

Prosiect Adfer Wystrys Brodorol Bae Abertawe Rhif Cyfarfod y Grŵp Cynghori 1

MANYLION Y CYFARFOD			
Person / Digwyddiad yr ymwelwyd ag ef	Rhif Cyfarfod y Grŵp Cynghori 1 (GC-C1)	Dyddiad	02.06.2021
Lleoliad	Telegynhadledd (MS Teams)		
Mynychwyr y cyfarfod	<p>Tîm y Prosiect</p> <p>(KA) Khatija Alliji, MarineSpace (KRS) Kat Route-Stephens, MarineSpace (Cadeirydd) (MA) Marja Aberson, MarineSpace (RC) Ruth Callaway, Prifysgol Abertawe</p> <p>Aelodau'r Grŵp Cynghori</p> <p>(AJ) Antony Jensen, <i>Ocean and Earth Science</i>, Prifysgol Southampton (LC) Lisa Connaire (ar ran Michelle Billing), Cangen Pysgodfeydd Morol Llywodraeth Cymru (DW) Dan Ward, Ymgynghorydd Annibynnol ar Gadernid Ecosystemau (JG) Jaci Gruffudd, Sefydliad Brenhinol De Cymru (GaG) Guto ap Gwent, Cymdeithas Gŵyr (JKH) Jacob Kean Hammerson, Blue Marine Foundation (KC) Ken Collins, <i>Ocean and Earth Science</i>, Prifysgol Southampton (AM) Amy Martin, Cyfoeth Naturiol Cymru (CNC) (KN) Keith Naylor, Prifysgol Abertawe (RM) Rachel Mulholland, Canolfan Gwyddorau'r Amgylchedd, Pysgodfeydd a Dyframaethu (RG) Rob Griffiths, aelod o Grŵp Gweithredu Lleol Pysgodfeydd Bae Abertawe (GGLIPBA)</p>		
Ymddiheuriadau	<p>(AW) Andy Woolmer, Salacia Marine (FT) Flo Taylor, aelod o Grŵp Gweithredu Lleol Pysgodfeydd Bae Abertawe (JA) Jon Arnold, aelod o Grŵp Gweithredu Lleol Pysgodfeydd Bae Abertawe (JP) Joanne Preston, Prifysgol Portsmouth (KJ) Karen Jones, Cyngor Abertawe (MB) Michelle Billing, Llywodraeth Cymru</p>		

CRYNODEB O'R CYFARFOD

0. Agenda

1. Croeso a Chyflwyniadau
2. Trosolwg o'r Prosiect
 - (a) Cefndir y Prosiect
 - (b) Nodau ac Amcanion
 - (c) Tîm y Prosiect a'r GC
 - (ch) Cyflwyno'r Rhaglen
3. Adolygu'r Llinell Sylfaen
4. UFA a Dyddiadau ar gyfer GC-C2 ('Adolygu'r Llinell Sylfaen')
5. Camau Gweithredu

1. Croeso a Chyflwyniadau

Dechreuodd **KRS** y cyfarfod a diolchodd i'r holl aelodau am fod yn rhan o'r Grŵp Cynghori gwirfoddol. Dywedodd ei bod yn gwerthfawrogi arbenigedd aelodau'r Grŵp Cynghori i helpu i arwain y prosiect.

Cyflwyniadau o gwmpas y bwrdd:

Tîm y Prosiect (yn bresennol)

KRS *Yn arwain ochr ymgysylltu â rhanddeiliaid y prosiect a sefydlu'r Grŵp Cynghori (GC).*

MA *Rheolwr prosiect MarineSpace ar gyfer y Prosiect Adfer Wystrys Brodorol Bae Abertawe*

KA *Rhoi'r adolygiad llenyddiaeth at ei gilydd a mewnyddu ar y cynllun.*

RC *Ecolegydd Morol ym Mhrifysgol Abertawe. Y prif ddiddordeb yn y prosiect yw gwneud llawer o waith ar ffawna ardal ehangach Bae Abertawe. Wedi gweithio ar yr ewin mochyn estron a goresgynnol (*Crepidula fornicata*) ym Mae Abertawe a all beryglu poblogaethau wystrys. Mae ei diddordeb yn hanes naturiol a diwylliannol wystrys. Mae'n cymryd rhan mewn prosiectau rhyngddisgyblaethol sy'n edrych ar effaith wystrys a'u dirywiad yn y 19eg ganrif a sut yr oedd hynny'n hidlo i gelf, ysgrifennu, newyddiaduraeth a'r gyfraith. Mae gan wystrys rôl ddwys i'w chwarae yn niwylliant a chymunedau Abertawe ac mae'n falch o weld agwedd holistaidd at adfer wystrys y tu hwnt i hanes naturiol.*

Aelodau'r Grŵp Cynghori (yn bresennol)

AJ *Ecolegydd benthig ym Mhrifysgol Southampton, diddordeb arbennig mewn pysgodfeydd y glannau. Wedi bod yn ymwneud â Menter Adfer y Blue Marine Foundation yn y Solent ers iddi ddechrau. Gweithio gyda Ken Collins ar riffiau artiffisial; wedi gosod adeiledd bach yn y Solent ac yn gobeithio ei fod yn darparu swbstrad addas ar gyfer anheddiad o larfae wystrys. Hyfryd i weld sut mae'r prosiect hwn yn cael ei ddatblygu a chyfrannu ychydig o'r wybodaeth o'r hyn rydym wedi'i ddatblygu dros y blynyddoedd tuag at ei lwyddiant.*

LC *Yng Nghangen Pysgodfeydd, Llywodraeth Cymru. Teimlo y byddai'n ddefnyddiol i Lywodraeth Cymru gael syniad o beth yw'r prosiect a rôl yn y prosiect.*

DW *Gweithiwr llawrydd sy'n gweithio ar feddwl trwy systemau mewn datrysiadau cynaliadwy, diddordebau mewn adfer, dad-ddofi tir a dad-ddofi'r môr. Yn teimlo'n gyffrous i fod yn rhan o'r prosiect hwn a chyfrannu at adfer wystrys yn Abertawe a'r manteision y gallai eu cyflwyno.*

JG *Diddordeb yn ochr gyfannol y prosiect ac agweddau diwylliannol a hanesyddol y diwydiant wystrys. Bu'n ymwneud yn flaenorol â chael cyllid Ewropeaidd ar gyfer cocos a chregyn gleision. Byddai prosiect fel hwn wedi denu cyllid Ewropeaidd.*

GaG Cadeirydd Cymdeithas Gŵyr, ac yn falch o gael gwahoddiad i ymuno â'r GC ac â diddordeb mewn gweld beth rydych yn bwriadu ei wneud ac i ddilyn cynnydd.

JKH yn gweithio yn Blue Marine Foundation ar brosiect adfer wystrys Solent, gan ei gydlynw a'i reoli ers 4 blynedd. Arweinydd Technegol ar y Prosiect Wystrys Gwyllt (gan gynnwys Bae Conwy), edrych ymlaen at weld sut y bydd y prosiect yn datblygu ac yn cael ei gyflwyno.

KC yn gweithio ym Mhrifysgol Southampton ac yn gweithio gydag **AJ** ar brosiect riffiau wystrys yn Solent, a osodwyd fis Medi diwethaf.

AM Ymgynghorydd Arbenigol ar gyfer Rheoli Adnoddau Naturiol Morol yn Gynaliadwy yn CNC sydd, ar y cyfan, yn gweithredu dyletswyddau o dan Ddeddf yr Amgylchedd (Cymru) 2016. Wedi adolygu'r gwaith o adfer ecosystemau yn ddiweddar er mwyn adeiladu eu cadernid. Prif gynrychiolydd CNC ond bydd yn cysylltu ag arbenigwyr technegol yn CNC hefyd.

KN Capten a rheolwr llong ymchwil Prifysgol Abertawe. Wedi treulio'r 10 mlynedd diwethaf yn casglu wystrys brodorol ar gyfer Bwrdd Iechyd y Porthladd i ddosbarthu'r gwelyau wystrys yn Abertawe. Yn meddu ar wybodaeth gyffredinol am leoliad y gwelyau naturiol, felly o ochr ymarferol mae gen i diddordeb yn y prosiect.

RM Cynllunio a pholisi morol yng Nghanolfan Gwyddorau'r Amgylchedd, Pysgodfeydd a Dyframaethu, mae'r prif diddordebau yn y prosiect o'r agwedd honno. Wedi gweithio gyda Llywodraeth Cymru i ddatblygu Cynllun Morol Cymru a chyda DEFRA ar ehangu ffermydd gwynt ar y môr a thargedau. Diddordeb hefyd o ochr adfer amgylcheddol sy'n gysylltiedig â mesurau cydbwysu dan randdirymiadau.

RG Aelod o GGLIPBA ac yn bysgotwr, casglwr cocos ac mae ganddo ardal fach ar gyfer tyfu wystrys yn Llanelli.

Dywedodd **KRS** ei bod yn bwysig bod gan y prosiect ystod eang o arbenigwyr ar y Grŵp Cyngori i sicrhau agwedd holistaidd, gan gwmpasu'r rhan fwyaf o agweddau ar adfer wystrys (e.e. ecolegol, diwylliannol) a deall y buddion ehangach y gall adfer wystrys eu rhoi i'r ardal o ddechrau'r prosiect.

2. Trosolwg o'r Prosiect

(a) Cefndir y Prosiect (sleid 4)

KRS Dechreuwyd y project gan y GGLIPBA. Mae'n cyd-fynd yn dda â deddfwriaeth Cymru o dan Ddeddf Llesiant Cenedlaethau'r Dyfodol (Cymru) 2015 o ran sicrhau bod datblygu tymor hir a chynaliadwy wrth ei wraidd.

Darparodd **KRS** drosolwg o gefndir a chyd-destun y prosiect (sleid 5), gan nodi efallai bod llawer o aelodau wedi cymryd rhan.

(b) Nodau ac Amcanion (sleid 6)

Amlinellodd **KRS** nodau ac amcanion allweddol y prosiect:

- Dod â rhanddeiliaid ac arbenigwyr technegol ynghyd yn y broses o ddatblygu'r cynllun;
- Canolbwyntio ar waith adfer ecolegol ac opsiynau ar y glannau cysylltiedig;
- Nodi camau gweithredu allweddol a phecynnau gwaith ar gyfer sefydlu poblogaeth hunangynhaliol iach a all gynnal pysgodfa;
- Darparu map ffordd/llinell amser ar sut y gellir cyflawni gwaith adfer;
- Nodi opsiynau ariannu;
- Darparu argymhellion ar gyfer y dyfodol.

Nod y prosiect yw adeiladu ar waith blaenorol i ddatblygu cynllun ar sut i symud ymlaen â gwaith adfer wystrys brodorol yn rhanbarth Bae Abertawe. Caiff y cynllun (a fydd yn dilyn y prosiect hwn) ei roi ar waith drwy ymagwedd gydweithredol a phartneriaeth.

Mae Cwmpas y Prosiect (sleid 7) yn cynnwys 3 phwnc eang ar draws 5 cyfnod allweddol:

- Grŵp Cynghori (GC) cynhwysol ac arbenigol;
- Adolygiad llenyddiaeth cynhwysfawr;
- Gweithdy(au) thematig ar gyfer Arfarnu Opsiynau.

Cyfnodau Allweddol

1. Sefydlu'r Grŵp Cynghori (GC);
2. Adolygiad o'r llinell sylfaen: Bioleg *Ostrea edulis*; amgylchedd y safle; adolygiad o astudiaethau achos; dadansoddiad o'r bylchau;
3. Arfarnu Opsiynau: (a)treftadaeth ddiwylliannol ar y glannau (b) opsiynau adfer;
4. Datblygu Cynllun: gan gynnwys nodi opsiynau ariannu;
5. Cwblhau a Hyrwyddo

(c) Tîm y Prosiect a'r Grŵp Cynghori

Rhoddodd **KRS** drosolwg o Dîm y Prosiect a dywedodd fod gan y Grŵp Cynghori rôl hanfodol ar gyfer cyflwyno'r prosiect, gan fwydo i mewn i Dîm y Prosiect. Gofynnir i'r Grŵp Cynghori am gyngor ar wahanol agweddau o'r prosiect ac anogir aelodau i gymryd rhan weithredol.

Tîm y Prosiect (sleid 8)

- Cyfarwyddwr y Prosiect: Jonny Lewis
- Rheolwr y Prosiect: Marja Aberson
- Prif Wyddonydd: Dr Ruth Callaway (Cydwethiwr, Prifysgol Abertawe)
- Prif Wyddonydd: Ian Reach
- Prif Wyddonydd: Damien Kirby
- Uwch-ymgyngorydd: Kat Route-Stephens
- Ymgynghorydd: Khatija Alliji
- Ymgynghorydd: Oscar Ward
- Ymgynghorydd (System Gwybodaeth Ddaearyddol): Beth Owens

(ch) Cyflwyno'r Rhaglen (sleid 9)

Amlinellodd **KRS** raglen y prosiect, gan nodi llinell amser gywasgedig ar gyfer cyflwyno. Mae'r adolygiad llenyddiaeth ar y gweill, a disgwylir iddo gael ei gwblhau erbyn canol mis Mehefin a chaiff ei ddsbarthu i'r Grŵp Cynghori i helpu i nodi bylchau a chyngor ar ddata arall sydd ar gael.

Gan anelu at gwblhau pob cam erbyn diwedd mis Medi/dechrau mis Hydref 2021 er mwyn caniatáu amser i gyfieithu'r cynllun i'r Gymraeg. Mae dyddiad cyflwyno'r prosiect terfynol tua 1 Tachwedd 2021.

