Package: icesVMS (via r-universe)

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Title Link to the ICES Vessel Monitoring System and Logbook Database Web Services

Imports glue, httr, icesConnect (>= 1.0.0), icesVocab, icesDatsuQC (>= 1.1.0)

Suggests sf

Description Links to the ICES Vessel Monitoring System (VMS) and logbook database web services <https://data.ices.dk/vms/webservices> to allow users to download summaries and data products.

License GPL (>= 2)

URL https://data.ices.dk/vms, https://github.com/ices-tools-prod/icesVMS

Encoding UTF-8

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Depends R (>= 4.0)

LazyData true

BugReports https://github.com/ices-tools-prod/icesVMS/issues

Repository https://ices-tools-prod.r-universe.dev

RemoteUrl https://github.com/ices-tools-prod/icesVMS

RemoteRef HEAD

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Contents

`icesVMS-package` *Functions to link to the ICES VMS and logbook database web services.*

Description

Functions to link to the ICES VMS and logbook database web services to allow users to download summaries and data products from the ICES VMS and logbook database.

Details

Download data:

`get_benthis_parameters`	download gear contact model parameters
`get_metier_lookup`	download metier to gear category lookup table
`get_vms`	download VMS data

Author(s)

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References

ICES VMS and Logbook Database web services: `https://data.ices.dk/vms/webservices`.

check_ecoregion *Lists of Vocabularies*

Description

Get a list of vocabularies such as country codes or ecoregions.

Usage

```
check_ecoregion(arg, stop.on.fail = TRUE)

check_stat_recs(arg, stop.on.fail = TRUE)

check_countries(arg, stop.on.fail = TRUE)
```

Arguments

arg	one of country code, ICES statistical rectangle or ICES ecoregion
stop.on.fail	logical, if TRUE function will call stop()

Value

logical

Examples

```
check_ecoregion("Celtic Seas")

check_stat_recs("40F1")

check_countries("DK")
check_countries(c("DK", "GB"))
```

get_benthis_parameters *Get gear characteristics for 'benthis' gear categories*

Description

Download a data.frame of gear contact models for 'benthis' gear categories used in calculating the swept area of a fishing gear.

Usage

```
get_benthis_parameters()
```

Value

a data.frame of model parameters

Examples

```
benthis_pars <- get_benthis_parameters()
```

`get_csquare` *Download C-square information*

Description

Download a data.frame of information on a set of C-squares.

Usage

```
get_csquare(c_square, stat_rec, ices_area, ecoregion, convert2sf = FALSE)
```

Arguments

`c_square`	character 0.05 degree c-square name
`stat_rec`	ICES statistical rectangle
`ices_area`	ICES area
`ecoregion`	ICES ecoregion
`convert2sf`	logical, default FALSE, should an simple features object be returned if the `sf` package is installed?

Details

If the `sf` package is installed then a simple features object will be returned, if convert2sf flag is set to TRUE.

Value

a data.frame of VMS data

Examples

```
sq40F3 <- get_csquare(stat_rec = "40F3")

# if the sf package is installed, an simple feature object will be returned
 NS <- get_csquare(ecoregion = "Greater North Sea", convert2sf = TRUE)
 plot(NS["ices_area"], border = "transparent")
```

get_ecoregion_list *Lists of Vocabularies*

Description

Get a list of vocabularies such as country codes or ecoregions.

Usage

```
get_ecoregion_list()

get_stat_rec_list()

get_country_list()
```

Value

a character vector

Examples

```
ecoregions <- get_ecoregion_list()
"Celtic Seas" %in% ecoregions

stat_recs <- get_stat_rec_list()
"40F1" %in% stat_recs

countries <- get_country_list()
"DK" %in% countries
```

get_effort_map *Download fishing effort map data*

Description

Download a data.frame of kw fishing hours by c-square and gear category averaged over 4 years.

Usage

```
get_effort_map(ecoregion, year = NULL, convert2sf = FALSE)
```

Arguments

ecoregion	ICES ecoregion (see details)
year	which year to select (see details)
convert2sf	logical, default FALSE, should an simple features object be returned if the sf package is installed?

Details

The spatial data.frame contains average annual mega Watt fishing hours, averaged over 4 years.

