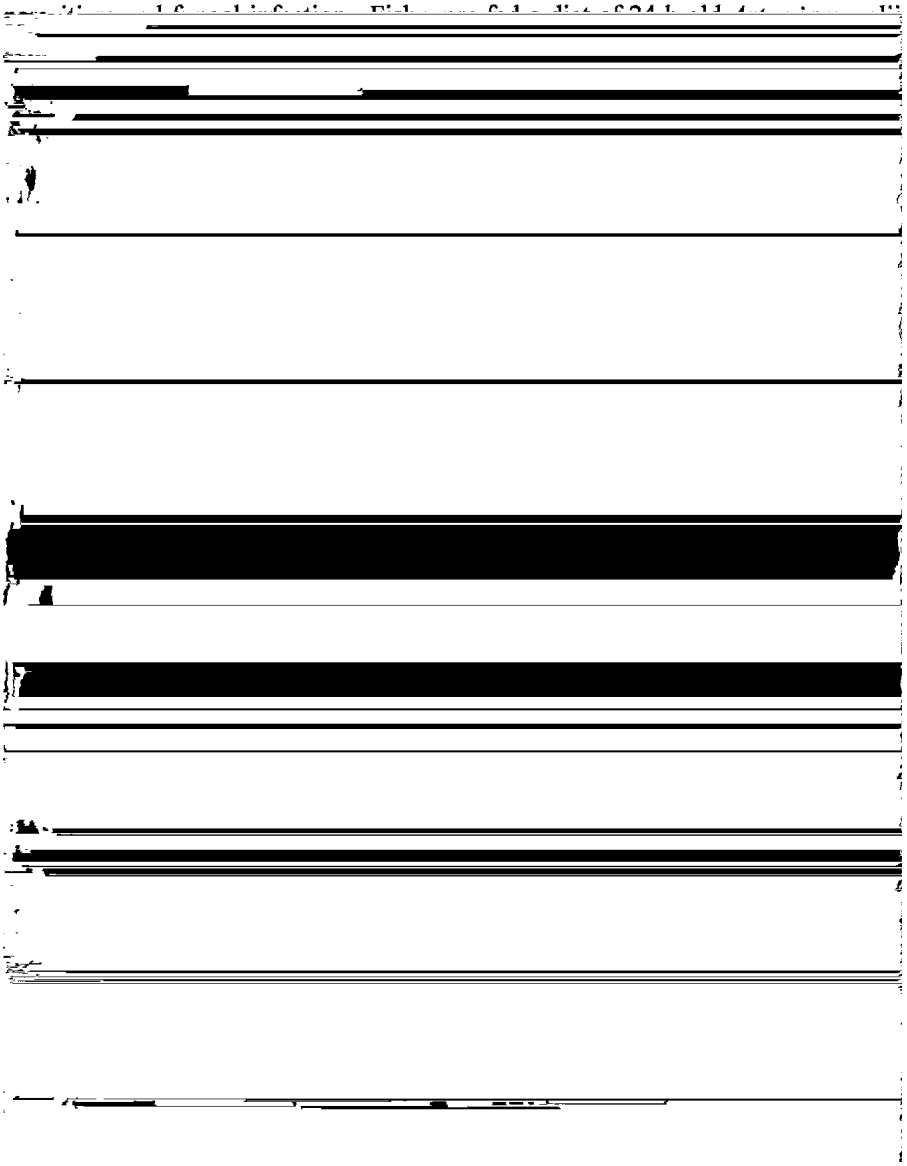
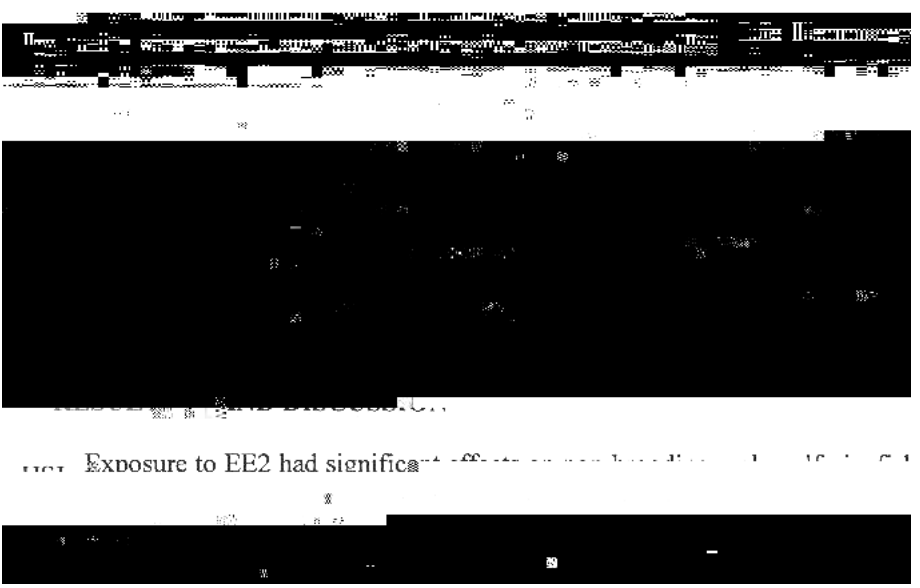
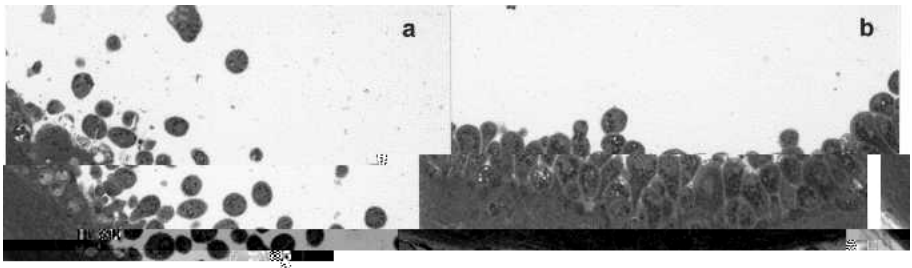