Wedi sefydlu'r GC (Cam 1) ac ar hyn o bryd yng Ngham 2, 'Adolygiad o'r Llinell Sylfaen'. Cynhelir y cyfarfod nesaf, GC-C2, yng nghanol mis Mehefin.

Rhagwelir y bydd uchafswm o 8 cyfarfod yn cael eu cynnal drwy gydol y prosiect. Gellir cyfuno cyfarfodydd GC-C7 a GC-C8. Rydym am sicrhau bod diben i gyfarfodydd a'u bod yn fuddiol i bawb; nid ydym am gynnal cyfarfodydd dim ond er mwyn gwneud hynny.

	Wk 01	Wk 02	Wk 03	Wk 04	Wk 05	Wk 06	Wk 07	Wk 08	Wk 09	Wk 10	Wk 11	Wk 12	Wk 13	Wk 14	Wk 15	Wk 16	Wk 17	Wk 18	Wk 19	Wk 20	Wk 21	Wk 22	Wk 23	Wk 24	Wk 25	Wk 26	Wk 27	Wk 28	Wk 29	Diwedd y prosiect
Stage	12 Ebrill	19 Ebrill	26 Ebrill	03 Mai	10 Mai	17 Mai	24 Mai	31 Mai	07 Mehefin	14 Mehefin	21 Mehefin	28 Mehefin	05 Gorffennaf	12 Gorffennaf	19 Gorffennaf	26 Gorffennaf	02 Awst	09 Awst	16 Awst	23 Awst	30 Awst	06 Medi	13 Medi	20 Medi	27 Medi	04 Hyd	11 Hyd	18 Hyd	25 Hyd	01 Tach
1. Sefydlu Grŵp Cyngori																														
2. Adolygiad Llenyddiaeth (WP1)																														
3. Gwerthusiad Opsiynau (WP2)																														
4. Datblygu'r Cynllun (WP3)																														
5. Cwblhau (WP4)																														

Cyfnod cyfieithu os oes angen

DW Beth yw'r cysylltiadau â'r prosiectau adfer wystrys eraill sy'n digwydd ledled y DU ar hyn o bryd?

KRS Does dim cysylltiadau uniongyrchol â phrosiectau eraill ar hyn o bryd, ond dyna lle mae angen arbenigedd y Grŵp Cyngori i sicrhau bod gwybodaeth yn cael ei throsglwyddo.

Nododd **MA** fod gwybodaeth o brosiectau eraill wedi'i chynnwys yn yr adolygiad llenyddiaeth, ond ei bod yn anelu at deilwra'r prosiect i ofynion penodol ardal Bae Abertawe a'r agweddau diwylliannol hefyd.

Gofynnodd **AM** am esboniad o'r hyn a olygir gan yr arfarniad opsiynau ar gyfer Cynllun Gwaith 2, a'r hyn y gall y Grŵp Cyngori ei ddisgwyl o hynny?

MA Rydym am ymestyn y cyfarfodydd hyn yn weithdai bach a rhannu'n 2 grŵp cyffredinol; treftadaeth economaidd-gymdeithasol a diwylliannol (e.e. ar y glannau), a'r opsiynau adfer ecolegol technegol. Drwy adolygiad y llinell sylfaen, rydym yn gobeithio darganfod y gallwn ddechrau dewis opsiynau penodol ar ddiwedd y broses y gellir eu trosglwyddo i'r gweithdai ac yna eu trafod â'r GC i weld beth fydd yn cael ei gynnwys yn y cynllun ei hun. Mae angen bod yn ymwybodol hefyd o ble mae data ar goll yn y llinell sylfaen, felly mae angen bod yn ymwybodol o ba opsiynau arfarnu sydd angen eu cynnwys yn y cynllun ei hun. Diben y gweithdai yw turio i'r hyn sydd angen ei gynnwys yn y cynllun.

AM Ai'r diben yw nodi gwasanaethau ecosystemau? Byddai hyn yn ddymunol o'r gwaith hwn. Deall yr adborth o'r adolygiad llenyddiaeth. Beth fyddai'n ddisgwyliedig gan y Grŵp Cyngori?

MA Annog holl aelodau'r Grŵp Cyngori i fod yn bresennol, ond gall pob grŵp thematig ganolbwyntio ar gynnwys yr aelodau perthnasol ar y pwnc/pynciau.

KRS Bydd yr arfarniad opsiynau yn amlygu buddion ehangach gwasanaethau ecosystemau. Megis ar gyfer opsiynau ecolegol, os yw'n ymarferol mewn ardal ond os oes materion eraill (e.e., ansawdd dŵr) byddwn yn cymryd cyngor gan CNC i arwain yr opsiwn mwyaf addas yn yr ardal fwyaf addas. Bydd agendâu ar gyfer cyfarfodydd a gweithdai arfarnu opsiynau yn cael eu hanfon ymlaen llaw, rydym yn annog holl aelodau'r Grŵp Cyngori i fod yn bresennol, ond mae opsiwn i beidio â bod yn bresennol os nad yw'n berthnasol/o ddi-ddordeb.

Tabl 1. Crynodeb o bob Cam o'r Prosiect a'r GC-C cysylltiedig.

Cam y Prosiect	AG-M	Pwrpas
2. Adolygiad sylfaenol	AG-M2	Adolygiad o lenyddiaeth adolygiad cyn arfarnu opsiynau
3. Gwerthuso opsiynau	AG-M3	gweithdy treftadaeth ddiwylliannol gymdeithasol-economaidd
	AG-M4	Gweithdy adfer
4. Cynllun datblygu	AG-M5	Adolygu'r cynllun drafft
	AG-M6	Cyllid a chyllid
5. Cwblhau cynlluniau	AG-M7	Adrodd a chwblhau'r cynllun
	AG-M8	Cyfathrebu a Hyrwyddo

Dywedodd **KRS** y bydd Cylch Gorchwyl drafft y Grŵp Cyngori yn cael ei anfon ar ôl y cyfarfod i'w adolygu a rhoi sylwadau arno.

3. Adolygiad o'r Llinell Sylfaen (sleid 11) – KRS/KA

Ar hyn o bryd yn adolygu'r llinell sylfaen drwy gynnal adolygiad llenyddiaeth (Cam 2). Mae **KA** yn arwain ar y darn hwn o waith.

Ar hyn o bryd, wedi nodi nifer o fylchau gwybodaeth.

- Mapiau dosbarthiad wystrys brodorol diweddar
- Gwaith adfer wystrys mewn rhanbarthau eraill yng Nghymru (e.e. Prosiect Aberdaugleddau)
- Data diweddar am llifoedd/llif dŵr yn ardal Bae Abertawe

KA Rydym yng nghamau cynnar adolygiad y llinell sylfaen, felly rydym yn chwilio am ddata mwy diweddar yn ardal Bae Abertawe, felly byddem yn gwerthfawrogi unrhyw fewnbwn ar y bylchau data hynny a nodwyd ar hyn o bryd.

KRS Pan fyddwn yn dosbarthu adolygiad y llinell sylfaen, mae'n bosib y byddwn yn cynnwys rhai cwestiynau wedi'u targedu a byddwn yn gwerthfawrogi fewnbwn gan y Grŵp Cyngori.

4. UFA a Dyddiadau ar gyfer GC-C2

KRS Rydym yn bwriadu trefnu'r cyfarfod nesaf (GC-C2) tua diwedd mis Mehefin. Byddwn yn anfon *Doodle Poll* arall i nodi'r dyddiad mwyaf addas. Y nod yw anfon adolygiad drafft o'r llinell sylfaen neu grynodedb cyn y cyfarfod.

Nodyn ar ôl y cyfarfod - Cynhelir y cyfarfod nesaf ar **8 Gorffennaf 2021, 10am - 12pm.**

5. Camau Gweithredu

Tîm y Prosiect

1. **KRS** Cyflwyno cofnodion cyfarfod (GC-C1) a chopi o'r pecyn sleidiau.
2. **KRS** Cyflwyno'r cylch gorchwyl drafft ar gyfer aelodau'r Grŵp Cyngori i'w adolygu.
3. **KRS** Anfon *Doodle Poll* ar gyfer y cyfarfod nesaf (GC-C2)
4. **KRS/KA** Cyflwyno agenda ac adolygiad drafft o'r llinell sylfaen cyn y GC-C2 (neu grynodedb)

AG

1. Pawb - Adolygu'r cylch gorchwyl a dychwelyd sylwadau i Dîm y Prosiect

Prosiect Adfer Wystrys Brodorol Bae Abertawe Rhif Cyfarfod y Grŵp Cynghori 2

MANYLION Y CYFARFOD			
Person / Digwyddiad yr ymwelwyd ag ef	Rhif Cyfarfod y Grŵp Cynghori 2 (AG-M2)	Dyddiad	08.07.2021
Lleoliad	Telegynhadledd (MS Teams)		
Mynychwyr y cyfarfod	<p>Tîm y Prosiect</p> <p>(KA) Khatija Alliji, MarineSpace</p> <p>(KRS) Kat Route-Stephens, MarineSpace (Cadeirydd)</p> <p>(DK) Damien Kirby</p> <p>(RC) Ruth Callaway, Prifysgol Abertawe</p> <p>Aelodau'r Grŵp Cynghori</p> <p>(AW) Andy Woolmer, Salacia Marine</p> <p>(LC) Lisa Connaire (ar ran Michelle Billing), Cangen Pysgodfeydd Morol Llywodraeth Cymru</p> <p>(DW) Dan Ward, Ymgynghorydd Annibynnol ar Gadernid Ecosystemau</p> <p>(JG) Jaci Gruffudd, Sefydliad Brenhinol De Cymru</p> <p>(AM) Amy Martin, Cyfoeth Naturiol Cymru (CNC)</p> <p>(BW) Ben Wray, Cyfoeth Naturiol Cymru (CNC)</p> <p>(OH) Owen Haines, Câr-Y-Môr</p>		
Ymddiheuriadau	<p>(AJ) Antony Jensen, <i>Ocean and Earth Science</i>, Prifysgol Southampton</p> <p>(GaG) Guto ap Gwent, Cymdeithas Gŵyr</p> <p>(FT) Flo Taylor, aelod o Grŵp Gweithredu Lleol Pysgodfeydd Bae Abertawe</p> <p>(JA) Jon Arnold, aelod o Grŵp Gweithredu Lleol Pysgodfeydd Bae Abertawe</p> <p>(JP) Joanne Preston, Prifysgol Portsmouth</p> <p>(JKH) Jacob Kean Hammerson, Blue Marine Foundation</p> <p>(KC) Ken Collins, <i>Ocean and Earth Science</i>, Prifysgol Southampton</p> <p>(KJ) Karen Jones, Cyngor Abertawe</p> <p>(KN) Keith Naylor, Prifysgol Abertawe</p> <p>(RM) Rachel Mulholland, Cefas</p> <p>(RG) Rob Griffiths, aelod o Grŵp Gweithredu Lleol Pysgodfeydd Bae Abertawe (GGLIPBA)</p> <p>(MB) Michelle Billing, Llywodraeth Cymru</p>		

CRYNODEB O'R CYFARFOD

0. Agenda

1. Croeso a Chyflwyniadau
2. Trosolwg o'r Prosiect
3. Adolygiad o'r Trosolwg Gwaelodlin a Thrafodaeth
4. UFA a dyddiadau ar gyfer AG-M3 ac AG-M4 (Arfarniadau Opsiynau)

1. Croeso a Chyflwyniadau

Cyflwyniadau o gwmpas y bwrdd:

Tîm y Prosiect (yn bresennol)

KRS *Yn arwain ochr ymgysylltu â rhanddeiliaid y prosiect a sefydlu'r Grŵp Cyngori (GC).*

KA *Llunio'r adolygiad llenyddiaeth a rhoi'r cynllun ar waith.*

RC *Ecolegydd Morol ym Mhrifysgol Abertawe. Y prif ddiddordeb yn y prosiect yw gwneud llawer o waith ar ffawna ardal ehangach Bae Abertawe.*

Aelodau'r Grŵp Cyngori (yn bresennol)

BW *Ymgynghorydd Arbenigol ar gyfer ecoleg forol yn CNC. Mae'n rhan o brosiect adfer wystrys Aberdaugleddau dan arweiniad ABPmer, sy'n treialu gosod wystrys brodorol mewn sawl ardal i fonitro'r galw. Nododd BW fod nifer o brosiectau adfer wystrys brodorol yn y DU felly bydd ystyried y gwersi a ddysgwyd o'r rhain yn syniad da.*

AM *Ymgynghorydd Arbenigol ar gyfer Rheoli Adnoddau Naturiol Morol yn Gynaliadwy yn CNC sydd, ar y cyfan, yn gweithredu dyletswyddau o dan Ddeddf yr Amgylchedd (Cymru) 2016. Wedi adolygu'r gwaith o adfer ecosystemau yn ddiweddar er mwyn adeiladu eu cadernid. Prif gynrychiolydd CNC ond bydd yn cysylltu ag arbenigwyr technegol yn CNC hefyd.*

DW *Gweithiwr llawrydd sy'n gweithio ar feddwl trwy systemau mewn datrysiadau cynaliadwy, diddordebau mewn adfer, dad-ddofi tir a dad-ddofi'r môr.*

LC *Aelod o'r Adran Pysgodfeydd Morol yn Llywodraeth Cymru ac yn arwain Gorchmynion Pysgodfeydd Unigol.*

JG *Diddordeb yn ochr gyfannol y prosiect ac agweddau diwylliannol a hanesyddol y diwydiant wystrys.*

AW *Mae'n rhan o nifer o brosiectau adfer wystrys brodorol yn y DU, gan gynnwys ym Mae Abertawe ac yn ardal Aberdaugleddau. Llawer o brofiad yn rhanbarth Bae Abertawe ac wedi gweithio'n agos gyda GGLIPBA. Mae hefyd yn cynnal pysgodfa wystrys masnachol.*

2. Trosolwg o'r Prosiect (sleid 4)

Darparodd **KRS** drosolwg o gefndir a chyd-destun y prosiect (sleid 5), gan nodi efallai bod llawer o aelodau wedi cymryd rhan. **Nodau ac Amcanion y Prosiect**

- Dod â rhanddeiliaid ac arbenigwyr technegol ynghyd yn y broses o ddatblygu'r cynllun;
- Canolbwyntio ar waith adfer ecolegol ac opsiynau ar y glannau cysylltiedig;

- Nodi camau gweithredu allweddol a phecynnau gwaith ar gyfer sefydlu poblogaeth hunangynhaliol iach a all gynnal pysgodfa;
- Darparu map ffordd/llinell amser ar sut y gellir cyflawni gwaith adfer;
- Nodi opsiynau ariannu;
- Darparu argymhellion ar gyfer y dyfodol.

