



MILFORD HAVEN WATERWAY  
ENVIRONMENTAL SURVEILLANCE GROUP

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# MILFORD HAVEN ROCKY SHORE SURVEILLANCE 2017

**J.H.S. Archer-Thomson and Dr. S.L. Morrell**

**February 2018**

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**CONTRACT REPORT TO THE MILFORD HAVEN WATERWAY  
ENVIRONMENTAL SURVEILLANCE GROUP**

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## MILFORD HAVEN ROCKY SHORE SURVEILLANCE 2017

### Executive Summary

Six rocky shores within the Milford Haven Waterway were surveyed by the authors and colleagues on behalf of the Milford Haven Waterway Environmental Surveillance Group. Field surveys were carried out between 9th and 25th of August 2017. This repeated the work carried out by The Marine Biological Association of the UK in 2010 and Field Studies Council in 2013 and used the same methodology.

The results were analysed and compared with those from previous surveys.

There was close agreement in the overall community data between 2013 and 2017. This suggested a generally stable situation between the two surveys and underlined the benefits of having the same personnel carry out the work.

The pattern of high biodiversity at the open coast sites (Dale Point and Great Castle Head) decreasing up the Haven continued from the 2013 survey. The higher diversity usually associated with increased shelter (from wave action) may have been offset by variations in salinity, increased turbidity and deposition of fine sediment.

Barnacle percentage cover results were similar to those of 2013. *Semibalanus balanoides* dominated on the open coast, *Austrominius modestus* dominated in the upper reaches of the Haven. This was in line with expectation as *A. modestus* is tolerant of salinity fluctuations. The abundance of juvenile barnacles mirrored that of the adult distributions with *S. balanoides* doing well on the open coast and *A. modestus* up the Haven. *Chthamalus* spp. were most abundant on south-facing, exposed coasts as expected and as observed previously.

The observed trend of high limpet densities on the exposed sites, reducing with increased shelter continued from the 2013 survey. Similarly, maximum limpet diameters showed an inverse relationship with limpet density. Once again there was a positive relationship between limpet density and barnacle cover and a negative relationship between limpet density and macro-algal cover.

For *Ascophyllum nodosum* at Cosheston Folly and Sawdern Point there was evidence that individuals had survived from the previous survey resulting in higher vesicle counts. At Llanreath the unusual frequency distribution of vesicle numbers was maintained from the previous survey. This suggests that the factors causing this are consistent with those present in 2013.

Surveys of Trochidae in 2017 produced broadly similar results to 2013, the main exception being the increased abundance of *Phorcus lineatus* and *Gibbula umbilicalis* at Sawdern Point. Other sites within the Haven (monitored by the present authors) have shown increases in recent years. Size data showed no clear, overriding pattern except in that increases or decreases in trochid size were in the same direction at each of the sites for each of the two species measured.

Recommendations include annual surveys, some changes in methodology and consistency in personnel.



## GORUCHWYLIO GLANNAU CREIGIOG ABERDAUGLEDDAU, 2017

### Crynodeb Gweithredol

Bu'r awduron a'u cydweithwyr yn arolygu chwech o'r traethau creigiog o fewn Dyfrffordd Aberdaugleddau, ar ran Grŵp Goruchwyllo Amgylcheddol Dyfrffordd Aberdaugleddau. Gwnaed yr arolygon maes rhwng 9 a 25 Awst 2017. Ailgyflawnwyd y gwaith a wnaed gan Gymdeithas Fiolegol Forol y DU yn 2010 a'r Cyngor Astudiaethau Maes yn 2013 gan ddefnyddio yr un fethodoleg.

Dadansoddwyd y canlyniadau a chymharwyd hwy â chanlyniadau'r arolygon blaenorol.

Yn gyffredinol, roedd data cymunedau yn 2013 a 2017 yn cytuno'n agos. Mae hynny'n awgrymu bod y sefyllfa gyffredinol wedi aros yn sefydlog rhwng y ddau arolwg, ac yn tanlinellu'r manteision o ddefnyddio'r un personél i wneud y gwaith.

Roedd y patrwm a welwyd yn 2013 yn parhau, sef bioamrywiaeth uchel yn y safleoedd arfordirol agored (Dale Point a Great Castle Head), a oedd yn lleihau pan symudid yn uwch i fyny'r Ddyfrffordd. Dichon fod yr amrywiaeth uwch, sy'n arferol ar safleoedd a gysgodir rhag effaith tonnau, wedi ei gwrthbwysu gan yr amrywiadau mewn halltedd, cymylogrwydd y dŵr a'r dyddodion mân.

O ran canran y gorchudd o gregyn llong, cafwyd canlyniadau tebyg i 2013. *Semibalanus balanoides* oedd fwyaf niferus ar yr arfordir agored, ond *Austrominius modestus* a welid amlaf yn rhannau uchaf y Ddyfrffordd. Roedd hyn i'w ddisgwyl gan fod *A. modestus* yn gwrthsefyll halltedd amrywiol. Roedd niferoedd y cregyn llong ifanc yn adlewyrchu dosraniadau'r cregyn llawn-dwf, gydag *S. balanoides* yn ffynnu ar arfordiroedd agored ac *A. modestus* yn uwch i fyny'r Ddyfrffordd. Fel y disgwyd ac y gwelwyd o'r blaen, roedd rhywogaethau *Chthamalus* yn fwy niferus ar arfordiroedd agored sy'n wynebu'r de.

Roedd y duedd a welwyd yn 2013 yn parhau, sef dwyseddau o gregyn meheryn a oedd yn uchel ar safleoedd agored ond yn lleihau mewn mannau mwy cysgodol. Yn yr un modd, roedd perthynas wrthdro rhwng diamedrau mwyaf y cregyn meheryn a'u dwysedd. Unwaith eto roedd perthynas bositif rhwng dwysedd y cregyn meheryn a'r gorchudd cregyn llong, a pherthynas negyddol rhwng y dwysedd y cregyn meheryn a'r gorchudd macroalgaid.

Ynglŷn ag *Ascophyllum nodosum* yn Cosheston Folly a Sawdern Point, roedd tystiolaeth bod unigolion wedi goroesi ers yr arolwg blaenorol, a'r cyfrifiadau fesiclau wedi cynyddu o ganlyniad. Yn Llanreath roedd dosraniad amledd anghyffredin y niferoedd fesiclau a welwyd yn yr arolwg blaenorol yn parhau. Mae hyn yn awgrymu bod y ffactorau sy'n achosi hyn yn gyson â'r rhai oedd yn bresennol yn 2013.

Roedd canlyniadau arolygon Trochidae yn 2017 yn lled debyg i ganlyniadau 2013. Y prif eithriad oedd cynnydd yn niferoedd *Phorcus lineatus* a *Gibbula umbilicalis* yn Sawdern Point. Bu cynnydd yn niferoedd y rhywogaethau hyn ar safleoedd eraill y bu'r awduron presennol yn eu monitro o fewn y Ddyfrffordd. Nid oedd unrhyw batrwm gor-redol yn y data

ynghylch maint, ac eithrio bod maint trochidau o'r ddwy rywogaeth a fesurwyd wedi cynyddu neu leihau i'r un cyfeiriad ar bob un o'r safleoedd.

Argymhellir y dylid cynnal arolygon blynyddol, gwneud rhai newidiadau yn y fethodoleg a sicrhau cysondeb personél.