

# Royal Quays European Eel Survey 2017

The European eel (*Anguilla anguilla*) is distributed from Northern Norway, southwards along the coast of Europe, all coasts of the Mediterranean and on the North African Coast<sup>1,2</sup> and are thought to spawn in the Sargasso Sea in the West Central Atlantic<sup>3,4</sup>.

The species is found in a range of habitats but is only naturally found in waters connected to the sea including rivers, lakes, estuaries, lagoons and coastal waters<sup>5</sup>.

The European eel is catadromous, spending their adult lives in fresh/estuarine waters, then migrating to the ocean to reproduce<sup>15</sup>. The larvae (leptocephalus) drift in the plankton for an average of 7-11 months<sup>16</sup>. Just before reaching coastal waters, the leptocephalus undergoes a metamorphosis into the "glass eel" stage that results in a shortening of the body and formation into a more cylindrical shape<sup>17</sup>. The glass eels gain pigmentation, transform into elvers (yellow eels) and move into freshwaters (Sinha and Jones 1975). After migration to brackish or fresh waters, eels feed and grow (males for 6-12 years; females for 9-20 years) before returning to sea for reproduction<sup>18</sup>. Eels are called "silver" eels when migrating from freshwaters to the sea<sup>17</sup>.



The European eel is critically endangered<sup>5</sup>. The threats to European eel populations include: Barriers to migration<sup>6</sup>, body condition<sup>7</sup>, Climate change/changes to ocean currents<sup>8</sup>, disease and parasites<sup>9</sup>, exploitation, hydrology<sup>10</sup>, habitat loss<sup>11</sup>, pollutants<sup>12</sup> and predation<sup>13</sup>.

NIFCA were approached by Royal Quays Marina, North Shields and asked to conduct a survey on European eels within the marina.

## Methods

The Royal Quays Marina is located approximately 2 miles from the mouth of the river Tyne in North Shields in the North East of England. NIFCA conducted a series of eel surveys within the Royal Quays Marina between June and the end of November 2017. The surveys were carried out on an ad-hoc basis whenever officers were at the marina carrying out other duties.

Data relating to fish species (with a particular focus on European eel) were collected using two eel traps (dimensions: 25cm by 94cm) (figure 1). The traps were fished in four locations over the course of the study: 1) pontoon in front of NIFCA Patrol Vessel St. Aidan, 2) pontoon behind St. Aidan, 3) end by shoes, 4) by entrance to lock (figure 2). The traps were baited with a variety of fish species (herring, pollock, red mullet, mackerel and gurnard) and placed in the water approximately 1m off the seabed. When the traps were hauled fish species were identified using the Environment Agency 2009 manual "Key to the marine and freshwater fishes of Britain and Ireland" and full length measured to the nearest millimetre using a fish measuring board.



## Results

Over the duration of the survey a total of 7 fish species were caught (saithe, European eel, cod, 3 spined stickleback, scorpion fish sp., blenny sp. and butterfish. In order of abundance). This survey is

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specifically focussed on fish species, however green shore crabs, velvet swimming crabs and sea squirts were also observed both in and outside the traps.

Three European eels were caught over the course of the surveys, two in June (site 2) and one in August (site 1). No eels were caught at sites 3 and 4. The measurements of the eels were 650mm, 560mm and 310mm with the larger eel caught in August.

## Discussion

This study has confirmed the presence of European eels within the Royal Quays Marina, however catch rate was low. The eels caught during this survey are believed to be yellow eels due to the time of year they were caught and their colouration.



## References

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