Mae Cwmpas y Prosiect yn cynnwys 3 phwnc eang ar draws 5 cyfnod allweddol:

- Grŵp Cynghori (GC) cynhwysol ac arbenigol;
- Adolygiad llenyddiaeth cynhwysfawr;
- Gweithdy(/gweithdai) thematig ar gyfer Arfarnu Opsiynau.

Cyfnodau Allweddol

1. Sefydlu'r Grŵp Cynghori (GC);
2. Adolygiad o'r gwaelodlin: Bioleg *Ostrea edulis*; amgylchedd y safle; adolygiad o astudiaethau achos; dadansoddiad o'r bylchau etc.;
3. Arfarnu Opsiynau: (a) treftadaeth ddiwylliannol ar y glannau (b) opsiynau adfer;
4. Datblygu Cynllun: gan gynnwys nodi opsiynau ariannu;
5. Cwblhau a Hyrwyddo

3. Adolygiad o'r Gwaelodlin (sleid 5 ymlaen)

Cyhoeddwyd copi o'r adolygiad llenyddiaeth gwaelodlin drafft i'r GC cyn y cyfarfod. Cyflwynodd KA ganfyddiad allweddol yr adolygiad gyda chyfleoedd i drafod drwyddi draw.

Pwrpas yr adolygiad gwaelodlin:

- Fe'i defnyddir i nodi opsiynau posib a drafftio'r Cynllun;
- Bydd yn ddogfen weithredol a bydd yn cael ei diweddarau gyda gwybodaeth newydd wrth i'r prosiect fynd yn ei flaen;
- Adnabod unrhyw fylchau mewn gwybodaeth;
- Darparu gwybodaeth am ardal Bae Abertawe

Hanesyddol, disgrifiad a dosbarthiad - Trafodaeth

Cododd AW mai gorbysgota yn aml yw'r prif reswm dros ddirywiad yn y boblogaeth, ond mae angen iddo hefyd ystyried diffyg yr adferiad o Bonamia a diwydiant trwm yn rhanbarth Bae Abertawe dros y 50 mlynedd diwethaf. Mae angen cael safbwynt cytbwys. Dywedodd KA fod y pwysau a grybwyllir yn y cyflwyniad yn canolbwyntio ar ddirywiad wystrys brodorol Bae Abertawe gan fod poblogaeth Bae Abertawe yn rhydd o Bonamia.

Amlygodd DW ostyngiad enfawr yn y boblogaeth ~99% a achoswyd oherwydd colli amrywioldeb genetig. Mae pysgodfeydd ac amaethyddiaeth wedi cyfrannu at y pwysau ar boblogaethau wystrys. Mae angen i raddfa'r gwaith adfer gyd-fynd â maint y golled.

Cytunodd BW bod sawl rheswm dros y gostyngiad. Mae angen amodau da ar boblogaethau sefydledig oherwydd cylch bywyd bregus wystrys, gan eu bod yn cymryd 2-3 blynedd i gyrraedd aeddfedrwydd rhywiol.

Cylch bywyd - trafodaeth

Nododd AW fod maint yn gyfrannwr mawr at aeddfedrwydd yn hytrach nag oedran yn unig. Mae ymchwil yn cael ei wneud ym Mhrifysgol Abertawe, ond nid oes unrhyw ganlyniadau cyhoeddus hyd yn hyn. Mae addasrwydd safleoedd yn ymwneud yn uniongyrchol â hyn. Soniodd AW fod amodau amgylcheddol yn bwysig i gynyddu niferoedd wystrys brodorol. Soniodd AW am gynhyrchiant yr ardal, sy'n gysylltiedig â thwf yr wystrys brodorol.

Mae angen i BW ddeall amodau hydrodynamig a lle mae wystrys eisoes yn bodoli o fewn Bae Abertawe a sut i adeiladu cynefinoedd wystrys. Soniwyd am arddu'r tir i annog wystrys brodorol i gynefino. Os bydd angen annog pysgodfeydd yna bydd angen penderfynu ar amcanion y cynllun a'r hyn y mae'n ceisio ei gyflawni.

Soniodd KA fod hyn yn rhywbeth y dylid ei ystyried ac mae ailgylchu cregyn yn rhan o brosiectau adfer eraill ac y dylid ystyried hyn.

Nododd KRS y gallai prosiect fod â senarios gwahanol ar gyfer gwahanol lefelau adfer. Mae angen bod yn ymwybodol o gyllidebau i fwrw ymlaen â phrosiectau, ond cytunwyd y dylai'r uchelgeisiau adfer anelu'n uchel. Soniwyd ei bod yn bwysig edrych ar wahanol sefyllfaoedd a'u trafod.

Nododd RC fod wystrys y Môr Tawel bellach yn niferus yn y DU, ac mae eisiau deall beth yw'r gwahaniaeth rhwng y wystrys hyn a'r rhai brodorol. Mae wystrys brodorol ym Mae Abertawe, ond pam nad yw'r niferoedd yn cynyddu? Fel y gwelir gyda wystrys y Môr Tawel, lle mae ambell un unigol wedi llwyddo i gytrefu ardaloedd mawr, pam nad yw hyn yn digwydd gyda'r wystrys brodorol? Cytunodd AW gyda RC a nododd, os yw'r pwysau'n dal i fod yma, a ddylai'r ffocws fod ar adfer neu ar leihau pwysau? Efallai nad dyma'r defnydd gorau o adnoddau.

Awgrymodd KA y gallai'r cyfuniad o bwysau y mae rhywogaeth brodorol yn agored iddynt olygu bod angen ychydig o help ar wystrys brodorol a dyna'r rheswm pam mae prosiectau adfer yn bwysig.

Cytunodd AW gyda phwynt RC ac awgrymodd y dylid edrych ar y pwysau a nodi a yw'r pwysau'n dal i fod yn bresennol a sut y bydd hyn yn effeithio ar brosiectau adfer.

Soniodd BW y gallai poblogaethau ei chael hi'n anodd adfer oherwydd hyd cyfnod larfaol byrrach wystrys brodorol o'i gymharu â wystrys y Môr Tawel. Awgrymodd BW fod angen i boblogaethau fod yn agos at ei gilydd ar gyfer tyfu poblogaethau'n llwyddiannus ond gall hyn annog lledaeniad clefydau.

Soniodd DW fod angen edrych ar y risg o ledaenu clefydau ac mae'n rhaid i brosiectau gymryd yn ganiataol bod Bonamia yn debygol o gyrraedd poblogaethau Bae Abertawe. Awgrymodd DW y gallant oroesi'r pwysau y maent yn eu hwynebu ar hyn o bryd ac y dylent weithio ar y rhagdybiaeth y gallant oroesi'r pwysau presennol. Mae'r amodau amgylcheddol yn debygol o newid o ganlyniad i'r wystrys brodorol wrth iddynt newid yr amodau lleol. Mynegodd DW y gallai ymchwil i ba gam o'r cylch bywyd wystrys a allai fod yn addas ar gyfer eu cyflwyno ym Mae Abertawe a ble i'w rhyddhau. Yna mae angen monitro i weld beth sy'n digwydd.

Roedd y poblogaethau hanesyddol mor fawr a byddai'r amodau amgylcheddol a grëwyd ganddynt eisoes yn annog wystrys larfaol i gynefino.

Gofynnodd DK a oes absenoldeb afiechyd mewn poblogaethau oherwydd bod rhywfaint o wrthwynebiad yn hytrach na'r ffaith nad yw byth wedi cael ei ddatgelu.

Nododd AW fod Tim Bean yn gwneud ymchwil yn yr Alban, a fydd yn allweddol i ailgyflwyno pysgodfeydd wystrys masnachol oherwydd bod angen stoc o hadau ymwrthiol ar gyfer pysgotwyr.

Camau Gweithredu: Tîm y prosiect i gynnwys rhagor o opsiynau ymchwil o fewn y Cynllun

Ffactorau amgylcheddol a phwysau – trafodaeth

Cydnabu pob aelod o'r AG bod pwysau lluosog wedi bod ar wystrys brodorol dros amser.

Nododd BW bwysau rhywogaethau anfrodorol ymledol (RhAY). Mae wystrys y Môr Tawel yn tueddu i gynefino ym manau rhynglanwol ac mae wystrys Ewropeaidd yn cynefino mewn manau islanwol, felly gall fod ardal o orgyffwrdd, ond gellir cael y ddwy rywogaeth mewn un cynefin wystrys. Nodwyd enghreifftiau yn Sweden lle mae wystrys brodorol a wystrys y Môr Tawel yn siapio riffiau. Yn Aberdaugleddau, *Crepidula fornicate* (ewin mochyn) yw'r prif RhAY, ac mae'r hyn sy'n digwydd gyda'r wystrys yn cael ei fonitro. Nid yw o reidrwydd yn fater ecolegol, ond gall fod yn fater masnachol wrth i'r angen i garthu mwy o ddeunydd ar gyfer yr un nifer o wystrys (gan fod yr ewin mochyn yn ychwanegu mwy at y pwysau). Rhestrir *Crepidula fornicate* ar Atodlen 9 Deddf Bywyd Gwyllt a Chefn Gwlad 1981, sy'n ei gwneud yn drosedd eu dosbarthu (gan gynnwys eu disodli yn yr un lleoliad); ceir opsiynau i'w rheoli trwy drwyddedu.

Nododd AW y gwelwyd wystrys yn cynefino ar *Crepidula fornicate*.

Soniodd BW o safbwynt pysgodfeydd fod *Crepidula fornicate* yn fater enfawr wrth i bysgodfeydd wystrys brodorol ddod yn aneconomaidd oherwydd y cafwyd gwared ar wystrys brodorol.

Nododd RC adferiad bach ym Mae Abertawe yn y 1920-30au oherwydd bod mesurau'n cael eu rhoi ar waith e.e. cyfyngiadau dal, yna gostyngodd y niferoedd eto. Mae angen ceisio darganfod mwy am pam fod hyn wedi digwydd. Dywedodd AW fod wystrys yn y 1930au yn llawer llai ym Mae Abertawe ac roeddent fel arfer yn cael eu defnyddio ar gyfer ail-osod mewn manau eraill yn y DU, er mwyn helpu gydag amrywiaeth genetig. Soniodd AW fod y ddalfa'n cael ei fesur mewn tunelli ac yn debygol o gynnwys wystrys brodorol llawer llai, na fyddant yn helpu gydag adferiad y boblogaeth.

Dywedodd DW fod llawer o ffynonellau tystiolaeth sy'n dangos bod ecosystemau iach yn fwy gwydn. Crybwyllodd BW y sefyllfa yn Aberdaugleddau a'r gwahaniaeth rhwng ewinedd moch a phoblogaethau hanesyddol a fyddai'n cynnwys cregyn gleision a wystrys brodorol. Ehangodd KRS y gallai ecosystem iach arwain at wytnwch ehangach o ran pob agwedd ar ddatblygu cynaliadwy, fel cymunedau ffyniannus ac economïau lleol.

Amodau amgylcheddol – trafodaeth

Gofynnodd DW sut mae'r afloywder yn aber yr afonydd. Trafodaeth ar yr afloywder a achoswyd gan ddwy afon: afon Tawe ac afon Nedd, sy'n llifo i Fae Abertawe. Awgrymodd BW y gallai wystrys brodorol drin afloywder amrywiol. Nododd BW y gall wystrys wella ansawdd dŵr, lleihau afloywder a gweithredu fel suddfan carbon.

Awgrymodd RC fod angen ystyried carthu o fewn y rhanbarth gan y gall carthu a gweithgarwch gwaredu gyfrannu at afloywder.

Dylai'r prosiect ystyried gweithgareddau eraill nawr ac yn y dyfodol, megis morlynnoedd llanw a charthu a gwaredu o'r porthladdoedd. Nododd KRS fod angen i'r Prosiect ystyried y cyfnod hwn ac er y gall fod yn ymwybodol o forlynnoedd llanw posib yn y dyfodol, nid oes cynlluniau byw cyfredol a bydd yn bwrw ymlaen ar y sail honno. Ychwanegodd KA y cyflwynwyd cais i CNC am y dadansoddiad y sampl a garthwyd o'r porthladd a fydd yn cael ei ychwanegu at y gofrestr gyhoeddus. Nododd BW fod Chloe Jennings, myfyriwr ym Mhrifysgol Abertawe wedi gwneud astudiaeth ddiweddar ar Safle Gwaredu Allanol Bae Abertawe.

Pwyntiau trafod gwaelodlin eraill

Dywedodd AW fod angen edrych ar y rhwystrau i wneud gwaith adfer e.e. cyflenwad hadau, rheoliadau a chyllid. Mae angen rheoli disgwyliadau o'r hyn y gellir ei gyflawni o ran uchelgais y prosiect. Nododd LC y gall Llywodraeth Cymru edrych i mewn i'r rheoliadau.

