Why do godwits migrate when they do?

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Every March, tens of thousands of Bar-tailed Godwits leave New Zealand's shores and embark on an epic migratory flight of ~10,000 km to eastern Asia. Thanks to intensive studies of colour-marked birds, particularly at the Manawatu Estuary where we have now monitored six consecutive departure periods, we have about as detailed a picture of the departures of individual birds as exists for any migratory bird species. In this talk, we will ask the question of why birds migrate at the time they do, from a variety of angles. Godwits in New Zealand have an unusually long departure window of about a month, and geolocator tracking showed that this results from a south-north gradient in the spring thaw in Alaska. Birds breed earlier in the south of Alaska than the north, and consequently they leave New Zealand earlier too. This explains why some birds habitually leave early in the migration period and others habitually late. What is of perhaps more interest is to what degree birds have individual schedules, and manage to stick to them. Some birds show extreme repeatability of migration date, leaving virtually to the day year after year. Others show greater variation, in part in response to the favourability (or not) of wind conditions. We will explore some of our recent findings about the consistency of migration timing, some ideas about how this may be regulated, and show how Catlins Lake has proven to be a more challenging field site than the Manawatu Estuary for godwit monitoring.