Broads Forum
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Agenda Item No 10

Summary of the Findings of the Annual Macrophyte Survey 2013
Report by Environment Officer

Summary: This report presents and discusses the findings from the annual water plant survey carried out during 2013. A total of 25 water bodies were surveyed.

1 Introduction

1.1 The Broads Authority has been surveying water plants within the Broads since 1983 and has consequently collated a valuable dataset which allows monitoring and analysis of long terms trends of aquatic plants across the Broads wetland system. This report summarises the key findings of the Annual Macrophyte Surveys completed in July to September 2013.

2 Key Findings of the Annual Macrophyte Survey 2013

2.1 There appears to be an indication that plant growth and species diversity has increased across the broads surveyed since 2012. The cold, wet summer in 2012 resulted in poor plant growth in many locations. Following a very cold period in the early spring of 2013 where bitterly easterly winds buffeted the east coast for more than six weeks, water temperatures were very slow to warm up which pushed back the aquatic plant growing season. But following the cold spell, the weather for the remainder of the summer was much warmer and drier which resulted in increased productivity, reflected in the trend of increased species richness and abundance recorded in 2013.

2.2 2013 was a good year for plants in Heigham Sound with nine species recorded, the highest number recorded in the last five years including the Red Data Book (RDB) vulnerable starry stonewort *Nitellopsis obtusa*. Abundance scores for all recorded species showed a slight increase in comparison to levels in 2012. Similarly at Hickling, 2013 data indicated an increase in the proportions of stoneworts with the highest abundance recorded since 2005. The RDB species intermediate stonewort *Chara intermedia*, listed as endangered, was the second most abundant species after spiked water milfoil. Horsey Mere continues to have a very low number of species present and low abundance, although a small sample of stonewort was found this year.

2.3 Plant communities in the Martham Broads appear to be stable, continuing to support diverse, species rich plant communities generally dominated by a variety of stonewort species. Species diversity remains very high. There continues to be plant volume (or biomass) variations that are poorly detected

by the rake trawl method, especially in broads like the Marthams with generally high macrophyte abundance.

2.4 Those broads on the Bure with good connectivity to the river continued to show the lowest levels of species richness and abundance, however, there were a number of sites that showed slightly increased abundances in 2013 including Wroxham. At Cockshoot broad the overall levels of relative plant abundance were the highest since 2009. Opposite *Chara contraria*, common *C. vulgaris* and fragile *C. globularis* stoneworts were all recorded in 2013 having not been present since 2007. The overall number of species totalled 11, also the highest number for at least five years.

2.5 Following recent mudpumping, Upton Little broad was surveyed once again. The species composition is dominated by stoneworts with the occurrence of bristly stonewort a new species in 2013. Interestingly, there is not a great difference in the plant abundance pre and post mudpumping, but the species composition has altered; holly-leaved naiad is no longer the dominant species.

2.6 In 2013, there have been a number of cases where additional species have been noted in visual observations or alternate surveys that have been missed as part of the transect survey. These instances add further weight to the argument that the methodology of the annual macrophyte survey needs to be revised to reflect the improving water quality and resultant increases in plant growth and density.

3 Future of the Annual Macrophyte Survey 2013

3.1 Whilst the apparent trends indicate increasing plant growth and diversity in those broads where water quality has improved, there are concerns that the current survey methodology is becoming increasingly unsuitable and impractical. The rake trawl method is suitable where small volumes of plants are present, however, where high plant volumes are present in broads like Martham North and South, it is becoming increasingly difficult to apply the methodology in an accurate and comparable manner. In order to resolve this issue, the Broads Authority and other interested parties have been investigating alternative methods for aquatic plant survey and over the last three years, the Authority has been conducting duplicate surveys of particular broads using the current transect based method and a new point based method. The Broads Authority has commissioned a review of these methods and is currently awaiting the results.

3.2 As a classification and assessment tool the water plant surveys inform ways in which lake restoration works can be targeted and allow the success of any management to be assessed. The water plant monitoring also provides an early means to identify possible sites of deterioration. The results of the water plant surveys contribute to the classification and monitoring of SSSI waterbodies in partnership with Natural England. The detection of invasive, non-native plant species within the Broads is also important function of the

annual survey if the risks posed by these plants are to be effectively managed.

3.3 Steady progress is clearly being made through the Lake Restoration Strategy, however much work remains to be done across the Broads to bring degraded broads back to health, in line with national and EU drivers and to increase and subsequently maintain the diversity of those broads lacking in species richness. The annual water plant survey therefore continues to be a valuable part of targeting and measuring the success of restoration efforts.

Background papers:	Annual Plant Survey http://www.broads-authority.gov.uk/annual-waterplant-survey.html
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