Camau Gweithredu: LC i ymchwilio i gyfleoedd a heriau rheoliadau pysgodfeydd ar gyfer adfer wystrys a rhoi adborth i Dîm y Prosiect.

Nododd DW y byddai'n ddefnyddiol edrych ar hyfywedd gwneud y mwyaf o amrywiaeth genedig er mwyn sicrhau stoc gadarn.

5. UFA a Dyddiadau ar gyfer AG-M3 ac AG-M4

Mae AM wedi gwneud darn o waith yn CNC, gan edrych ar ardaloedd posib i'w hadfer yng Nghymru. Bydd yn gallu rhannu'r adroddiad yn fuan.

Camau Gweithredu: AM i rannu Adroddiad Adfer CNC gyda Thîm y Prosiect pan fydd ar gael.

Nododd DW fod Cymru ar ei hôl hi o'i chymharu â gweddill y DU o ran cynllunio prosiectau adfer ar raddfa fawr. Gallai argyfwng biolegol a thargedau newydd a osodwyd gan Lywodraeth Cymru ddarparu cyfle i'r Prosiect.

Ychwanegodd BW fod angen ystyried pa ffrydiau cyllido ar gyfer adfer sydd ar gael, am fod angen ystyried amserlen o 10-15 mlynedd ar gyfer prosiect llwyddiannus. Atebodd KRS fod edrych ar gynlluniau cyllido yn y dyfodol o fewn cwrmpas y Prosiect. Nododd LC a BW y byddai'n ddefnyddiol cael rhywun o adran bioamrywiaeth forol Llywodraeth Cymru

Dyddiadau'r cyfarfodydd nesaf:

AG-M3 Arfarniad Opsiynau Ecolegol – 28 Gorffennaf 11:00 – 13:30

AG-M4 Gwerthuso Dewisiadau Economaidd-Gymdeithasol a Diwylliannol – 29 Gorffennaf 14:00 – 16:00

Mae KRS yn diolch i AG am ymuno â'r cyfarfod ac roedd y drafodaeth wedi rhoi llawer i Dîm y Prosiect i'w ystyried yn natblygiad y Cynllun Prosiect.

Cyfarfod yn cau.

Nodyn - Ymunodd OH wrth i'r cyfarfod gau.

Rhoddodd KA drosolwg byr o'r hyn a drafodwyd yn y cyfarfod i OH.

Darparodd OH rywfaint o wybodaeth am brosiect adfer wystrys Swnt Dewi. Mae'r prosiect wedi bod yn rhedeg am flwyddyn ac mae 60,000 o wystrys brodorol ifanc wedi'u gosod. Awgrymodd OH fod potensial i wystrys y Môr Tawel gael eu gosod hefyd. Awgrymodd OH bapur gan dyfwyr yr Alban lle maent yn cymharu wystrys brodorol a wystrys y Môr Tawel. Awgrymodd OH y dylid siarad ag ymgeisydd PhD yn

Aberystwyth sy'n edrych ar amrywiaeth genetig. Gwnaed gwaith dilynol gan OH yn dilyn y drafodaeth trwy anfon e-bost.

5. Camau Gweithredu

1. **LC i ymchwilio i gyfleoedd a heriau rheoliadau pysgodfeydd ar gyfer adfer wystrys ac adborth i Dîm y Prosiect.**
2. **AM i rannu Adroddiad Adfer CNC gyda Thîm y Prosiect pan fydd ar gael.**

Prosiect Adfer Wystrys Brodorol Bae Abertawe Rhif Cyfarfod y Grŵp Cynghori 3

MEETING DETAILS			
Person / Event Visited	Advisory Group Meeting No. 3 (AG-M3)	Date	28.07.2021
Location	Telecon (MS Teams)		
Meeting Attendees	<p>Project Team (KA) Khatija Alliji, MarineSpace (Chair) (RC) Ruth Callaway, Swansea University</p> <p>AG Members (LC) Lisa Connaire, Welsh Government Marine & Fisheries Branch (DW) Dan Ward, Independent Ecosystem Resilience Consultant (BW) Ben Wray, Natural Resources Wales (NRW) (JKH) Jacob Kean Hammerson, Blue Marine Foundation (RM) Rachel Mulholland, Cefas (ZM) Zoe Morrall, Portsmouth University (SK) Sara Keeton, Mumbles CCC (JW) Jasmine Weedon, Mumbles CCC (AM) Amy Martin, Natural Resources Wales (NRW)</p>		

Apologies	<p>(AJ) Antony Jensen, Ocean and Earth Science, University of Southampton</p> <p>(GaG) Guto ap Gwent, The Gower Society</p> <p>(FT) Flo Taylor, SBFLAG member</p> <p>(JA) Jon Arnold, SBFAG member</p> <p>(JP) Joanne Preston, Portsmouth University</p> <p>(KC) Ken Collins, Ocean and Earth Science, University of Southampton</p> <p>(KJ) Karen Jones, Swansea Council</p> <p>(KN) Keith Naylor, Swansea University</p> <p>(RG) Rob Griffiths, Swansea Bay Fisheries Local Action Group (SBFLAG) member</p> <p>(MB) Michelle Billing, Welsh Government</p> <p>(OH) Owen Haines, Câr-Y-Môr</p> <p>(JG) Jaci Gruffudd, The Royal Institution of South Wales (RISW)</p>
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SUMMARY OF MEETING

0. Agenda

1. Introductions
2. Project Overview
3. Options Appraisal Overview & Discussion 4. AOB & Dates

1. Welcome & Introductions

Round table introductions:

The Project Team (in attendance)

KA *Compilation of the literature review and development of the Plan.*

RC *Marine Ecologist at Swansea University. Main interest in Project is having done a lot of work on the fauna of the wider Swansea Bay area and the cultural heritage and community connection.*

AG Members (in attendance)

LC *In Marine Fisheries at Welsh Government particularly aquaculture.*

ZM *Project Coordinator on RanTrans project and working on Solent Oyster restoration project.*

BW *Specialist Advisor for marine ecology at NRW. Ecological knowledge of Swansea Bay area. Involved in the Milford Haven oyster restoration project being led by ABPmer, trialling laying of native oysters in several areas to monitoring uptake. BW noted that there are multiple native oyster restoration projects in the UK so will be good to take lessons learnt from these.*

DW *Freelancer working on systems thinking in sustainable solutions, interests in restoration, rewilding, and sea wilding.*

RM *Marine policy advisor at Cefas in areas of marine plan and policy development and areas of environmental investment or enhancement and compensatory measures for MPAs.*

JKH *Solent restoration project and wild oyster restoration project with 4 years of experience working on restoration projects.*

2. Project Scope (slide 4)

KA provided an overview of the background and context of the project (slide 4), noting that many members may have been involved.

Project Scope has 3 broad topics across 5 key stages:

- An inclusive and expert Advisory Group (AG);
- A comprehensive literature review;
- Thematic workshop(s) for Options Appraisal.

Key Stages

1. Establishment of the Advisory Group (AG);
2. Review of the baseline: *Ostrea edulis* biology; site environment; case studies review; gap analysis etc;
3. Options Appraisal: (a)shoreside cultural heritage (b) restoration options;
4. Plan Development: incl. identification of funding options;

5. Finalisation & Promotion.1

Contents

- Methods ;
- Artificial structures;
- Increasing genetic diversity;
- Reducing the risk of disease;
- Enhancing ecosystems services; • Socio-economic and cultural aspects;
- Funding opportunities.

3. Methods (slide 5 onwards)

KA provided overview of the different methods.

BW provided example of the work in Milford Haven. They laid juvenile oysters around 2550 mm oysters. Native oysters are fragile and handling increases mortality. Also laid large market size native oysters, which they found was more robust. However, larger oysters increase the cost of project.

JKH Solent restoration project looked at the native oyster population already present and there were large numbers present but fishing pressures and other pressures that led to the densities being low, which resulted in low larval release. Focused on maintaining a broodstock by aggregating oysters. Placed them close together to improve breeding and found 20% spawning from broodstock cages but need suitable settlement substrate. Also need some spat that provide settlement cues and potential looking at source and sink for project. In Solent there was a large amount of broodstock oysters in the Solent so genetic diversity needs to be considered. Broodstock cages were 6 x 6 inch changes at a 1 m deep could hold 60-120 oysters and density versus spawning might not need to be that high and they were held under pontoons so boat access was not needed and easy accessible. Can use gabions on the sea floor but accessibility may be more limited.

BW In the Solent there is a relic population and bought together to increase reproductive potential. Specific survey for oysters in 2020 by Ethna Cook in Swansea Bay and AW did drop down video survey. Swansea Tidal Lagoon also did some surveys. Density of native oysters in Swansea Bay is relatively low. AW introduced 40,000 oysters into Swansea Bay, which may have helped to increase larvae in the area. Introduced native oysters got washed away so a baseline of native oysters within the Bay would be a good start. But a mix of methods, broodstock enhancement on seabed, or in cages and substrate enhancement, as well at certain times of the year would be a good idea.

DW Combination of broodstock cages with a mix of high density large native oysters and spat. What are the challenges of growing spat to a larger size and does infrastructure exist for this and how could we expand the infrastructure.

JKH Since the 1950s the oyster growing industry as focused on Pacific oysters as easier to grow. Native oyster aquaculture is behind for native oysters and there is less pressure on the growers. For aquaculture rearing oysters will release larvae into the water column benefiting wild populations.

BW In terms of growth the seed oysters settle on the shell fragments and the shell goes into cages. Maintaining cages by removing antifouling. The genetic diversity is limited using this method. Milford Haven Bonamia is present so broodstock was not possible. Agrees with

aquaculture and improving cultural heritage as larvae would go into the marine environment. **BW** said that he is not sure what the aim of the project was if it will be a sustainable fishery.

KA said that this is something that would need to be considered after the options appraisal as the feedback and expertise will help to make informed decisions to support the plan.

RC Confirmed the baseline of native oysters. The numbers of native oysters are extremely low and aggregating the oysters (broodstock) would be a good idea and the current population may not be enough. **RC** did a study where they took 30 oysters to see if they were producing larvae. Swansea Bay is an open bay and bed load movement is very high and water exchange is high also. The exposure is a challenge for Swansea Bay.

SC Oysters were placed in Mumbles and they ended up in Port Hamble. Likes the idea of putting oysters in the bay again and would say no to dredging. Prefer an environmental option.

BW asked about the modelling that has been done in Swansea Bay to identify source sink location and where to put broodstock. Genetic diversity would be useful.

RC Engineers from Swansea University modelled the tidal currents and wave exposure. Swansea Council commissioned hydrodynamic modelling of the western bay for restoration work of the Mumbles sea wall. Bangor University modelled the distribution of *Sabellaria* larvae to understand source and sink. If we can use these studies to look at native oysters.

BW commissioned Peter Robins to model Milford Haven for native oyster and they potentially included Swansea Bay.

JKH in previous projects they have used modelling as a decision tool, where to put broodstock. Looked at potential release sites and whether they end up where the existing populations are. So back model the larval distribution.

DW asked if the historical topography still exists and how much this has changed.

RC there is a lot of dredging that occurs to keep the shipping lanes clear and the tidal harbour at Port Talbot open. There is a vigorous hydrographic regime in Swansea Bay. Has some soft substrate but there is also a lot of hard substrate. Other species that need settlement, substrate are present in most area, for example *Sabellaria*. Is settlement substratum stopping oysters? As lots of other species are able to settle.

BW the presence of *Sabellaria* and was were oysters or oyster fisheries present in Swansea Bay first. Would native oysters naturally settle in the bay given the environmental conditions. Milford Haven was chosen due to the restriction on some fishing methods. So Swansea Bay needs to consider protection maybe a severance order.

Artificial Structures

BW depends on the purpose of the project, some can be used as educational tools, but they may not provide the needed high amount of larval input.

KA mentioned that at this stage a discussion around the different options was needed and what would work best in Swansea Bay. One of the reasons for considering artificial structures is to encourage larval settlement.

RM consenting and policy around the use of existing structures and if discussions with owners have been had and the health and safety risks around using the structures.

KA at this initial stage it has not been decided as the plan and options are still being decided.

RC Can consider the pier structure that has been used a lot for previous experiments and the owners are happy for pier to be considered and to discuss a little later.

BW cultural heritage side is could maybe be the main focus and could be the driver for the system that works best. In the absence of modelling look at areas where growth is best and maybe use modelling to help place them. Can have fishery structures and other areas for educational tool.

KA high level plan is needed at this stage and what is feasible and the different options that we can use to restore the population. The main focus would be to try and restore to a viable population.

DW the restoration projects should be nature led and put oysters in and let them naturally increase.

BW consent and marine licencing needed to put anything on the seabed. Shellfisheries management and shellfish is exempt from the marine licence process but it depends on how it is done. For Milford Haven's native oysters, for the placement of the cages no marine licence was needed, but for cultch a marine licence was needed as well as a port works licence and permission from the Crown Estate.

RM if deciding to use an existing structure, then they may need an amendment to their existing licence.

SK how can MCC help and get involved.

BW how many oysters were needed, and did they look at settlement in different locations and were the numbers enough to monitor if settlement occurred?

JKH within broodstock cages 20,000 have been put in, but staggered. Over a billion larvae in terms of production have been produced. Larval sampling was discussed but difficult due to the busy water way. Discussed with IFCA and surveying will take place this year. David Smith from the shellfish centre said may need 100,000 broodstock numbers to get viable populations. Focused on using broodstock, only found in the Solent to increase genetic diversity.

BW need to consider the placement of broodstock cages, as dredging and tampering can occur in Swansea Bay.