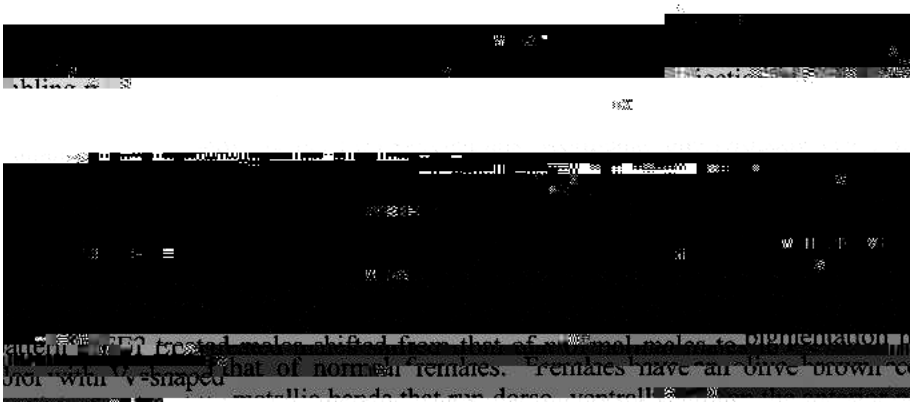
Figure 1 Micro



Exposure to EE2 had significa



se in number of vesicles and endo



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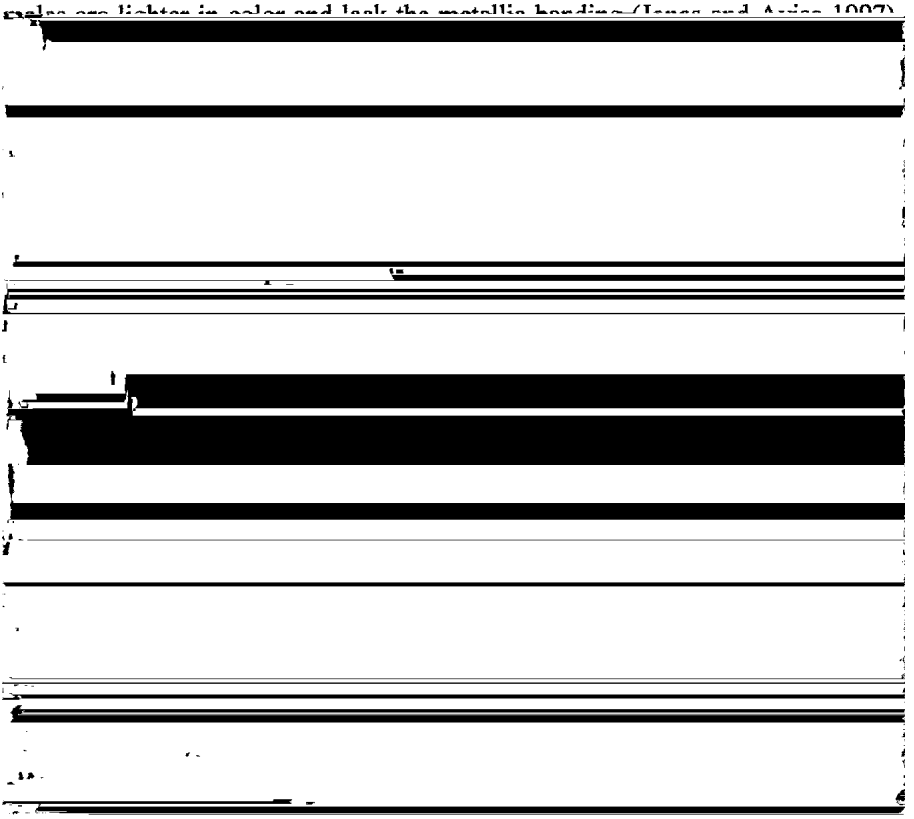
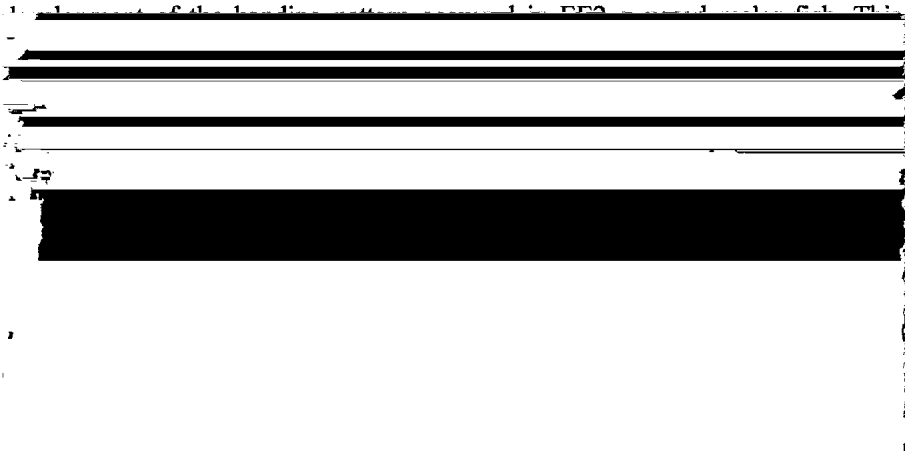
