Let $\mathbb{Z}_n$ be the finite cyclic group of order $n$ and $S \subseteq \mathbb{Z}_n$. We examine the factorization properties of the Block Monoid $B(\mathbb{Z}_n, S)$ when $S$ is constructed using a method inspired by a 1990 paper of Erdős and Zaks. For such a set $S$, we develop an algorithm in Section 2 to produce and order a set $\{M_i\}_{i=1}^{n-1}$ which contains all the non-primary irreducible Blocks (or atoms) of $B(\mathbb{Z}_n, S)$ and use this set to argue that $B(\mathbb{Z}_n, S)$ is weakly half-factorial. After developing some basic properties of the set $\{M_i\}_{i=1}^{n-1}$, we examine in Section 3 the connection between these irreducible blocks and the Erdős-Zaks notion of “splittable sets.” In particular, the Erdős-Zaks notion of “irreducible” does not match the classic notion of “irreducible” for the commutative cancellative monoids $B(\mathbb{Z}_n, S)$. We close with a detailed discussion of the special properties of the blocks $M_1$ with an emphasis on the case where the exponents of $M_1$ take on extreme values. (Received February 16, 2010)