JKH best place to put them may not be practical from a navigational stand point.

DW looking at the project to potentially supply other areas of Wales.

BW asked RC about the oysters that they collected from Swansea Bay.

RC they were put back in Swansea Bay but said that it would be easy to get that number from the bay.

BW potentially collect oysters from Swansea Bay and supply these to a hatchery to maintain Bonamia free population. Potentially more hatcheries will start to increase and spatting ponds. Whether one is needed for this project or whether we can use existing hatcheries.

KA in previous projects, how did people address genetic diversity? and did they use a combination of different options such as sourcing from hatcheries and existing populations? and how can we manage the risk of disease?

JKH the Solent project took the populations from the Solent, and last time oysters were introduced to the Solent was in the 50's/60's. Have taken small number oysters from different suppliers and they lay them to test. They wanted stocks that had been exposed to Bonamia previously to reduce large die off. Do not want to create a bottleneck.

ZM trial in the Solent ran with 5,000 oysters and these were taken from one source due to biosecurity risk.

DW oysters around the UK have probably lost 99% of population and if it is possible to have stock that is *Bonamia* resistant.

BW introducing *Bonamia* stock into Swansea Bay would not be possible due to biosecurity risk. Something considered in Milford Haven as only one supplier in Ireland that could supply *Bonamia* resistant stock. Also a risk of bringing oysters from Ireland to Wales.

RC how often is the native oyster population tested for *Bonamia* and how current is the status updates in Swansea Bay?

JKH fish health inspectorate checks the designated areas for fisheries and there is a difference between confirmed as positive or not tested. But it is illegal to introduce native oysters that have tested positive to an area that has been designated as *Bonamia* free. From the report the landings went down in the 1920s and *Bonamia* outbreak was after that and there may have not been a large enough population for the parasite to spread. Potentially do PCR tests.

BW not sure when it was last tested and maybe consider Cefas testing the population.

Reducing the Risk of Disease

JKH project with Roslyn institute and Cefas to identify genetic markers for resistance to *Bonamia* some research will hopefully be published soon. From the current native oyster projects you need to work with assumption that it is not going away and need to be careful in *Bonamia* free area.

BW project would need to follow best practices to reduce biosecurity risk.

JKH most projects have focused on survival of oysters first as we cannot guarantee this and need to be certain before thinking of the ecosystem benefits.

DW can do qualitative assessment based on the known ecosystem services, but this will be based on the size of the restoration project and the numbers restored.

BW need to consider the public perception and ensure that the plan remains realistic to ensure that we do not over sell the project.

KA when restoring the environment, some of the ecosystem benefits will also improve the project outcomes. E.g. increasing habitat complexity and substrate availability which will encourage larvae settlement. There are not many studies that have quantified the ecosystem services and as projects are at their early stages a qualitative approach rather than quantitative approach is needed.

BW to be mindful to be accurate and some tools to demonstrate the potential benefits of oyster restoration. Student had placed oysters in water and looked at the changes in the water clarity. But remain realistic about the goals of specific projects.

BW if oyster numbers return will the project encourage a dredge fishery and at the moment in this meeting there are not any fishermen on the group.

KA there will be future options appraisal meetings that include fishers to discuss these options.

BW that's a good approach and its good to keep people informed. **RC** mentioned the coastal defence projects in the Swansea Bay area. Swansea disposal sites and how these may impact the restoration attempts.

LC is there going to be some discussion about the fishery and if a severance order will be needed.

KA the hope is to have a sustainable fishery at some point but managing expectations is important and whether a sustainable population can exist and be fished sustainably.

LC agree that it might be too early to decide about the fishery.

KA we need to think about the best approach to increase the numbers of oysters and if it is possible to have zones potentially for fisheries.

RC agrees that the two approaches for fisheries and restoration efforts are different and if removal of oysters was an issue for restoration projects.

BW they did consider the removal of oysters and David Snide restored oysters in Strangford Loch but oysters were removed by people. Definition of terminology is important.

JKH to avoid extraction they have spoken to IFCA who have done a good job working to reduce poaching. Oysters on the seabed are protected by policy and therefore removal would be illegal. Consideration of where they place the projects based on if there are lots of people e.g. enclosed harbour or marina compared to open ocean. From an NGO perspective they need to communicate the benefits to the local community and fishers. IFCA's were strong with enforcement and fines and legislation as well as private fisheries. Essex have a good oyster populations and have been increasing as fishers are economically invested.

ZM mariners notice for her project and were expecting removal. The cages with native oysters are still present and have not been removed and the community are invested in the future benefits but there are fines in place, so that could be a preventive tool.

LC suggested whether a severance order could be considered which will help prohibit the removal of oysters. They do take a few years to be accepted and could be a consideration.

Enhancing Ecosystem Services

BW look at where the existing populations exist and use these locations as starting point for restoration. Deciding on the areas needs to align with the objectives.

JKH need to decide where the populations will naturally grow, and the ecosystem services will be secondary. They haven't considered the benefits before whether they will actually grow and survive in the location.

ZM RanTran project is more for nutrient remediation and looked at historical data from the area as to where they should be. They identified the outfall location and that was where they placed the cages, and they knew they existed there historically so knew that they would survive there but wasn't the main driving factor for placement.

BW the severance order would require some extraction and only lasts seven years. A byelaw or a statutory instrument for protection may be better.

Socio-economic and Cultural Aspects

AM suggested talking to Project Seagrass and their work in Dale.

JKH engaging on as many levels as possible and potentially having volunteering opportunities and ensuring they have a good understanding of what is expected. Local talks at events will help to build the engagement and support for the project.

JW social media is a really valuable tool alongside email lists and word of mouth. Twitter and Facebook are great social media tools. For public perceptions you can use surveys as people like the active nature of surveys. One of the market stalls in the Mumbles, which can be used as a public consultation tool to directly speak with the public.

Action: LC going to confirm with her team about severance order.

Funding Opportunities

BW National Heritage Lottery is a good one as restoration projects would fit the community focused project and job creation. Natural heritage side of things and the other ecosystem services. European Marine Fisheries Funding for the native oyster fisheries as well as the biodiversity aspect.

AM the Peoples Postcode Lottery. European Commissions Horizon 2020 funding call different funding streams one of which is food bioeconomy natural resources and environment. May require an EU partner and there is collaboration opportunities.

BW Natures Network fund, which is capital funding administered by national heritage. Local businesses and maybe the coastal protection aspect. Bill Sanderson working with whisky distillery to offset environmental impacts.

RM linking to offshore wind and potential of restoration as a compensatory method. Crown Estate OEC programme, Defra OEAPP and NERC programme. Demonstration project for the viability for compensatory measures.

5. Actions

- 1. LC to investigate fisheries regulations**
- 2. AM to send the literature review with comments back to KA**

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MEETING DETAILS			
Person / Event Visited	Advisory Group Meeting No. 4 (AG-M4)	Date	16.08.2021
Location	Telecon (MS Teams)		
Meeting Attendees	<p>Project Team</p> <p>(MA) Marja Aberson, MarineSpace (Chair)</p> <p>(RC) Ruth Callaway, Swansea University</p> <p>AG Members</p> <p>(RB) Robin Bonham, Mumbles Development Trust</p> <p>(JG) Jaci Gruffudd, The Royal Institution of South Wales (RISW)</p> <p>(AJ) Antony Jenson, Southampton University</p> <p>(AM) Amy Martin, Natural Resources Wales (NRW)</p> <p>(SM) Steph Mastoris, Museum Wales</p> <p>(RM) Rachel Mulholland, Cefas</p> <p>(NT) Naomi Trodden, Mumbles Development Trust</p> <p>(DW) Dan Ward, Independent Ecosystem Resilience Consultant</p> <p>(JW) Jasmine Weedon, Mumbles CCC</p>		
Apologies	<p>(SB) Stuart Batcup</p> <p>(MB) Michelle Billing, Welsh Government</p> <p>(SC) Suzanne Chamberlain, St David's Catholic Primary School</p> <p>(ED) Ellen Draper, Oystermouth Primary School</p> <p>(LC) Lisa Connaire, Welsh Government Marine & Fisheries Branch</p> <p>(ED) Ellie Dawkins (Glynn Vivian Gallery)</p> <p>(KJ) Kate Jones, Oystermouth Historical Association</p> <p>(SK) Sara Keeton, Mumbles CCC</p> <p>(ZM) Zoe Morrall, Portsmouth University</p> <p>(KN) Keith Naylor, Swansea University</p> <p>(CTJ) Carrie Townsend Jones, Mumbles CCC (JB) John Bollom, Mumbles Pier</p> <p>(PG) Phillip Gavey, Mumbles Motor Boat & Fishing Club</p> <p>(BH) Barry Hughes, Museum Manager Swansea Museum</p>		

SUMMARY OF MEETING

0. Agenda

1. Welcome and Introductions
2. Project Overview
3. Cultural Heritage Options Appraisal
4. AOB & Dates

1. Welcome & Introductions

Round table introductions:

The Project Team (in attendance)

MA MarineSpace Senior Consultant, Project Manager of the Project.

RC Marine Ecologist at Swansea University. Main interest in Project is having done a lot of work on the fauna of the wider Swansea Bay area and the cultural heritage and community connection.

AG Members (in attendance)

RB Chairman of Mumbles Development Trust involved in Oyster projects since 1998 including running oyster festivals and a lot of research on the historical side and exhibitions at their gallery and involved in school work as well.

JG Representing the Royal Institute of South Wales, will be interested in the historical side of the oyster industry and keen to work with other organisation in doing research and spreading knowledge and information about the industry in the past.

JW Environmental Engagement Officer with Mumbles Community Council who are interested researching and making connections about the heritage of the oysters and has a background in coastal ecology.

AM from Natural Resources Wales working in marine policy in the marine and coastal planning team and role is centred around the Environment Act and involved in the Wellbeing and Futures Generations Act.

NT from Mumbles Development Trust which has been involved in oyster fair and archaeology dig uncovering Roman oyster middens on Mumbles Hill with Glenmorgan Archaeology Trust as well as community engagement projects.

RM from CEFAS mainly work in marine planning and policy with a focus on environmental restoration and enhancement areas so compensatory measures for large offshore projects and considering areas for net gain and enhancement with a policy context.

AJ from Southampton University involved in Blue Project trying to restore oysters in the Solent and interested in oyster restoration projects.

SM from Swansea is Head of Museums, at Amgueddfa Cymru – National Museum Wales

2. Project Overview (slide 4)

MA provided an overview of the background and context of the project and current project status (slide 4), noting that many members may have been involved.

Project Scope has 3 broad topics across 5 key stages:

- An inclusive and expert Advisory Group (AG);
- A comprehensive literature review;
- Thematic workshop(s) for Options Appraisal.

Key Stages

1. Establishment of the Advisory Group (AG);
2. Review of the baseline: *Ostrea edulis* biology; site environment; case studies review; gap analysis etc;
3. Options Appraisal: (a)shoreside cultural heritage (b) restoration options; 4. Plan Development: incl. identification of funding options;
5. Finalisation & Promotion.

3. Why is it Important? (slide 5)

Oyster restoration has primarily been evaluated in terms of ecological benefits and the local fishing industry.

Are additional benefits and opportunities

- Local businesses
- Tourism
- Education
- Research

It will be important to understand the potential impact of a change in use of the bay on the community (positive and negative?)

Engage Early and Communicate

4. Aim to Achieve (slide 6)

- Increase engagement
- Community buy in
- Knowledge sharing
- Longevity of the project
- Community acceptance

5. Swansea Bay Community Overview (slide 7) • What is there to do in the Swansea Bay area?

- What is the general demographic?
- What do people do with their spare time?
- Do people use the Bay itself for anything in particular?

NT mentioned the Swansea Bay fishing industry/fleet, which leaves from Mumbles. A regular load is landed from there and the Swansea fish company which is a local supplier to restaurant.

RB Swansea Fish (<https://www.swanseafish.net>) are very active, and the local shops support the industry as they supply local caught produce. Ecological factors and food miles must be beneficial to everyone if caught locally. Mumbles Yacht Club (<http://mumblesyachtclub.co.uk/>) run races during summer and have an active membership and the Mumbles Fishing Boat Club (<http://www.mmbfc.uk/>) which is also active. People fishing from the piers during high tide, which could be increased with the help from the pier.

MA Mumbles Pier (<https://www.mumbles-pier.co.uk/>) could potentially be used and attached to Mumbles pier.

RC plausible solution could be to link with the existing structure such as the pier. Could the owners of the pier benefit from the attachment of broodstock cages? Pier owners can have information boards and information dissemination which could benefit them.

MA would there be a risk to the pier or from fishing?

RC there could be a potential risk of destabilisation of the pier but it needs to be assessed further and could be a potential option.

AJ Blue Marine Foundation have put complex cages into pontoon structures and oysters have survived quite well. The marina have led the way with it, so no conflicts with the users. Not a complete success but not to do with the marina but some freshwater releases have caused a few issues. Good waterflow around the cages which is good for the oysters.

JG has anyone had any contact with the owners of the piers?

RC some contact has been made with the pier owners and they were invited to the meeting. They seem open to suggestions and its possible to contact them.

NT has previously worked with them and they have an interest in heritage projects and would be interested in oysters growing beneath the piers, and maybe having an oyster bar on the pier or something that would benefit visitors as well.

MA the demographic seems to have a large student population.

NT there is a large student population and specifically in Mumbles. After second year they integrate more.

MA Is seasonality based on students university time.

NT a lot of tourists specifically this year as well.

RC all generations and lots of families. Maybe not used directly by people but the promenade is very busy and there are bistros, restaurants and bars. Swansea Bay is very popular for a day out or day trips and there is a good mix of people.