Available ecoregions are given in the description field of the ICES ecoregion vocabulary <http://vocab.ices.dk/?ref=1414>

Value

a data.frame with a WKT column for the c-square polygons

Examples

```
## Not run:
# requires authorization
ns_effort_map <- get_effort_map("Greater North Sea", convert2sf = TRUE)
plot(
  ns_effort_map[ns_effort_map$fishing_category_FO == "Otter","mw_fishinghours"],
  border = FALSE, logz = TRUE
)

## End(Not run)
```

---

get_fo_effort *Download fishing effort summaries*

Description

Download a data.frame of kw fishing hours by country and year for a given ICES ecoregion.

Usage

```
get_fo_effort(ecoregion)
```

Arguments

ecoregion	ICES ecoregion

Value

a data.frame

Examples

```
## Not run:
# requires authorization
ns_effort_data <- get_fo_effort("Greater North Sea")

## End(Not run)
```

get_fo_landings *Download fishing landings summaries*

Description

Download a data.frame of total weight by country and year for a given ICES ecoregion.

Usage

```
get_fo_landings(ecoregion)
```

Arguments

ecoregion	ICES ecoregion

Value

a data.frame

Examples

```
## Not run:
# requires authorization
ns_landings_data <- get_fo_landings("Greater North Sea")

## End(Not run)
```

get_logbook *Download Logbook data*

Description

RESTRICTED. Only core members of the ICES VMS data call can access this data. Download a data.frame of VMS data from the ICES VMS and logbook database.

Usage

```
get_logbook(
  country,
  year,
  month,
  gear_code,
  metier,
  stat_rec,
  ices_area,
  ecoregion
)
```

Arguments

country	country code
year	integer year
month	integer month
gear_code	benthis gear code
metier	level 6 metier code
stat_rec	ICES statistical rectangle
ices_area	ICES area
ecoregion	ICES ecoregion

Value

a data.frame of VMS data

Examples

```
## Not run:
# requires authorization
logbook <- get_logbook(country = "DK", year = 2021, month = 1)

## End(Not run)
```

---

get_metier_lookup *Link Metier level 6 to Benthis categories*

Description

Download a data.frame of Metier codes to link level 6 metier codes with different gear categories

Usage

```
get_metier_lookup()
```

Value

a data.frame

Examples

```
metier_lookup <- get_metier_lookup()
```

`get_passive_footprint` *Download passive fishing gear footprint*

Description

Download a data.frame of presence of fishing by c-square and year for passive fishing gears (see details).

Usage

```
get_passive_footprint(
  ecoregion,
  year,
  metier_level4 = NULL,
  datacall = NULL,
  convert2sf = FALSE
)
```

Arguments

`ecoregion`	ICES ecoregion
`year`	which year to select
`metier_level4`	optional gear code (metier level 4) ("FPO")
`datacall`	integer year giving which data call year to inquire about. If NULL returns the a summary of the most recent approved data.
`convert2sf`	logical, default FALSE, should an simple features object be returned if the `sf` package is installed?

Details

Passive gears defined as all gears registered under the metier level 4 codes, FPO (fishing pots), LLS (long lines) and GNS (set gill nets), with the exclusion of metier level 5 codes within the GNS category: GNS_SPF and GNS_LPF (set gill nets targeting small and large pelagic fish).

Value

a data.frame with a WKT column for the c-square polygons

Examples

```
## Not run:
# requires authorization
footprint_map <- get_passive_footprint("Celtic Seas", 2021, convert2sf = TRUE)
plot(footprint_map["ecoregion"], border = FALSE)

## End(Not run)
```

get_sar *Download VMS data*

Description

RESTRICTED. Only core members of the ICES VMS data call can access this data. Download a data.frame of VMS swept area ratio values from the ICES VMS and logbook database.

Usage

```
get_sar(
  year,
  c_square,
  gear_code,
  stat_rec,
  ices_area,
  ecoregion,
  datacall = NULL
)
```

Arguments

year	integer year
c_square	character 0.05 degree c-square name
gear_code	benthis gear code
stat_rec	ICES statistical rectangle
ices_area	ICES area
ecoregion	ICES ecoregion
datacall	integer year giving which data call year to inquire about. If NULL returns the a summary of the most recent approved data.

Value

a data.frame of VMS data

Examples

```
## Not run:
# requires authorization
sar <- get_sar(2021, stat_rec = "40F1")

## End(Not run)
```

`get_sar_map` *Download swept area ratio map data*

Description

Download a data.frame of surface and subsurface swept area ratio by c-square for a given ICES ecoregion.

Usage

```
get_sar_map(ecoregion, year = NULL, nyears = NULL, convert2sf = FALSE)
```

Arguments

`ecoregion`	ICES ecoregion
`year`	which year to select (see details)
`nyears`	the number of years to take an average over
`convert2sf`	logical, default FALSE, should an simple features object be returned if the `sf` package is installed?

