Mudskippers - the air-breathing, amphibious gobies – are amongst the few vertebrates that reside on mudflats, where they deposit eggs in excavated burrows. The burrows are filled with extremely hypoxic water that would kill the eggs immediately upon submergence, so it has remained a mystery how embryos can develop within the burrows. We have shown that the mudskippers store air in the egg-chamber near the bottom of the burrows, and that the burrow-guarding male replenishes the oxygen by depositing mouthfuls of fresh air into the egg chamber during each low tide. When egg development is complete, the male removes the air from the egg-chamber on a nocturnal rising tide, and the flooding of the egg chamber induces hatching. We believe that scientific understanding of mudskippers in their natural habitat are important for conservation of mudflat ecosystems, which are under great threat due to various human activities.