JG students perhaps have not integrated very well within the community and suggested they are not popular within the local community.

AM Swansea University has a strong marine department and separating the students academic and social lives is important. There are lots of students who helped on the oyster restoration project at Portsmouth University.

NT in the Mumbles area alone there are 7 primary schools, which reflects the family background.

JW other users of Swansea Bay include crafts businesses, who work with natural material eg. Sea glass jewellery and drift wood carving. So potential for native oyster shell crafts could be used.

AM linking with arts and community engagement projects which could be potential for funding sources.

DW potential TV involvement so Spring Watch or a documentary including the history of oysters and the restoration project which could be great for engaging the local community. If broodstock cages are an option is there a way of being able to pull them up to see what is in the cages which can help increase engagement. Try and recreate an historical oyster boat and go out fishing it may be a great way of engaging.

6. Natural and Cultural Heritage Connections (slide 8)

- Perception of the local natural history of the Bay?
- Do people know the history of oysters within the Bay?
- Do people value Swansea Bay?
- Do people feel connected to Swansea Bay?

RB history of Mumbles there is a lot of information on the Oystermouth Historical Society (OHA) website (<http://www.ostremecentre.co.uk/>) going back to the oyster fisheries and before that. Good background base to look at for the Swansea Bay area.

RC many people know that oysters played a big role historically and many place names link to this industry. Recently had a stand at the Mumbles market they found not many people could recognise oyster shells, so depth of knowledge is shallow.

AM across the UK, surveys have said that more could be done to connect to the coasts.

JG Mumbles consensus showed that there were oyster fishers who were involved in the industry. Potential partnership between a few companies to complete a study to bring all the information together.

RB it would be an interesting study and some exhibitions have been done and Carol Powell has written about oysters. There are some records of cockle fishers and important for everyone in the community including women.

NT did apply for Lottery Heritage Funding and came close to being successful. Little houses up Village Lane were homes of oyster fishers. There is a lot of history and they did try to organise a historical trail.

7. Cultural Heritage Connections (slide 9)

Example 1: Mumbles Sea-Hive Experiments

RC community engagement on the landward side can be used through art projects.

NT the Mumbles seafront is going to be remodelled to improve coastal defences and will include reference to historical activities in Mumbles. **Example 2:** Copperopolis Project (slide 10)

Example 3: Secrets of the Solent Project (slide 11)

8. Local Businesses (slide 12)

Vibrant business community with many enterprises relying on tourism What type of businesses can benefit (indirect and direct)?

DW was in Florida at a beach front bar eating oysters, this could be a potential for Swansea Bay.

NT Swansea Bay is used as a place to grab lunch or go for coffee and independent shops. During summer there is an influx of visitors but Mumbles itself does attract visitors.

RB Gower saltmarsh lamb which has been given accreditation as being locally sourced from the Gower. Something that could potentially be looked at for native oysters.

9. Education and Research (slide 13) Education

- Numerous opportunities
- Formal education within Schools
- Nature conservation organisations for knowledge exchange

Research

- Must be independent, no conflict of interest • Methods aligned to Plan
- Define success?
- Communication

JG new curriculum being introduced in Wales, which has a component that looks at the local environment.

10. **Potential Activities for Engagement** (slide 14)

NT in the past there was an annual event of an Oyster Food Festival but moving to a more general food festival. Weekends and day events including cooking demonstrations and where you can buy oysters to eat and have shows. These seem to be successful in increasing engagement.

JW a few citizen science projects available where you can advertise your projects. Zooniverse (<https://www.zooniverse.org/>) is one, and people can scroll through the projects to see what they would like to be involved in. Social media they had success with posting about the sea wall tiles so lots of engagement with the community.

11. **Community Organisations** (slide 15) **JG** suggested listing all schools.

NT suggested local restaurants rather than chains who already have a set menu. Could advise what local restaurants could be on the list rather than chains.

JW some other organisations such as the Field Studies Council (<https://www.field-studiescouncil.org/>) which make guides and **JW** said she could get some resources from them and the RSPB as they have a local group of volunteers and could link to birds easily. They have also done outreach with the local schools.

JG could you add Swansea Museum to the list (<http://www.swanseamuseum.co.uk>) **AM** should anglers also be included if there are some local groups.

RB the Mumbles Fishing Boat Club.

12. **Measuring Impact and Reach?** (slide 16)

SM the work at the National Waterfront Museum (<https://museum.wales/swansea>) has been working with children who may not actually have seen the sea. A project that would include the young children would be powerful and effective.

JW Reaching Wider (<https://www.swansea.ac.uk/reaching-wider/>) works with the University and engage with the local communities. Work with schools specifically in area of low income and could see if they are interested in working together.

13. **Funding Opportunities** (slide 17)

DW biodiversity and reliance is part of the Well Being Act and potential funding.

JW Royal Society of Biology (<https://www.rsb.org.uk/>) have some research and education grants can work alongside other funding and British Ecological Society (<https://www.britishecologicalsociety.org/funding/>).

Mumbles Community Council (<https://www.mumbles.gov.uk/>) can also contribute small amounts as they believe it will have positive impacts on the area.

JG Heritage Lottery Fund (<https://www.heritagefund.org.uk/>), they have a small lottery fund that is open all year round.

Actions

1. **NT** to provide a list of local restaurants that may be interested in the project.
2. **JW** to provide the community project list websites that were mentioned during the meeting.

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MEETING DETAILS			
Person / Event Visited	Advisory Group Meeting No. 5 (AG-M5)	Date	06.09.21
Location	Telecon (MS Teams)		
Meeting Attendees	<p>Project Team (KA) Khatija Alliji, MarineSpace (Chair) (MA) Marja Aberson, MarineSpace (RC) Ruth Callaway, Swansea University</p> <p>AG Members (SC) Suzanne Chamberlain, St David’s Catholic Primary School (KC) Ken Collins, University of Southampton (LC) Lisa Connaire, Welsh Government Marine & Fisheries Branch (AM) Amy Martin, Natural Resources Wales (NRW) (to also feed back to Ben Wray) (RM) Rachel Mulholland, Cefas (CTJ) Carrie Townsend Jones, Mumbles CCC (NT) Naomi Trodden, Mumbles Development Trust (JW) Jasmine Weedon, Mumbles CCC</p>		

SUMMARY OF MEETING
<p>0. Agenda</p> <ol style="list-style-type: none"> 1. Welcome and Introductions 2. Project Overview 3. Management 4. Swansea Bay Restoration Plan <ul style="list-style-type: none"> • Baseline survey • Restoration Options for Swansea Bay • Community Engagement • Other Project Aspects 5. AOB & Dates

1. WELCOME AND INTRODUCTIONS

Round table introductions:

The Project Team (in attendance)

KA MarineSpace Consultant, technical member of the Project Team

MA MarineSpace Senior Consultant, Project Manager of the Project.

RC Marine Ecologist at Swansea University. Main interest in the Project is having done a lot of work on the benthic communities of Swansea Bay, and wider area, and worked on non-natives species in Swansea Bay. Also interested in the natural and cultural heritage of oysters. **AG**

Members (in attendance)

KC University of Southampton. Leading the MARINEFF (MARine INFrastructure EFFECTs initiative, <https://noraeeurope.eu/england-marineff-marine-infrastructure-effects-initiative/>) Oyster Enhancement Reef Project. Pilot project underwater for a year now.

RM Cefas. Work mainly in coastal marine planning and marine policy. Interested in this from a policy and regulatory side but also interested in compensatory measures and enhancement, evidence and policy both for the Welsh Government and for Defra.

LC Welsh Government's Marine and Fisheries Policy, here on behalf of Michelle Billing.

JW Environment Engagement Officer Mumbles Development Council.

CTJ Councillor on Mumbles Community Council. Quite a large part of the bay area is within our boundaries so particularly interested in any proposed activities. And the oyster development has been discussing on and off for 10 years now with the Mumbles Development Trust, and how we can try and re invigorate the industry so this project is an opportunity to do what we have been looking at and talking about for some time. A positive opportunity.

SC St David's Primary School. Near to Sea Hive project and look forward to engaging with the project with the new curriculum for Wales. So important to upskill the children with knowledge and experience of local issues, and this is key to where we are living.

NT Mumbles Development Trust (no introductions as had to join meeting late).

AM NRW (no introductions as had to join meeting later).

2. PROJECT OVERVIEW (slide 4)

KA provided an overview of the background and context of the project and current project status (slide 4), noting that many members may have been involved.

Project Scope has 3 broad topics across 5 key stages:

- An inclusive and expert Advisory Group (AG);
 - A comprehensive literature review;
 - Thematic workshop(s) for Options Appraisal. Key Stages
1. Establishment of the Advisory Group (AG) (**Completed**)
 2. Review of the baseline: *Ostrea edulis* biology; site environment; case studies review gap analysis etc (**Completed**)
 3. Options Appraisal: (a)shoreside cultural heritage (b) restoration options (**Completed**)
 4. Plan Development: incl. identification of funding options (**Currently being drafted**)
 5. Finalisation & Promotion (**due end of September**)

3. MANAGEMENT

Slide 5.

KA outlined the main mission of the Oyster Restoration Plan is “*to have a thriving population of native oysters in Swansea Bay.*”

There are additional benefits and opportunities for location businesses, tourism, fisheries, education and research.

Slide 6.

KA The approach is **Adaptive Management**

High level plan in place, and at different stages, time to evaluate to then adjust plan if required. Proven quite a good way to planning restoration project.

4. SWANSEA BAY OYSTER RESTORATION PLAN

Slide 7.

KA Lots of different methods for restoration, we have chosen a few we think will work best for Swansea Bay, these include: larval supply, substrate supply, juvenile oyster laying, and mature oyster laying.

Slide 8.

KA initially we proposed to conduct **Baseline surveys**, prior to any restoration actions. These will help inform the method that is used. This may determine the oyster supply methods, if a single method or multiple method of restoration is used and insight for best location for restoration in the Bay.

KA aware of other surveys having been conducted in the Swansea Bay area, but we think we then need to update the data obtained to data to fill in those gaps. So require a comprehensive baseline survey.

Slide 9.

KA First option considered are the **broodstock cages**, used a lot in native oyster restoration projects. E.g. The Solent. They provide a source of larvae to the marine environment; and larvae can select where to settle. Provides accessibility for research and monitoring and increase engagement for the community. Constraints have been assessed and these include: limited locations as cannot restrict navigation and access to cages are require, the source of oysters to be considered (e.g. for biosecurity), and consider licences or permit requirements. Native oysters take 2-4 years to mature so any restoration results will have that lag period.

Slide 10,

KA Second option considered are **spat laying** (really small juvenile oysters). Can do this on structures or on substrate.

KA Structures may be a good area as provide a protected area and accessibility of monitoring, research and engagement, structures can reduce predation and competition from other species.

KA But need to consider time of year and currents as juvenile oysters are sensitive, and expect a large die off a (5% survival rate for juveniles) so need a large input to be successful. Require licence or permit also.

Slide 11.

KA We have held workshops to discuss options for **community engagement**. Discussed what was the best methods for engagement. Social media is a great tool for engage (twitter, Facebook groups etc). Excited to engage with local schools about the project, and good to involve children to learn about their local area, and also engage with local business.

KA Ensure we had education opportunities included within the project, looking at the local history, as large native oyster fishery there before, so would like bring that back to the forefront of people's minds.

Slide 12.

KA There may also be the potential for a **Swansea Bay hatchery**, which we have not in area in area at present. This may create jobs and increase tourism and provide local supply of oysters and supply oysters to other areas of the UK.

KA There has been a lot of **research** conducted in the native oyster field but still more to learn, and any project that is completed and is successful it is important to share information to help inform other projects, so it will be important to encourage partnership with local institutions'. Centre for Sustainable Aquatic Research (CSAR) <https://www.swansea.ac.uk/bioscience/csar/>

Slide 13.

KA Another really important project aspect of **Fisheries**. Main mission is to have a thriving population of oysters, but also like to consider having a native oyster fishery in Swansea Bay again.

KA There are also other **ecosystem services** e.g. increase in biodiversity, improved water quality, provide locally sourced products so reduce carbon footprint, carbon capture, and improve coastal habitats ad protection (e.g. reef complexity).

DISCUSSIONS

Restoration Outcomes and Non-Natives

KC One of the outcomes from the Oyster Restoration Handbook was a survey on various aspects of oyster restoration, asking a range of experts to contribute, and get a straw poll for factors which are key. Interesting and if you are not aware of it., it may still be in draft (MSc project, due to be published). Worth bearing in mind to help inform you ...

KC Do you have the 2 species *Magallana gigas* (pacific oyster) and *Crepidula fornicata* (slipper limpet) in the region.

RC A pertinent question as need to know for any oyster restoration project. We had an MSc student working on INNS (invasive non native species) on *Crepidula fornicata* in Swansea Bay (now at NRW). Whether slipper limpet survive being dredged and discarded inn the outer bay? No prob they wouldn't. Also how many they are? Ubiquitous, prolific in intertidal area and some of subtidal areas and in areas of Swansea bay where historically known to be a good area for native oysters. The abundances are not as high as Milford Haven waterways, but none the less it is a potential compromise of any oyster restoration project.

MA So no *M. gigas* in Swansea Bay?

RC None present.

KC Interesting, *M. gigas* is well established in Southampton water and the Solent, but my concern is will oyster restoration reefs encourage pacific oysters, rather than native oysters? No settlement yet by either species, but equally stock of native oyster population is low. Regarding slipper limpets, mixed opinion if an issue. Had a thriving oyster fishery with slipper limpets historically.

MA Research done in holland on competitiveness between oysters, and slipper limpets. Need to dig out papers. Can smother seabed but can also increase habitat complexity.