Details

The spatial data.frame contains average annual surface-swept-area-ratio and subsurface-swept-area-ratio averaged over 4 years by default. If year is not specified (NULL) then the present year - 1 is assumed.

Value

a data.frame with a WKT column for the c-square polygons

Examples

```
## Not run:
# requires authorization
sar_map <- get_sar_map("Celtic Seas", 2021, convert2sf = TRUE)
plot(sar_map["surface_sar"], border = FALSE, logz = TRUE)

## End(Not run)
```

get_screening_details *Get the details of a file screening session*

Description

Download a list of information on a file upload screening session.

Usage

```
get_screening_details(sessionId)
```

Arguments

sessionId	file screening session ID

Value

a list

Examples

```
screening_info <- get_screening_details(530)
```

get_screening_messages *Get all messages of a file screening session*

Description

Download a list of error and warning messages on a file upload screening session.

Usage

```
get_screening_messages(sessionId)
```

Arguments

sessionId	file screening session ID

Value

a list

Examples

```
tofix <- get_screening_messages(528)
```

get_upload_summary *Download a summary of submitted data*

Description

Download a summary of submitted data

Usage

```
get_upload_summary(datacall = NULL)
```

Arguments

datacall	integer year giving which data call year to inquire about. If NULL returns the a summary of the most recent approved data.

Value

a data.frame of VMS summary data

Examples

```
## Not run:
upload_summary <- get_upload_summary()

## End(Not run)
```

get_vms *Download VMS data*

Description

RESTRICTED. Only core members of the ICES VMS data call can access this data. Download a data.frame of VMS data from the ICES VMS and logbook database.

Usage

```
get_vms(
  country,
  year,
  month,
  c_square,
  gear_code,
  metier,
  stat_rec,
```

```
  ices_area,
  ecoregion,
  datacall = NULL
)
```

Arguments

country	country code
year	integer year
month	integer month
c_square	character 0.05 degree c-square name
gear_code	benthis gear code
metier	level 6 metier code
stat_rec	ICES statistical rectangle
ices_area	ICES area
ecoregion	ICES ecoregion
datacall	integer year giving which data call year to inquire about. If NULL returns the a summary of the most recent approved data.

Value

a data.frame of VMS data

Examples

```
## Not run:
# requires authorization
vms <- get_vms(country = "DK", year = 2021, month = 1)

## End(Not run)
```

---

get_wgfbit_data1 *Download swept area ratio, landings and value map data*

Description

Download a data.frame of surface and subsurface swept area ratio by c-square for a given ICES ecoregion, year and gear code.

Usage

```
get_wgfbit_data1(
  ecoregion,
  year,
  fishing_category = NULL,
  benthis_metier = NULL,
  datacall = NULL,
  convert2sf = FALSE
)
```

Arguments

ecoregion	ICES ecoregion
year	which year to select
fishing_category	optional gear category ("Otter", "Dredge")
benthis_metier	optional benthis metier ("SDN_DMF")
datacall	integer year giving which data call year to inquire about. If NULL returns the a summary of the most recent approved data.
convert2sf	logical, default FALSE, should an simple features object be returned if the sf package is installed?

Details

fishing_category and benthis_metier may not both be supplied, if neither are supplied the total is calculated.

Value

a data.frame with a WKT column for the c-square polygons

Examples

```
## Not run:
# requires authorization
data1 <- get_wgfbit_data1("Celtic Seas", 2021, benthis_metier = "OT_DMF", convert2sf = TRUE)
plot(data1["total_weight"], border = NA, logz = TRUE)

## End(Not run)
```

get_wgfbit_data2 *Download swept area ratio, landings and value map data*

Description

Download a data.frame of surface and subsurface swept area ratio by c-square for a given ICES ecoregion, year and gear code.

Usage

```
get_wgfbit_data2(ecoregion, year, convert2sf = FALSE)
```

Arguments

ecoregion	ICES ecoregion
year	which year to select
convert2sf	logical, default FALSE, should an simple features object be returned if the sf package is installed?

Value

a data.frame with a WKT column for the c-square polygons

Examples

```
## Not run:
# requires authorization
data2 <- get_wgfbit_data2("Celtic Seas", 2021, convert2sf = TRUE)
plot(data2[data2$lE_MET_level6 == "OTB_DEF_70-99_0_0", "total_weight"], border = NA, logz = TRUE)

## End(Not run)
```

get_wgfbit_data3 *Download swept area ratio, landings and value map data*

Description

Download a data.frame of surface and subsurface swept area ratio by c-square for a given ICES ecoregion, month, year and gear code.

