**Supplementary Information**

Table S1 Position of the non-trawled (AC-DC) and trawled (AT-DT) sampling sites

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Location | Site | Latitude  | Longitude | Depth (m) |
| Marine Park | AC | 22°28'41.28"N | 114°19'31.13"E | 16 |
| Marine Park | BC | 22°28'40.45"N | 114°19'44.18"E | 14 |
| Marine Park | CC | 22°28'40.54"N | 114°20'2.67"E | 16 |
| Marine Park | DC | 22°28'38.61"N | 114°20'17.03"E | 16 |
| Tolo Channel | AT | 22°29'5.72"N | 114°19'30.15"E | 22 |
| Tolo Channel | BT | 22°29'2.92"N | 114°19'45.58"E | 23 |
| Tolo Channel | CT | 22°28'59.59"N | 114°20'6.46"E | 20 |
| Tolo Channel | DT | 22°28'55.59"N | 114°20'29.31"E | 18 |

Table S2 Wentworth (Φ) scale (Buchanan, 1984) and grade classification (Φ = − log2) of the particle diameter in millimeters

|  |  |  |
| --- | --- | --- |
| Name | Size | Φ scale |
| Boulder | > 256 mm | > −8 |
| Cobble | 256−64 mm | −8 to –6 |
| Pebble | 64−4 mm | −6 to−3 |
| Granule | 4−2 mm | −4 to−1 |
| Very coarse sand | 2−1 mm | −1 to 0 |
| Coarse sand | 1,000−500 μm | 0 to 1 |
| Medium sand | 500−250 μm | 1 to 2 |
| Fine sand | 250−125 μm | 3 to 2 |
| Very fine sand | 125−62 μm  | 4 to 3 |
| Silt | 62−4 μm | 8 to 4 |
| Clay | < 4 μm | > 8 |
| Colloid | < 1 μm | > 10 |

Table S3 Biological traits and categories used in the analysis. Each of the categories has affinities ranging from 0-3, where 0 is no affinity and 3 is total affinity. Information of biological traits was referenced from Fleddum (2010)

|  |  |  |
| --- | --- | --- |
| BT | Code | Categories |
| Size | NS1 | < 5 mm |
|  | NS2 | 5 mm-1 cm |
|  | NS3 | 1-3 cm |
|  | NS4 | 3-6 cm |
|  | NS5 | 6-10 cm |
|  | NS6 | > 10 cm |
| Larval type | LT1 | Planktotroph |
|  | LT2 | Lecitotroph |
|  | LT3 | Direct development |
| Mobility | AM1 | None |
|  | AM2 | Low |
|  | AM3 | Medium |
|  | AM4 | High |
| Body form | BF1 | Short/cylindrical |
|  | BF2 | Dorsally flat |
|  | BF3 | Laterally flat |
|  | BF4 | Ball shape |
|  | BF5 | Long thin |
|  | BF6 | Irregular |
| Attachment | DA1 | None |
|  | DA2 | Temporary |
|  | DA3 | Permanent |
| Life Habitat | AH1 | Sessile |
|  | AH2 | Tube (permanent) |
|  | AH3 | Tube (semi-permanent) |
|  | AH4 | Burrower |
|  | AH5 | Surface crawler |
| Feeding | FH1 | Suspension/filter |
|  | FH2 | Scraper/grazer |
|  | FH3 | Surface deposit feeder |
|  | FH4 | Subsurface deposit feeder |
|  | FH5 | Dissolved matter/symbiont |
|  | FH6 | Large detritus/sand licker |
|  | FH7 | Scavenger |
|  | FH8 | Carnivore/omnivore |
|  | FH9 | Parasitic/commensal |

Table S4 Dominant taxa measured in percentages for both seasons. P = Polychaeta, M = Mollusca, C = Crustacea, N = Nemertea, S = Sipuncula, E = Echinodermata, Ec = Echiura

|  |
| --- |
| Summer |
| Area | P | M | C | N | S | E | Ec |
| Non-trawled | 94  | 0 | 0 | 0 | 3 | 3 | 0 |
| Trawled | 78 | 0 | 14 | 0 | 1 | 1 | 6 |
| Winter |
| Area | P | M | C | N | S | E | Ec |
| Non-trawled | 85 | 5 | 1 | 4 | 3 | 1 | 1 |
| Trawled | 86 | 7 | 1 | 1 | 2 | 2 | 1 |

Table S5 Test statistics for pair-wise PERMANOVA of infaunal abundance and biomass between trawled and non-trawled sites for both seasons. Significant values at p <0.05, based on permutations, are shown in bold

|  |  |  |
| --- | --- | --- |
| Treatment × Season | t | p (Monte Carlo) |
| Summer (abundance) | **1.6944** | **0.028** |
| Summer (biomass) | **1.3489** | **0.028** |
| Winter (abundance) | 1.5149 | 0.069  |
| Winter (biomass) | 1.5094 | 0.099  |