

Package ‘ohicore’

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Title Ocean Health Index calculation package

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Depends R (>= 2.14.0),plyr,reshape2,RJSONIO

Description A collection of functions for generically calculating the Ocean Health Index scores as well as individual goals and sub-goals.

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Collate

‘CalculatePressuresComponent.R’ ‘CalculateResilienceComponent.R’ ‘CalculateStatusComponent.R’ ‘CalculateSubgoal.R’

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CalculatePressuresComponent

Calculate the pressures component of each (sub)goal.

Description

Calculate the pressures component of each (sub)goal.

Usage

```
CalculatePressuresComponent(eco.pressures,
                             social.pressures, c.name = "category",
                             s.name = "region", gamma = 0.5)
```

Arguments

eco.pressures data.frame containing columns 'region', 'category', 'weight', and 'value'

social.pressures data.frame containing columns 'region', and 'value'

gamma (optional) if not specified defaults to 0.5

Value

data.frame containing columns 'region', 'p_E', 'p_S', and 'p_x'

CalculateResilienceComponent

Calculate the Resilience component of each (sub)goal.

Description

Calculate the Resilience component of each (sub)goal.

Usage

```
CalculateResilienceComponent(goal.specific.regulations,
                              ecological.integrity, social.integrity,
                              c.name = "category", s.name = "region", gamma = 0.5)
```

Arguments

`goal.specific.regulations`
(data.frame) contains columns 'region', 'weight', and 'value'

`gamma`
(numeric) represents the weighting between ecological and social aspects of resilience, defaults to 0.5 (equal weights)

Value

(data.frame)

CalculateStatusComponent

Compute a single subgoal.

Description

Compute a single subgoal.

Usage

```
CalculateStatusComponent(DATA, fun, trend.Years = 5,  
  c.name = "year", s.name = "region")
```

Arguments

`DATA`
data.frame containing columns 'region', 'value', and (optionally) 'w'

`fun`
(optional) function for calculating the subgoal value, if not specified it will default to a weighted average

`w`
(optional) numeric vector describing the

Value

stuff

CalculateSubgoal

Compute a single subgoal.

Description

Compute a single subgoal.

Usage

```
CalculateSubgoal(current.data, eco.pressures,  
  social.pressures, gs.regulations, social.integrity,  
  eco.integrity, fun = stats::weighted.mean,  
  trend.Years = 5)
```

Arguments

DATA	data.frame containing columns 'region', 'value', and (optionally) 'w'
fun	(optional) function for calculating the subgoal value, if not specified it will default to a weighted average
w	(optional) numeric vector describing the

Value

stuff

Halpern2012.	<i>Calculate Biodiversity.</i>
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Description

Calculate Biodiversity.

Usage

Halpern2012.(A, G, w, Cc, Cr, ...)

Arguments

placeholder	placeholder
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Value

1

Halpern2012.AO	<i>Calculate Artisanal Fishing Opportunities.</i>
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Description

Calculate Artisanal Fishing Opportunities.

Usage

Halpern2012.AO(Sao, Oao, PPPpcGDP, ...)

Arguments

placeholder	placeholder Sao
placeholder	placeholder Oao
placeholder	placeholder PPPpcGDP

Value

1

Halpern2012.BD.HAB	<i>Calculate Habitats subgoal of Biodiversity.</i>
--------------------	--

Description

Calculate Habitats subgoal of Biodiversity.

Usage

Halpern2012.BD.HAB(Cc, Cr, ...)

Arguments

placeholder placeholder

Value

1

Halpern2012.BD.SPP	<i>Calculate Species subgoal of Biodiversity.</i>
--------------------	---

Description

Calculate Species subgoal of Biodiversity.

Usage

Halpern2012.BD.SPP(A, G, w, ...)

Arguments

placeholder placeholder

Value

1

Halpern2012.CP	<i>Calculate Coastal Protection</i>
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Description

Calculate Coastal Protection

Usage

Halpern2012.CP(Cc, Cr, w, A, ...)

