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The changes in Mulberry-based fish ponds in the Guangdong-Hong Kong-Macao Greater Bay Area over the past 40 years

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Mulberry-based fish ponds are representative traditional eco-agriculture in the Guangdong-Hong Kong-Macao Greater Bay Area (GBA). Investigations about the changes in such ponds and their relevant water environment under the background of rapid urbanization can provide a reference for the protection and development of these ponds. Using the Landsat images obtained after 1986, this study employed supervised classification and visual interpretation approaches and water intensity index as well as calculating synthesized index to identify the spatial patterns of changes in Mulberry-based fish ponds in the GBA. The results indicated that the year of 2013 was the inflection point of fish pond changes, which can also be proved by calculating synthesized index. The causes to the changes in fish ponds were further explored from four aspects: land use change, industrial transfer, government guidance and financial motives.