Usage

```
get_wgfbit_data3(
  year,
  fishing_category = NULL,
  benthis_metier = NULL,
  datacall = NULL,
  convert2sf = FALSE
)
```

Arguments

year	which year to select
fishing_category	optional gear category ("Otter", "Dredge")
benthis_metier	optional benthis metier ("SDN_DMF")
datacall	integer year giving which data call year to inquire about. If NULL returns the a summary of the most recent approved data.
convert2sf	logical, default FALSE, should an simple features object be returned if the sf package is installed?

Details

gear_group and benthis_metier may not both be supplied, if neither are supplied the total is calculated.

Value

a data.frame with a WKT column for the c-square polygons

Examples

```
## Not run:
# requires authorization
data3 <- get_wgfbit_data3(2021, benthis_metier = "OT_DMF", convert2sf = TRUE)
plot(data3["surface_sar"], border = NA, logz = TRUE)

## End(Not run)
```

---

screen_vms_file *Screen a VMS file and submit for QC checks*

Description

In this web service the user can upload a file to be screen and validated by the VMS database. The service can be called using post and the file will have to be part of the body of the call. The user needs to be authenticated in order to call this service. This file can be later pushed to the database by the same user.

Usage

```
screen_vms_file(filename, verbose = FALSE, force = FALSE)
```

Arguments

filename	file name of the file containing the data to screen
verbose	return verbose information about the POST request
force	force submission even if checks to do not pass

Value

text message from the screening process

Examples

```
## Not run:
# requires authorization
filename <- system.file("test_files/vms_test.csv", package = "icesVMS")
screen_vms_file(filename)

filename <- system.file("test_files/vms_test_ok.csv", package = "icesVMS")
screen_vms_file(filename)

## End(Not run)
```

---

sum_distinct_vessels *Add together anonymous ID entries*

Description

Anonymous vessel IDs are supplied when there are less than 2 vessels. Therefore when adding these values, if there is one or more values containing an empty string (? 2 vessels) then the results is an empty string also. Otherwise, a unique vector of vessel IDs is computed and if there are 2 or less unique entries they are returned, otherwise an empty string is returned.

Usage

```
sum_distinct_vessels(id, n)

sum_vessel_ids(id, n)
```

Arguments

id	a vector vessel Ids entries: string vector of semi-colon separated IDs
n	a vector corresponding to the number of unique vessel ids in the vector supplied in id where 3 codes for anything greater than 2.

Value

a single character

Note

the format of the vessel IDs is a semi-colon separated list of IDs contained in a character vector of length one.

Examples

```
sum_vessel_ids(c("id1;id2", "id1", "id2", "id1;id3", ""), c(2, 1, 1, 2, 3))
sum_vessel_ids(c("id1;id2", "id1", "id2", "id1;id3"), c(2, 1, 1, 2))


sum_distinct_vessels(c("id1;id2", "id1", "id2", "id1;id3", ""), c(2, 1, 1, 2, 3))
sum_distinct_vessels(c("id1;id2", "id1", "id2", "id1;id3"), c(2, 1, 1, 2))

## Not run:
require(dplyr)

data(vms)
vms <-
  vms %>%
  group_by(year, cSquare) %>%
  summarise(
    fishingHours = sum(fishingHours, na.rm = TRUE),
    totweight = sum(totweight, na.rm = TRUE),
    noDistinctVessels = sum_distinct_vessels(anonymizedVesselID, noDistinctVessels),
    anonymizedVesselID = sum_vessel_ids(anonymizedVesselID, noDistinctVessels),
    .groups = "drop"
  )

## End(Not run)
```

---

vms_api *Build a VMS web service url*

Description

utility to build a url with optional query arguments

Usage

```
vms_api(service, ...)
```

Arguments

service	the name of the service
...	named arguments will be added as queries

Value

a complete url as a character string

Examples

```
vms_api("hi", bye = 21)
vms_api("csquares", argument1 = 2021, argument2 = NULL)
```

`wkt_csquare` *Build a WKT string from latitude and longitude*

Description

utility to build a WKT (Well Known Text) polygon string for a c-square

Usage

```
wkt_csquare(lat, lon)
```

Arguments

`lat`	latitude
`lon`	longitude

Value

a string in WKT format

Examples

```
wkt_csquare(55, 0.1)
```

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