

## Floods and the biological productivity of floodplain habitats

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Variation in the seasonal timing, frequency and duration of flood pulses is a major factor contributing to the patchiness of floodplain ecosystems at most temporal and spatial scales. This project used experimental floods of replicate sections of the floodplain in the Gulpa State Forest on the Murray River to determine how the seasonal timing and the frequency of floods impact on the three major components of primary production in this region; red gum trees (*Eucalyptus camaldulensis*), wetland macrophytes and the autotrophic component of biofilms. Greatest rates of above-ground wood production by red gum trees were recorded at sites which received regular experimental summer flooding. Intermediate levels of production occurred at sites which received spring floods or one flood every four years, while lowest production was recorded at sites which received no experimental floods over the six year study period. In contrast production by macrophytes and the accumulation rate of the autotrophic component of biofilms was greatest in sites which received spring floods. The frequency of flooding (once vs twice per year) did not influence specific rates of production. Floods which support the greatest growth of wood support the lowest rates of wetland primary production. Balancing production and conservation imperatives in these managed floodplain forests will require a shift towards more natural spring flooding to support food chains dependant on wetlands.

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