Supplementary Information for: *Nutrient pathways and their susceptibility to past and future change in the Eurasian Arctic Ocean*

**Temporal trends**
Data used for temporal trends were taken within the geographical range of 70-80°N and 0-50°E. To overcome sampling variability, we only used summer nutrient measurements to look at changes in the upper water column (June-September). We also only used samples with salinities >34.6, this includes AW and ArW but reduces the effects of dilution on the nutrient concentrations and trends.

### Table S1. 0-25m

| Dataset          | Data source or DOI                                      | Time range | Data points (NO3) | Data points (PO4) | Data points (N*) |
|------------------|--------------------------------------------------------|------------|-------------------|-------------------|-----------------|
| Codispoti2013    | 10.1016/j.pocean.2012.11.006                          | 1990-2002  | 148               | 431               | 148             |
| GIPY11           | Geotraces IDP2017                                       | 2007       | 7                 | 7                 | 7               |
| JR271            | BODC                                                   | 2012       | 13                | 13                | 13              |
| PS94             | BODC                                                   | 2015       | 6                 | 6                 | 6               |
| CAO - JR16006    | doi:10.5285/b4c1537e-c729-6463-e053-6c86abc0c7de      | 2017       | 14                | 14                | 14              |
| CAO - JR17006    | 10.5285/b62f2d5d-1f3f-0c2c-e053-6c86abc0265d           | 2018       | 12                | 3                 | 3               |
| CAO - JR17007    | 10.5285/b62f2d5d-1f40-0c2c-e053-6c86abc0265d           | 2018       |                   | 3                 |                 |
| Kattner2011      | PS68                                                   | 2005       | 51                | 53                | 46              |

### Table S2. 0-100m

| Dataset          | Data source or DOI                                      | Time range | Data points (NO3) | Data points (PO4) | Data points (N*) |
|------------------|--------------------------------------------------------|------------|-------------------|-------------------|-----------------|
| Codispoti2013    | 10.1016/j.pocean.2012.11.006                          | 1990-2002  | 168               | 514               | 168             |
| GIPY11           | Geotraces IDP2017                                       | 2007       | 9                 | 9                 | 9               |
| JR271            | BODC                                                   | 2012       | 12                | 6                 | 6               |
| PS94             | BODC                                                   | 2015       | 8                 | 8                 | 8               |
| CAO - JR16006    | doi:10.5285/b4c1537e-c729-6463-e053-6c86abc0c7de      | 2017       | 20                | 16                | 16              |
| CAO - JR17006    | 10.5285/b62f2d5d-1f3f-0c2c-e053-6c86abc0265d           | 2018       |                   | 16                |                 |
| CAO - JR17007    | 10.5285/b62f2d5d-1f40-0c2c-e053-6c86abc0265d           | 2018       | 7                 | 3                 | 3               |
| Kattner2011      | PS68                                                   | 2005       | 58                | 60                |                 |

### Table S3. 200-300m

| Dataset          | Data source or DOI                                      | Time range | Data points (NO3) | Data points (PO4) | Data points (N*) |
|------------------|--------------------------------------------------------|------------|-------------------|-------------------|-----------------|
| Code   | Source       | DOI/URL                          | Year | Volume | Pages | Pages | Pages |
|--------|--------------|----------------------------------|------|--------|-------|-------|-------|
| Codispo2013 | 10.1016/j.pocean.2012.11.006 | 1990-2002 | 149 | 149 | 149 |
| JR271  | BODC         | 2012                             | 9    | 9     | 9     |
| PS94   | BODC         | 2015                             | 4    | 4     | 4     |
| CAO - JR16006 | doi:10.5285/b4c1537e-c729-6463-e053-6c86abc0c7de | 2017 | 7    | 7     | 7     |
| CAO - JR17005   | 10.5285/b61d58df-b8e8-11c4-e053-6c86abc0246c | 2018 | 2    | 2     | 2     |
| CAO - JR17006   | 10.5285/b62f2d5d-1f3f-0c2c-e053-6c86abc0265d | 2018 | 6    | 6     | 6     |
| CAO - JR17007   | 10.5285/b62f2d5d-1f40-0c2c-e053-6c86abc0265d | 2018 | 2    | 2     | 2     |
| Kattner2011  | Pangaea      | 10.1594/PANGAEA.761684          | 2005 | 45    | 45    | 45    |