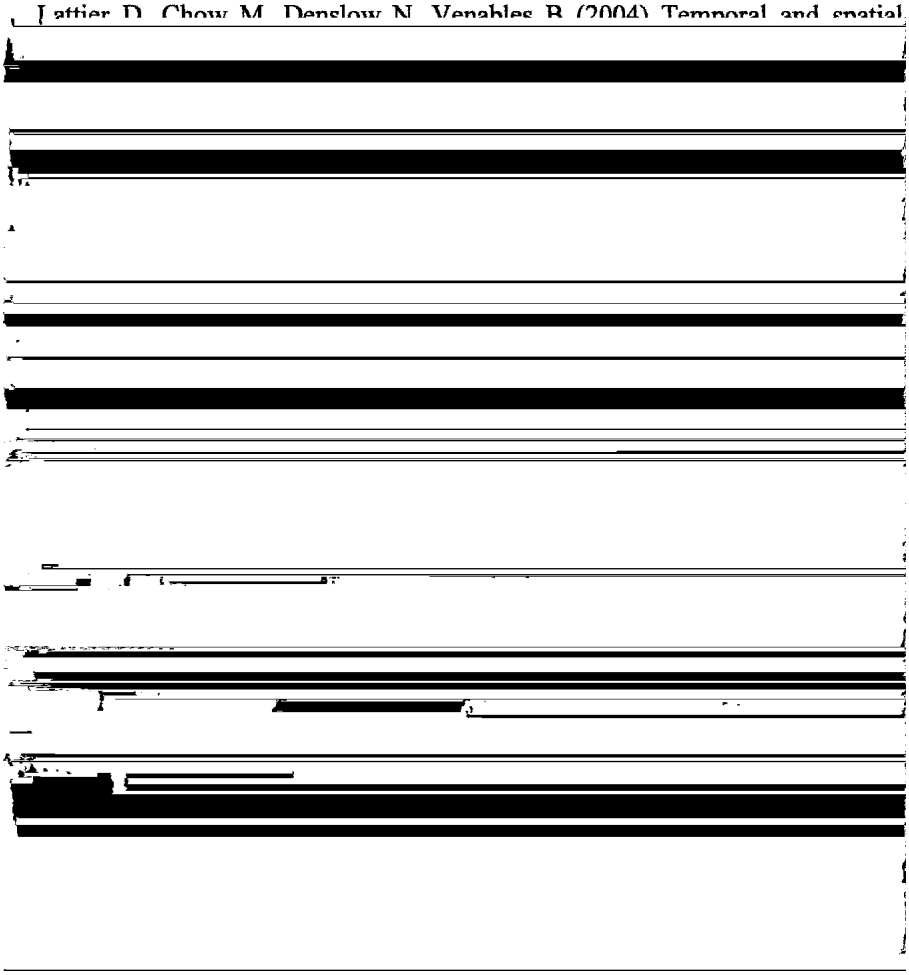


Feminization of pigmentation pattern, including overall darkening and



Hemming JM, Allen HJ, Thueson KA, Turner PK, Waller WT, Lazorchak JM, Lattier D, Chow M, Denslow N, Venables B (2004) Temporal and spatial