Only included rates collected during the growing season with no amendments if possible. Most studies reported a range of rates, depending on depth; I took the average for each site sampled.

Note: these are all potential rates, compared to my pool dilution method, which represents more of an in-situ rate (no additions of electron acceptors, no slurries)

Published growth rates of anaerobic methane oxidation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Ecosystem | Method | Incubation length | Incubation temperature | Rate | Authors |
| High alpine wetland | 13CH4? (unclear exactly) | 150 days, Amended with ferric citrate | 18 | 3.87 umol/day | Chen et al 2022 |
| River delta estuary | Soil slurries | 5 days, Amended with nitrate | 30 | 2.0 nmol/g/day | Wang et al 2022 |
| Freshwater wetlands | Slurried incubation measuring 13CO2 over time | 20h, Amended with nitrite | Room temp? unclear | 2.87 nmol CO2/g/day | Hu et al 2014 |
| Florida wetland | Intact soil 14CH4 | 24h | 16.9 | 3.8 mmol/m2/d | Segarra et al 2015 |
| Georgia wetland | Intact soil 14CH4 | 24h | 27.3 | 13.2 mmol/m2/d | Segarra et al 2015 |
| Maine wetland | Intact soil 14CH4 | 24h | 2.5 | 0.7 mmol/m2/d | Segarra et al 2015 |
| Freshwater wetland | Intact soil 14CH4 | 24h | 20 | 1.7 mmol/m2/day | Segarra et al 2013 |
| Salt marsh | Intact soil 14CH4 | 24h | 20 | 2.1 mmol/m2/day | Segarra et al 2013 |
| Alpine wetland | Slurried incubation measuring 13CO2 over time | 50 days, nitrite amended | 14 | 1.99 nmol 13CO2/g/d | Xie et al 2020 |
| Alpine wetland | Slurried incubation measuring 13CO2 over time | 50 days, nitrate amended | 14 | 4.37 nmol 13CO2/g/d | Xie et al 2020 |
| Salt marsh | 14C | 1h-3wk | 22? | 15 nmol/cm3/day | Krause and Treude (2021) |
| Brackish river delta |  | 1 day -1 week (avg) |  | 40 ug/g/day | Li 2023 |
|  |  |  |  |  |  |
| Paddy field |  |  |  | 1.15nmol/g/d | Shen 2014 |
| Estuarine wetland | CH4 prod inhibitor | 96h | 21? | 11 ug/g/d | Wang et al 2017 |
|  |  | 204 day |  |  |  |

Published growth rates of aerobic methane oxidation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Ecosystem | Method | Incubation length | Incubation temperature | Rate | Authors |
| S1 peat bog | Microcosm incubation | 14 days | 24 | 15.55 umol/g/d | Esson et al 2016 |
| Estuarine wetland | Soil slurries | 96h | 21? | 20.9 ug/g/d | Wang et al 2017 |
| Freshwater wetland | Soil slurries | 14 days | Room temp? | 3.048 umol/g/d | Smith et al 2018 |
| Tidal fw swamp 1 | Soil slurries w shaker bath | 3 day | 22 | 2.2 umol/g/d | Megonigal & Schlesinger 2002 |
| Tidal fw swamp 2 | Soil slurries w shaker bath | 3 day | 22 | 2.21 umol/g/d | Megonigal & Schlesinger 2002 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

Published growth rates of methanogenesis

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Ecosystem | Method | Incubation length | Incubation temperature | Rate | Authors |
| Boreal bog | Slurried peat incubations | 5-7 day | 14, (max temp and water level) | 2.5 umol/L/day | Duddleston & Kinney 2002 |
| Subtropical wetland- oligotrophic | Slurried incubation | 25 day | 23 | 0.8 umol/g (dry wt soil)/d | Holmes et al 2013 |
| Subtropical wetland-transition | Slurried incubation | 25 day | 23 | 3.1 umol/g (dry wt soil)/d | Holmes et al 2013 |
| Subtropical wetland-eutrophic | Slurried incubation | 25 day | 23 | 3.7 umol/g (dry wt soil)/d | Holmes et al 2013 |
| Bog lake fen | Slurried incubation (prev. frozen) | 13 day | 18 | 4.05 umol/g (dry wt soil)/d | Zalman et al 2018 |
| S1 bog | Slurried incubation (prev. frozen) | 23 day | 18 | 2.06 umol/g (dry wt soil)/d | Zalman et al 2018 |
| Zim bog | Slurried incubation (prev. frozen) | 77 day | 18 | 0.58 umol/g (dry wt soil)/d | Zalman et al 2018 |
| Arctic wetland | Slurried incubation | 28-150 days | 30 | 4.85 umol/g/day | Blake et al 2015 |
| Arctic wetland | Slurried incubation | 28-150 days | 20 | 4.10 umol/g/day | Blake et al 2015 |
| P australis marsh | Slurried incubation | 10 days | 25 | 7.14 ug/kg/d | Yuan et al 2016 |
| S salsa marsh | Slurried incubation | 10 days | 25 | 5.09 ug/kg/d | Yuan et al 2016 |
| S alterniflora marsh | Slurried incubation | 10 days | 25 | 20.8 ug/kg/d | Yuan et al 2016 |
| S alterniflora marsh – 1 year invasion | Slurried incubation | 8h | 25 | 1.97 umol/kg/day | Yuan et al 2018 |
| S alterniflora marsh – 12 year invasion | Slurried incubation | 8h | 25 | 6.42 umol/kg/day | Yuan et al 2018 |
| Bog lake fen | Slurried incubation | 7 day | 18 | 5.20 umol/g/d | Hanna et al 2020 |
| S1 bog | Slurried incubation | 7 day | 18 | 2.88 umol/g/d | Hanna et al 2020 |
| Zim bog | Slurried incubation | 7 day | 18 | 0.4 umol/g/d | Hanna et al 2020 |
| Florida wetland | Intact soil 14CH4 | 24h | 16.9 | 4.1 mmol/m2/d | Segarra et al 2015 |
| Georgia wetland | Intact soil 14CH4 | 24h | 27.3 | 3.7 mmol/m2/d | Segarra et al 2015 |
| Maine wetland | Intact soil 14CH4 | 24h | 2.5 | 0.2 mmol/m2/d | Segarra et al 2015 |
| Estuarine wetland | Soil slurries | 96h | 21? | 21 ug/g/d | Wang et al 2017 |
| Tidal fw swamp 1 | Soil slurries w shaker bath | 3 day | 22 | 23.23 nmol/g/d | Megonigal & Schlesinger 2002 |
| Tidal fw swamp 2 | Soil slurries w shaker bath | 3 day | 22 | 18.53 nmol/g/d | Megonigal & Schlesinger 2002 |