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Thomas Enkosky* (thomas.a.enkosky@uscga.edu) and **Branden Stone**. *Connecting M -sequences with the Fibonacci sequence and integer partitions.*

In joint work with Stone, we found a connection between M -sequences, the Fibonacci sequence, and integer partitions into distinct parts. A *multicomplex* \mathcal{M} is a set of monomials in d variables closed under division. Let m_i be the number of monomials in \mathcal{M} of degree i . The associated M -sequence is (m_0, m_1, m_2, \dots) . Let L_n be the number of M -sequences where the terms of the sequence sum to n . That is, L_n counts the number of multicomplexes with n monomials. The first terms of the sequence $\{L_n\}_{n \geq 0}$ are $1, 1, 2, 3, 5, 8, 12, \dots$. We used a Fibonacci recurrence to show that this sequence is bounded above by the Fibonacci sequence. We restricted to the case $m_1 = 2$ to show that the sequence is bounded below by the number of integer partitions into distinct parts. (Received September 16, 2014)