KA There are some papers about the slipper limpet and native oyster sharing the same ecological niche but I agree the biosecurity risk is something that needs to be considered carefully for the restoration project to be successful.

Preferred Restoration Options

RM Several options for cultivation process that could be used? Which do you preferable option, are you going to recommend one option? Have you done any grading of options, an order of preferences, pros and cons?

KA Broodstock cages being preferred at present based on research and other restoration projects. Methods based on baseline survey, have the potential to change. At the moment we have preference based on what have been used to do, but has potential to change, why we've chosen the adaptive management approach.

MA As discussed in last meeting (AGM4 16.08.21), Andy Woolmer has been distributing juvenile oysters in the bay, separate to this project. Acts as a useful live example to use any information from the work in terms of success to inform methods. Good timing for the Plan to source that information.

CT How is the work that Mumbles Oysters company are undertaking in the bay impacts this project, but MA has just addressed that.

MA Understand that Andy was involved with the tender and very much involved with the Bay, so we'd like that to tie and get his knowledge (e.g. Milford Haven).

CT Morecombe Bay is their supplier, these are native species?

KA Yes, native oysters.

Data Sharing & Transparency

RC What I feel will be useful for whole restoration project, because we have so many very different interest groups, if any data gathering, baseline survey, and success/ failure of trials, if data was more easily available, and transparent? We know quite a lot of work has been done in Swansea Bay. Have to dig deep to find reports, and no raw data available. Mystery of what has been done, how has been done, what outcome was? If a commercial enterprise is behind any initiative, I understand they have to put a spin on outcome. I feel it would one recommendation

would be a transparent platform, website etc. Everything published is available for the public (for research, education etc) from an independent body).

MA A data repository?

RC Yes e.g. the Council. Someone without a vested interest.

MA SBFLAG?

RC Could be a good portal, but concentrate on fisheries aspects.

MA Knowledge sharing is important. For example there is an abundance of information from the Solent, but it would be good to have access to all reports produced for Swansea Bay. NORA (Native Oyster Restoration Alliance <https://nora-europe.eu/>)

KA NORA could be a potential partner. Not sure if many people publish their failures?

MA Ken, would you still aim to publish from the trials done

KC Everything we do in MARINEFF as an EU Interreg project, everything will be publicly available including our failures. People being honest about what does and what doesn't work is important.

CT As a Community Council we put information out, asking people to engage with the Sea Hive Project, we have had a fantastic response. Be good to have data in layman's terms and put out, on CC social media accounts (not too much academic or technical jargon).

MA Agree. The communications and engagement would run alongside the ecological restoration work, and it would be presented in a different language.

AG Review of the Plan

CT When the Plan is ready will we (the AG) have access to it, to review it properly?

AM Confirm the full project plan be coming around for comment?

MA We have 1 more meeting planned 'Finalisation and Promotion'. We won't need the financial one as we had already discussed potential funding opportunities in the 2 options appraisal workshops.

MA Looking to draft the Plan by middle of this month (September), then have an internal quality control with MarineSpace and with RC. Check back with Project Team and the Council, we will either give it to the council to review and then present back to the AG or vice versa, or we issue it to the AG and the Council (the client at the same time) so we can capture all comments and update document at once as time is a constraint. The Council has said they need a few days to a week to turn document around for their review.

MA The Plan is to be translated into Welsh at some point in October, for final deliverable at end of October, but the AG would definitely have chance to see document prior and we would appreciate any review comments on it. It will be in a MarineSpace Template

AM Ben (BW, NRW) is best person to do the review. BW has experience of leading project in Milford Haven.

Spat Laying (slide 10)

AM If going on structures would there be cultch as well?

KA With cages, no cultch is laid. Again, something to be considered, if finding no settlement of native oysters, even from resident populations, could mean there is no suitable substrate for them to settle on. But for structures cultch is not usually used.

AM Mindful of currents?

KA Only if using cultch.

AM So that's why option of structures is pursued then?

KA Yes, but also depend on size of structures as will need to consider any navigational hazards.

Ecosystem Services (slide 13)

AM – Blue carbon benefit? Have you looked at NRW Blue Carbon Report, published last year? Worth looking at, as it is Welsh report and cover oysters. AM will send on.

AM Net gain and how biodiversity of project? Be mindful of how net gain applies in Wales? In terms of policy, Net Gain comes from the 25 year Environment Plan (UK Government). We (Wales) don't have targets for net gain, like they are exploring in rest of the UK. We use instead '**Net Biodiversity Benefit**' which is more in keeping with Welsh Marine Plan. It may be worth ensuring the language aligns with the Welsh Marine Plan (e.g. the N1 Policy of the Marine Plan)

Actions

1. KA to source MSc thesis on survey of oyster restoration options (KC to provide details)
2. AM to send to KA NRW's latest Blue Carbon Report.
3. Project Team to issue minutes
4. MA to confirm with the Council agree on a parallel review of the draft Plan with an external review by the Council and the AG at the same time.
5. Project Team to issue doodle poll for final meeting (AGM6)

Prosiect Adfer Wystrys Brodorol Bae Abertawe Cyfarfod Rhif 6 y Grŵp Cyngori

MANYLION Y CYFARFOD			
Person / Digwyddiad yr ymwelwyd ag ef	Cyfarfod Rhif 6 y Grŵp Cyngori (AG-M6)	Dyddiad	27.10.21
Lleoliad	Telegynhadledd (MS Teams)		
Mynychwyr y cyfarfod	<p>Tîm y Prosiect (MA) Marja Aberson, MarineSpace (Cadeirydd) (KRS) Kat Route-Stephens, MarineSpace (RC) Ruth Callaway, Prifysgol Abertawe</p> <p>Aelodau'r Grŵp Cyngori (KC) Ken Collins, Prifysgol Southampton (LC) Lisa Connaire, Cangen Gweithrediadau'r Môr a Physgodfeydd Llywodraeth Cymru (RM) Rachel Mulholland, Cefas (NT) Naomi Trodden, Ymddiriedolaeth Datblygu'r Mwmbwls (DW) Dan Ward (AM) Amy Martin, Cyfoeth Naturiol Cymru (CNC)</p>		

CRYNODEB O'R CYFARFOD
<p>0. Agenda</p> <ol style="list-style-type: none"> 1. Cyflwyniad 2. Crynodeb o'r Prosiect 3. Cynllun Adfer Bae Abertawe gyda thrafodaeth 4. Camau nesaf 5. UFA

1. Croeso a Chyflwyniadau

MA – Rheolwr Prosiect

KRS - Rhanddeiliaid a pholisi a chaniatâd

RC - Ecolegydd Morol ym Mhrifysgol Abertawe. Y prif ddiddordeb yn y Prosiect yw gwneud llawer o waith ar gymunedau benthig Bae Abertawe, a'r ardal ehangach, a gweithio ar rywogaethau anfrodorol ym Mae Abertawe. Hefyd â diddordeb mewn treftadaeth naturiol a diwylliannol wystrys. Cynnwys yr holl randdeiliaid gwahanol ym Mae Abertawe.

KC - Prifysgol Southampton. Yn ymgymryd â phrosiectau wystrys yn Solent. Defnyddio adeileddau concrit cregyn yn Solent

LC – Llywodraeth Cymru,

NT – Ymddiriedolaeth Datblygu'r Mwmbwls, agweddau treftadaeth ddiwylliannol. Gwyliau Wystrys yn y Mwmbwls.

RM – Cefas, Agweddau Cynllunio Morol.

AM – Ymgynghorydd Arbenigol CNC: Rheoli Adnoddau Naturiol Morol yn Gynaliadwy

DW – Ymgynghorydd annibynnol ar gadernid

2. Crynodeb a Throsolwg o'r Prosiect

- Grŵp Cyngori (GC) cynhwysol ac arbenigol;
- Adolygiad llenyddiaeth cynhwysfawr;
- Gweithdy/gweithdai thematig ar gyfer Arfarnu Opsiynau;
- Cyfnodau Allweddol y cynllun adfer terfynol

1. Sefydlu'r Grŵp Cyngori (GC) **(Cwblhawyd)**
2. Adolygiad o'r llinell sylfaen: Bioleg *Ostrea edulis*; amgylchedd y safle; adolygiad o astudiaethau achos, dadansoddiad o'r bylchau etc. **(Cwblhawyd)**
3. Arfarnu Opsiynau: (a) treftadaeth ddiwylliannol ar y glannau (b) opsiynau adfer **(Cwblhawyd)**
4. Datblygu Cynllun: gan gynnwys nodi'r opsiynau ariannu **(yn cael eu drafftio ar hyn o bryd)**
5. Cwblhau a Hyrwyddo **(disgwylir ar ddiwedd mis Hydref)**

Y Cynllun – Datganiad Cenhadaeth

"Cael poblogaeth ffyniannus o wystrys brodorol, *Ostrea edulis*, ym Mae Abertawe i hyrwyddo bioamrywiaeth a buddion cymunedol ar y glannau o fewn yr ardal"

Mae angen gwneud yn glir drwy gydol y cynllun taw bioamrywiaeth yw'r flaenoriaeth i ddechrau, yna gellir trafod pysgodfeydd ar ôl eu sefydlu.

Mae adfer wystrys yn ddatblygiad newydd mewn cyd-destun ecolegol o'i gymharu ag un sy'n seiliedig ar bysgodfa.

Dylai'r cynllun barhau i fod yn glir o ran ei nodau o'r dechrau ac yn ei gyfanrwydd.

Ystyried cysylltiadau hanesyddol a diwylliannol Bae Abertawe.

Mae'r bysgodfa'n nod tymor hwy posib.

3. Cynllun Adfer Bae Abertawe gyda thrafodaeth

Rhoddodd MA drosolwg o Gynllun Adfer Bae Abertawe.

Y Cynllun – 10 Amcan

Amcanion tymor byr, canolig a thymor hir, gan gynnwys pysgodfeydd yn y tymor hwy

Y Cynllun – 8 Cam Gweithredu

Canolbwytio ar ddethol yn y cyfarfod heddiw.

- Cam Gweithredu 2/3 - Llinell sylfaen a Dewis Safle

Dwyn ynghyd arbenigedd lleol a thystiolaeth wyddonol, angen adeiladu ar wybodaeth sy'n bodoli eisoes. Mae llawlyfr monitro gwaith adfer yn cael ei gynhyrchu, dylai fod modd ei gopïo ar gyfer monitro.

- Cam Gweithredu 4 - Tarddiad a Chyflenwad wystrys

Yn bwydo'n ôl i'r wybodaeth sylfaenol, yn ddelfrydol eisiau tarddiad o Fae Abertawe ond os nad yw'n ddigon, yna mae angen i'r cyflenwad ddod o rywle arall. Angen cadarnhad ar statws *Bonomia* ym Mae Abertawe. Silfeydd yn Morecambe ac Orkney. Dull haenog posib o gyflenwi.

- Cam Gweithredu 5 - Dulliau Adfer

Cynigiwyd yr opsiwn o ddefnyddio cewyll stociau magu sawl gwaith mewn cyfarfodydd. Angen deall y cyfraddau marwolaethau o gewyll stociau magu a'r meintiau/dwyseddau sydd eu hangen i gronni cyflenwad. Yn mynd yn ôl i ddeall amgylchedd sylfaenol. Gall cewyll stociau magu weithredu fel noddfa ac offeryn ar gyfer ymgysylltu â'r gymuned. Angen deall i ble y mae'r boblogaeth larfaol yn mynd o fewn y Bae o'r cewyll stociau magu, ac ym mhle y mae'r ddalfa, dëllir ei fod tuag at ddwyrain y Bae. Awgrymwyd bod swbstrad addas o fewn y Bae, ond mae angen cadarnhad.

Gallai gosod cwdyn fod yn addas. Bydd cyfnod arweiniol ar gyfer pob un o'r dulliau adfer. Mae opsiwn ar gyfer magu drwy osod sil ar gragen, ond mae risg y cânt eu hysgubo i ffwrdd ym Mae Abertawe gan eu bod yn fwy agored, ond mae angen deall hyn yn well. Bydd angen monitro unrhyw oedolion sy'n cael eu gosod ar gyfer magu.

- **Crynodeb o waith adfer ecolegol**

Ffynhonnell: Mae'n well ganddynt ddefnyddio stoc wyllt lleol, defnyddiwyd stoc allanol yn flaenrol, mae bioddiogelwch a hyfywedd tymor hir yn ffactorau allweddol

Dull lluosog o adfer: gwella swbstrad drwy osod cwdyn os oes angen, gwella'r cyflenwad larfau drwy gewyll stociau magu dros sawl blwyddyn, annog setliad drwy osod oedolion ar swbstrad addas a deall amodau amgylcheddol a gofynion diogelu.

Gellir cyflawni hyn drwy arolygon llinell sylfaen cynhwysfawr a modelu rhagfynegol. Cyfathrebu da drwyddi draw a rheoli disgwyliadau mewn perthynas â dulliau ac amserlenni.

- Cam Gweithredu 7 - Ymgysylltu

Menter aml-fudd, ystod eang o randdeiliaid. Eisiau i bobl wybod beth sy'n digwydd yn eu hardal ac os oes prosiect adfer lleol ar gael.

Cynllun cyfathrebu a chyfryngau cymdeithasol. Helpu i gynyddu cefnogaeth gymunedol a derbyniad natur tymor hir y prosiect.

Angen deall llinell sylfaen cymunedau o fewn y Bae a sut i ddefnyddio'r ardal arfordirol a sut i ddealltwriaeth o wystrys brodorol. Creu Lleoedd , cysylltu'r â'r lle. Cyfleoedd treftadaeth ddiwylliannol ac addysg ar gyfer y gymuned.