Arguments

placeholder	placeholder Cc current 'condition' of habitat k
placeholder	placeholder Cr reference 'condition' of habitat k
placeholder	placeholder A amount of area covered by habitat k
placeholder	placeholder w rank weight of habitat protective ability

Value

1

Halpern2012.CS	<i>Calculate Carbon Storage</i>
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Description

Calculate Carbon Storage

Usage

Halpern2012.CS(Cc, Cr, A, ...)

Arguments

placeholder	placeholder Cc current 'condition' of habitat k
placeholder	placeholder Cr reference 'condition' of habitat k
placeholder	placeholder A amount of area covered by habitat k

Value

1

Halpern2012.CW	<i>Calculate Clean Waters.</i>
----------------	--------------------------------

Description

Calculate Clean Waters.

Usage

Halpern2012.CW(a, u, l, d, ...)

Arguments

placeholder	placeholder a number of coastal people without access to sanitation rescaled to global maximum
placeholder	placeholder u l - (nutrient input)
placeholder	placeholder l l - (chemical input)
placeholder	placeholder d l - (marine debris input)

Value

1

Halpern2012.FP	<i>Calculate Food Provision.</i>
----------------	----------------------------------

Description

Calculate Food Provision.

Usage

Halpern2012.FP(w, dBt, mMSY, Bt, Tc, k, Smk, Ac, Yk, ...)

Arguments

placeholder	placeholder k each mariculture species
placeholder	placeholder Smk sustainability score for each species k
placeholder	placeholder Ac area of coastal waters (3nm strip)
placeholder	placeholder Yl yield of each species k

Value

1

Halpern2012.FP.FIS	<i>Calculate Fisheries subgoal of Food Provision.</i>
--------------------	---

Description

Calculate Fisheries subgoal of Food Provision.

Usage

Halpern2012.FP.FIS(mMSY, Bt, Tc, ...)

Arguments

placeholder	placeholder dBt absolute difference between landed biomass and mMSY
placeholder	placeholder mMSY multi-species maximum sustainable yield
placeholder	placeholder Tc taxonomic report quiality correction factor
placeholder	placeholder Bt wild-caught fishing yield

Value

1

Halpern2012.FP.MAR	<i>Calculate Mariculture subgoal of Food Provision.</i>
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Description

Calculate Mariculture subgoal of Food Provision.

Usage

Halpern2012.FP.MAR(k, Smk, Ac, Yk, ...)

Arguments

placeholder	placeholder k each mariculture species
placeholder	placeholder Smk sustainability score for each species k
placeholder	placeholder Ac area of coastal waters (3nm strip)
placeholder	placeholder Yl yield of each species k

Value

1

Halpern2012.ICO	<i>Calculate Iconic Species subgoal of Sense of Place.</i>
-----------------	--

Description

Calculate Iconic Species subgoal of Sense of Place.

Usage

Halpern2012.ICO(S, w, ...)

Arguments

placeholder	placeholder S number of assessed species in each category
placeholder	placeholder w status weight assigned per threat category

Value

1

Halpern2012.LE	<i>Calculate Coastal Livelihoods and Economies.</i>
----------------	---

Description

Calculate Coastal Livelihoods and Economies.

Usage

Halpern2012.LE(jc, jr, gc, gr, ec, er, ...)

Arguments

placeholder	placeholder jc total adjusted jobs per sector at current time
placeholder	placeholder jr total adjusted jobs per sector at reference time
placeholder	placeholder gc average PPP-adjusted per-capita annual wages per sector in current region
placeholder	placeholder gr average PPP-adjusted per-capita annual wages per sector in reference region
placeholder	placeholder ec total adjusted revenue generated per sector at current time
placeholder	placeholder er total adjusted revenue generated per sector at reference time

Value

1

Halpern2012.LE.ECO	<i>Calculate Economies subgoal of Coastal Livelihoods and Economies.</i>
--------------------	--

Description

Calculate Economies subgoal of Coastal Livelihoods and Economies.

Usage

Halpern2012.LE.ECO(ec, er, ...)

Arguments

placeholder	placeholder ec total adjusted revenue generated per sector at current time
placeholder	placeholder er total adjusted revenue generated per sector at reference time

Value

1

Halpern2012.LE.LIV	<i>Calculate Livelihoods subgoal of Coastal Livelihoods and Economies.</i>
--------------------	--

Description

Calculate Livelihoods subgoal of Coastal Livelihoods and Economies.

