The seasonal prediction of the coastal oceanic warm event off West Australia, recently named the Ningaloo Nino, is explored by use of a state-of-the-art ocean-atmosphere coupled general circulation model. The Ningaloo Nino/Nina, which generally matures in austral summer, is found to be predictable two seasons ahead. In particular, the unprecedented extreme warm event in February 2011 was successfully predicted 9 months in advance. The successful prediction of the Ningaloo Nino is mainly due to the high prediction skill of La Nina in the Pacific. However, the model deficiency to underestimate its early evolution and peak amplitude needs to be improved. Since the Ningaloo Nino/Nina has potential impacts on regional societies and industries through extreme events, the present success of its prediction may encourage development of its early warning system.