Cyfleoedd morlyn llanw Bae Abertawe ar gyfer y prosiect, adeileddau caled yn cael eu gosod yn y Bae a chyfle ar gyfer mwy o adferiad. Ymgysylltu â rhanddeiliaid.

- Cam Gweithredu 8 - Caniatâd a Gwarchod

Cymerodd y caniatadau a thrwyddedu fwy o amser na'r disgwyl yn y Solent. Mae ymgysylltu â rhanddeiliaid yn hanfodol.

Ni ellir defnyddio gorchymyn pysgodfa unigol ym Mae Abertawe ar gyfer prosiectau bioamrywiaeth / ecolegol Mae cefnogaeth rhanddeiliaid o'r cychwyn cyntaf yn bwysig ar gyfer dyheadau tymor hir y prosiect.

Mae prosiect adfer Essex bellach wedi'i ddynodi mewn Parth Cadwraeth Morol yn ogystal â physgodfa ar gyfer wystrys Mae Bae Abertawe yn fwllch data ar gyfer rhywogaethau o casglu mwy o ddata ar gyfer bwysigrwydd posib, gellir sylfaen.

Risgiau

- Bioddiogelwch
- Pwysau naturiol, ffisegol a biolegol - mae – prinder stoc yn ei gwneud hi'n anodd dechrau ar brosiectau adfer. Angen colli'r "fam wystrysen" er mwyn cynnal gwelyau.
- Cadwyn – Galw am sil
- Pysgota ac echdynnu - Gellir mynd-i'r afael â hyn drwy
- Datgysylltu cymunedol - blinder rhanddeiliaid dros y tymor hir
- Cyllid

Mae'r cynllun yn archwilio'r risgiau a mesurau lliniaru posib er mwyn eu lleihau drwy gydol cyfnod y cynllu

Mesur llwyddiant

Gosod nodau a thargedau realistig. Offer ar gyfer mesur ac asesu yn eu herbyn.

Bydd cofnodion ymgysylltu â rhanddeiliaid yn ddefnyddiol i gynnal ymgysylltiad a mesur drwyddi draw Metrigau ar gyfer mesur llwyddiant.

Mesur Llwyddiant?

<p><u>Offer:</u></p> <ul style="list-style-type: none"> • Monitro • asesiadau ac ymchwil wedi'u targedu • Cyfryngau cymdeithasol a chofnodion cofrestru • Ymgysylltu â rhanddeiliaid <p><u>3 Thema:</u></p> <ul style="list-style-type: none"> • Ecolegol ac Amgylcheddol • Addysg a threftadaeth ddiwylliannol • Pysgodfeydd 	<p>Nodir metrigau mesuradwy lluosog ar gyfer y 10 amcan e.e.</p> <ul style="list-style-type: none"> • Cynnydd mewn dwysedd wystrys ac ôl troed creigresi • Recriwtio parhaus a dosbarthiadau maint lluosog • Mwy o amrywiaeth gymunedol gysylltiedig • Mwy o ymgysylltu ac ymwybyddiaeth <p>Gosod nodau a thargedau realistig ac adolygu'n rheolaidd</p>
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Map ffordd – wedi'i gynnwys yn y Cynllun.

Sefydlu tîm prosiect. Astudiaeth ddichonoldeb i helpu i sefydlu cyllid.

Pecynnau Gwaith a Ffrydiau Ariannu

10 Pecyn Gwaith a nodwyd ar draws pecynnau ar wahân ac yna agweddau tymor hir (e.e. tîm y prosiect). Nodwyd ffrydiau ariannu ond gall fod newidiadau yn y dyfodol. Angen cyllid am 5+ mlynedd o ystyried natur tymor hir y prosiect.

Potensial ar gyfer cyllid corfforaethol, megis ffermydd gwynt ar y môr a morlynoedd llanw.

Argymhellion y Cynllun

- Prosiect a fydd yn para o leiaf 5 mlynedd
- Cymryd rhan weithredol mewn partneriaethau wystrys brodorol
- Ymgysylltu cynnar i annog cefnogaeth, rhannu gwybodaeth, hirhoedledd a derbyniad
- Datblygu cynllun cyfathrebu
- Ystorfa ddata annibynnol - Dylai canlyniadau o'r prosiectau fod ar gael i'r cyhoedd drwy ystorfa ddata.
- Llinell sylfaen gynhwysfawr i ddeall pa dechnegau adfer sydd fwyaf addas
- Defnyddio Rheoli Addasol
- Cyfuniad o ddulliau ar gyfer dod o hyd i gyflenwad ac adfer
- Defnyddio wystrys o fewn Bae Abertawe os yw'n hyfyw – mae defnyddio wystrys allanol yn fwy hyfyw yn y tymor hir
- Cewyll stociau magu ynghlwm wrth adeileddau artiffisial fel man cychwyn da
- Gosod cwlyn i helpu i wella argaeledd swbstrad, ar y cyd ag ailosod oedolion
- Monitro ac asesu yn unol â'r canllawiau a argymhellir
- Manteisio i'r eithaf ar gyfleoedd ymgysylltu. Gallai rhai agweddau barhau ar yr amod nad yw agweddau eraill yn parhau e.e. ymgysylltu â threftadaeth ddiwylliannol.

4. Camau Nesaf

Cyfieithu i'r Gymraeg

Cyhoeddi ar y wefan a chyfryngau cymdeithasol

Ar gael i'w lawrlwytho

Mae GGLIPBA eisiau gwybod ym mhle arall yr hoffech allu cael y cynllun. Dylai fod ar gael ddiwedd mis Tachwedd.

5. Trafodaeth

DW - yn yr argymhellion, gellir nodi na fydd unrhyw wystrys yn cael eu gosod nes bod tystiolaeth wedi ei chasglu, ond gellir parhau ag agweddau eraill e.e. ymgysylltu â'r gymuned.

Dangos bod rhywbeth yn digwydd a chreu momentwm yn y tymor byr hefyd, ond mae'n rhaid cael cydbwysedd

AM – Angen casglu tystiolaeth yn gynnar i ddeall pa ganiatâd fydd ei angen e.e. os oes angen gosod cwdyn. Ddim eisiau i bobl ymgysylltu â'r prosiect ac yna darganfod nad yw agweddau ar y prosiect yn gallu mynd yn eu blaen. Ymgysylltu â CNC yn gynnar a chysylltiadau posib ar gyfer cydgysylltu prosiectau.

Gellir gwneud hyn drwy ddiagram llif er mwyn gwybod y cyfeiriad yn dibynnu ar ganlyniadau.

KC - Defnyddio Pier y Mwmbwls, Sefydliad Blue Marine, defnyddio cewyll o dan bontynau'r marina, sydd wedi bod yn hygyrch iawn, cyfleoedd cyfryngau a byrddau dehongli ar bontynau. Mae'r prosiect 'MarineFF' yn y Solent yn defnyddio ymchwil partneriaeth, lle mae byrddau gwybodaeth am byllau trai artiffisial wedi'u gosod yn Ynys Wyth a Bournemouth. Byddai'n ddigon hawdd gwneud hyn.

DW – Gall cadwraeth fod yn euog o ganolbwyntio gormod ar dystiolaeth, felly mae angen syniadau effeithiol yn y tymor byr.

MA – Yn ddelfrydol byddai gweithgorau penodol gwahanol drwy gydol y prosiect.

RC – Mae risg ym Mae Abertawe fod yr hydrodynameg yn wahanol i ardaloedd adfer cysgodol eraill yn y DU, felly nid ydym am greu momentwm heb ddealltwriaeth dda o gerrynt llanw ac uchder tonnau. Gellir defnyddio cewyll stociau magu, ond y cam cyntaf ddylai fod edrych ar fodlu eiddo hydrodynamig fel nad yw wystrys wedi'u hadu yn golchi i ffwrdd. Lleihau'r risg o wastraffu cyllid ar gyfer hadu/ailstocio wystrys.

DW – Dylai fod gan Natur am Byth gyfleoedd ariannu. Os yw sil/larfae yn mynd allan o'r Bae, gallai fod yn setlo mewn ardaloedd eraill lle gallai adfer ddigwydd.

MA – Mae angen cryfhau adran ymarferoldeb prosiect y cynllun.

AM – Prosiect adfer Aberdaugleddau a phrosiect Natur am Byth, gall AM wneud y cysylltiadau rhwng y gwahanol brosiectau adfer. NaB yn edrych ar ddichonoldeb yn y 12 mis cyntaf.

DW – (mewn sgwrs) Yn anecdotaidd sylwais ar lawer o hen gragen wystrys ar y lan i'r dwyrain o Ogwr a Southerndown ym mae Dwn-rhefn sy'n cyd-fynd â'ch potensial wystrys a'ch mapiau dosbarthu. Mae'n debyg eu bod yno mewn niferoedd da o'r blaen!

MA – Maent yn dal i ddychwelyd i gewyll stociau magu yn y tymor byr. Cwestiwn ar ganiatâd ac unrhyw wrthdaro o ran y gorchymyn pysgodfa unigol, sy'n diogelu hawliau pysgota ond nad yw'n fodd o ddiogelu'r amgylchedd.

AM - Os bydd gorchymyn pysgodfa unigol ar waith yna gallai hynny helpu gyda diogelu'r amgylchedd. Mae cynaeafu heb ei reoleiddio yn risg uchel, gan nad ydynt yn gweithredu nac yn cael eu diogelu yn gyfreithiol (felly nid potsio yw hyn yn dechnegol). Gallai mesurau gwirfoddol fod yn gyflymach na mesurau statudol. Yna mae'n dibynnu ar bwy rydych chi'n ymgysylltu â nhw e.e. bioamrywiaeth a physgodfeydd (nod tymor hir), byddwch yn glir yn y cyfathrebiadau o'r cychwyn cyntaf.

LC – Os ydych chi'n penderfynu ar orchymyn pysgodfa unigol, mae llawer o wybodaeth ar wefan LIC. Mae LC yn hapus i fod yn bwynt cyswllt os oes unrhyw ymholiadau penodol.

MA – Mae gorchymyn pysgodfa unigol ar waith ym Mae Abertawe, ond mae'n dibynnu ar ddiben y gorchymyn pysgodfa unigol. Angen sicrhau nad oes gwrthdaro buddiannau wrth dreialu'r cwdyn a'r bysgodfa.

Amlinelliad o sut gallai'r gorchymyn pysgodfa unigol weithio:

- 1) *mae'r gorchymyn pysgodfa unigol yn amddiffyn hawliau pysgota ac nid bioamrywiaeth/yr amgylchedd*

- 2) *Efallai y bydd y cynllun adfer yn dymuno treialu lleoliadau cwodyn, nid at ddibenion pysgodfeydd ond at ddibenion amgylcheddol/bioamrywiaeth*
- 3) *Nid oes unrhyw safleoedd gwarchoddedig ym Mae Abertawe ar gyfer treialon o'r fath*
- 4) *Mae'r gorchymyn pysgodfa unigol yn cael ei ddiogelu ac efallai y bydd y perchennog yn caniatáu treialon, ond gallai fod gwrthdaro buddiannau oherwydd mae'r prosiect eisiau gwella'r amgylchedd, ac mae'r gorchymyn pysgodfa unigol eisiau gwella pysgota.*
- 5) *Gallai hyn arwain at wrthdaro buddiannau gyda pherchennog y gorchymyn pysgodfa unigol, ond gellid ei weld hefyd fel camddefnydd o'r gorchymyn pysgodfa unigol. I'w archwilio ymhellach gyda Grŵp Cyngori ar Bysgodfeydd Môr Cymru Llywodraeth Cymru.*

DW – Gallai fod yn ddefnyddiol i fapio'r risgiau a'r cyfleoedd ym Mae Abertawe. MA - gellir mapio cyfyngiadau drwy'r porth cynllunio morol, byddai hyn yn cael ei wneud yn fanylach yn ystod y broses o weithredu'r cynllun.

RC – Gwrthdaro buddiannau, fel rhan o'r cynllun mae'n rhaid mynd ati i fonitro'n annibynnol a chasglu data. A fyddai gan CNC rôl yn hyn ac a oes modd cysylltu monitro adfer wystrys ag arolygon sefydledig, e.e. samplu gorsafoedd WFD yn y bae? Efallai y bydd mwy o bwysoliad. Beth sy'n digwydd yn Aberdaugleddau?

AM – Ben Wray i roi mwy o fanylion. Tîm monitro a strategaethau monitro, os oes prosiectau adfer yn digwydd, a ellir cynnwys y rhain? Ar hyn o bryd mae monitro'n dilyn ymagwedd sy'n seiliedig ar risg a dyletswyddau statudol. Gall fod cyfleoedd i gydweithio a dod o hyd i gyllid. Ymgysylltu yn gynnar.

MA – deall cysylltiadau a chyfleoedd ar ôl yr astudiaethau dichonoldeb. A oes unrhyw le yr hoffech weld y cynllun terfynol?

AM – lleoliadau sy'n benodol i'r maes morol lle gellid ei rannu, GGLIPBA i ystyried i ble yr hoffent iddo fynd.

NT – wedi rhestru dim ond ychydig o fwytai, o ble ddaeth y rhain? A ddylai gynnwys y cyfan neu ddim un ohonynt?

MA – fe'i diwygiwyd er mwyn cael gwared ar enwau bwytai ac yna gellir gwneud hyn yn fanwl drwy ymgynghori â nhw er mwyn osgoi hepgor.

6. **Dod â'r Cyfarfod i Ben**

MA – Mae clywed safbwyntiau gwahanol y Grŵp Cyngori a'u deall wedi bod yn ddefnyddiol iawn i lywio'r cynllun. Yn enwedig yr agweddau diwylliannol. Diolch i'r Grŵp Cyngori cyfan am gymryd rhan drwyddi draw.