Usage

Halpern2012.LE.LIV(jc, jr, gc, gr, ...)

Arguments

placeholder	placeholder jc total adjusted jobs per sector at current time
placeholder	placeholder jr total adjusted jobs per sector at reference time
placeholder	placeholder gc average PPP-adjusted per-capita annual wages per sector in current region
placeholder	placeholder gr average PPP-adjusted per-capita annual wages per sector in reference region

Value

1

Halpern2012.LSP	<i>Calculate Lasting Special Places subgoal of Sense of Place.</i>
-----------------	--

Description

Calculate Lasting Special Places subgoal of Sense of Place.

Usage

Halpern2012.LSP(CMPA, tCMPA, CP, tCP, ...)

Arguments

placeholder	placeholder CMPA coastal marine protected area
placeholder	placeholder tCMPA total coastal marine area
placeholder	placeholder CP coastline protected
placeholder	placeholder tCP total coastline

Value

1

Halpern2012.NP	<i>Calculate Natural Products. (Needs work)</i>
----------------	---

Description

Calculate Natural Products. (Needs work)

Usage

Halpern2012.NP(N, wp, Hp, E, R, Nv, Nk, w, ...)

Arguments

placeholder	placeholder N number of products that have ever been harvested
placeholder	placeholder wp proportional peak dollar value of each product relative to the total peak dollar value of all products
placeholder	placeholder Hp harvest of a product relative to its buffered peak reference point
placeholder	placeholder E exposure term
placeholder	placeholder R risk term
placeholder	placeholder Nv 1 or 2, depending on whether or not a viability term is used
placeholder	placeholder Nk number of species in each k category of exploitation
placeholder	placeholder w weight assigned to each k category of exploitation status

Value

1

Halpern2012.SP	<i>Calculate Sense of Place.</i>
----------------	----------------------------------

Description

Calculate Sense of Place.

Usage

Halpern2012.SP(S, w, CMPA, tCMPA, CP, tCP, ...)

Arguments

placeholder	placeholder S number of assessed species in each category
placeholder	placeholder w status weight assigned per threat category
placeholder	placeholder CMPA coastal marine protected area
placeholder	placeholder tCMPA total coastal marine area
placeholder	placeholder CP coastline protected
placeholder	placeholder tCP total coastline

Value

1

Halpern2012.TR	<i>Calculate Tourism and Recreation.</i>
----------------	--

Description

Calculate Tourism and Recreation.

Usage

Halpern2012.TR(D, t, V, S, ...)

Arguments

placeholder	placeholder D number of tourist-days
placeholder	placeholder t most recent year
placeholder	placeholder V total region population size
placeholder	placeholder S sustainability factor

Value

1

Layers	<i>Layers reference class.</i>
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Description

Layers reference class.

Usage

```
Layers(...)
```

Value

object (non-instantiated) reference class of Layers

SelectLayers	<i>Select a set of layers.</i>
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Description

Select a set of layers.

Usage

```
SelectLayers(object, mode = "all", cast = T,
  target = NULL, layers = NULL,
  expand.time.invariant = F,
  alternate.layer.names = NULL)
```

Arguments

object	instance of Layers class
mode	all target layers defines how to select layers
target	only needed if mode='target', specifies the target (from layers.navigation) which should be selected
layers	only needed if mode='layers', specifies the layers which should be selected
cast	T F whether to cast the resulting dataset, or leave it melted, defaults to TRUE

Value

data.frame with data from selected layers

SpatialSchemes	<i>SpatialSchemes reference class.</i>
----------------	--

Description

SpatialSchemes reference class.

Usage

SpatialSchemes(...)

Value

object (non-instantiated) reference class of SpatialSchemes

TransformSpatialScheme	<i>Transform data</i>
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Description

Transform data

Usage

TransformSpatialScheme(object, data, target, origin, categories)

Arguments

- | | |
|------------|--|
| object | instance of SpatialSchemes class |
| data | data.frame such as returned from 'SelectLayers' function |
| target | single spatial scheme to which data should be transformed |
| origin | spatial schemes from which to transform, can be vector |
| categories | layers for which transformation should be done (to be safe, for now this should be all the layers in param data) |

Value

data.frame transformed data

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