

# Cookbook for Generic Terms of undersea feature names

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## Introduction

The names of undersea features beyond territorial waters (12 nautical miles) are approved annually by the Sub-Committee on Undersea Features Names (SCUFN). SCUFN was established in 1975 under the General Bathymetric Chart of the Oceans (GEBCO), an international group of experts in ocean surveying and mapping, that operates under the joint auspices of the Intergovernmental Oceanographic Commission (IOC) (of UNESCO) and the International Hydrographic Organization (IHO). GEBCO's aim is to provide the most authoritative publicly available bathymetry of the world's oceans including undersea feature names.

GEBCO maintains and makes available a digital gazetteer of the names, including generic feature type and geographic position of features on the seafloor (<https://www.ngdc.noaa.gov/gazetteer/>). Information about undersea feature names, including guidelines and nomenclature, can be found on the GEBCO website [https://www.gebco.net/about\\_us/committees\\_and\\_groups/scufn/](https://www.gebco.net/about_us/committees_and_groups/scufn/).

Undersea feature names have two parts a Specific Term (first part) and a Generic Term (second part). The Specific Term is chosen by the proposer according to the "Principles for Naming Features" in the B-6 publication available from the GEBCO website:

[https://www.gebco.net/data\\_and\\_products/undersea\\_feature\\_names/documents/b6\\_ef\\_e4.1.0\\_2013\\_rev2017.pdf](https://www.gebco.net/data_and_products/undersea_feature_names/documents/b6_ef_e4.1.0_2013_rev2017.pdf). The Generic Term reflects the geometrical form of the feature, or in special cases, the geologic development of the feature. It should be selected from the approved list in the B-6 publication, and also shown on the website: <http://www.kosbidb2.co.kr:8080/recommend/>.

Part of SCUFN's role is to provide advice to individuals and appropriate authorities on the selection of undersea feature names. This cookbook provides guidelines for selecting appropriate Generic Terms for undersea feature names. The guidelines cover several criteria (dimensions, depth, steepness and length to width ratio) that are used to help classify the morphological shape and hence identify the correct Generic Term. The difference between some Generic Terms can be quite subtle, so this cookbook expands on some descriptions and provides comments to reduce confusion. Strictly adhering to the criteria in this cookbook may, at times, result in some features not having a Generic Term described in the B-6 publication. In these special circumstances the proposer of an undersea feature name would need to describe the reason for selecting the Generic Term for a feature in a proposal.

## How to use this cookbook

There have been many precedents to the application of the B-6 publication by SCUFN. The document is intended to highlight these precedents in order to guide the decision-making process by future SCUFN meetings.

After reading the section below on basic concepts for Generic Term definitions, identify the Generic Term that most closely fits the undersea feature to be named. This can be done from B-6 publication or the undersea feature Generic Terms and definitions website.

Verify that the undersea feature fits the criteria for dimensions, depth, steepness and length to width ratio in the Generic Terms section of this cookbook.

If the feature does not fit all these criteria, refer to the Similar Features section for each Generic Term and identify an alternative term, then verify that the new term fits the criteria for dimensions, depth, steepness and length to width ratio.

If there is no Generic Term in the B-6 publication that fits the criteria in this cookbook then select the Generic Term that most closely meets the criteria and in the undersea feature name proposal describe the reason for selecting the term.

### Pending names

Pending names are valid for two years. Proposers can continue to express interest in their proposals during this two-year period, and this can extend the period of time that the pending name is valid. In the absence of any interest in the two-year period, the name will be removed from the list.

### Names in long-standing use

#### *Names in peer-reviewed papers*

Undersea features that have been named in peer-reviewed papers for long-standing use ( $\geq 25$  years) shall have precedence over new proposed names. The generic name of these long-standing undersea feature names may be changed if newer data shows that they are manifestly wrong.

Many of these long-standing undersea feature names can be named for associated land features. Naming Authorities of coastal states may rename these associated land features (e.g., to recognise the original native language names). In which case, the specific name of these long-standing undersea feature names may be renamed in accordance to that of the Naming Authority of the relevant coastal state.

#### *Names in hydrographic charts*

Undersea features that have been named in official hydrographic charts for long-standing use ( $\geq 25$  years) shall have precedence over new proposed names. The generic name of these long-standing undersea feature names may be changed if newer data shows that they are manifestly wrong.

Many of these long-standing undersea feature names can be named for associated land features. Naming Authorities of coastal states may rename these associated land features (e.g., to recognise the original native language names). In which case, the specific name of these long-standing undersea feature names may be renamed in accordance to that of the Naming Authority of the relevant coastal state.

### Minimum extent of data coverage

In order to make a definitive decision on the appropriate generic term that should be applied to an undersea feature, there should be enough evidence of direct depth measurements to satisfy the use of the proposed generic term. In an ideal situation, a feature will be completely surveyed by an appropriate depth measuring technology (e.g. multibeam echo-sounder). However, this is seldom the case. For example, see Gilberto Amado HILL (SCUFN34/VTC01/57).

In terms of acceptable data coverage, the proposed generic term should be accepted as long as:

- a) the data show clearly that an undersea feature exists; and
- b) the data show that the defining criteria for the proposed generic term are met.

### Genetic-origin features

For undersea feature name proposals where the generic term has a genetic meaning, additional information to support the genetic feature should be supplied. This information may include any of the following: scientific papers on the feature and/or surrounding region; geophysical data; geological data, seismic (including sub-bottom sounders).

## Groups of features

Groups of features with a common name theme should, if possible, use neighbouring features for the group. Groups should make sense in terms of the relationship between the names and the number of features within neighbourhood e.g., naming features after the famous “7 Stars” will not be accepted unless there are group of 7 features.

## Basic concepts for Generic Term definitions

Undersea feature names apply to any feature that can be morphologically defined within the oceans. Any feature that extends above sea level is not an undersea feature, and features such as atolls and reefs that are not completely submerged are not named by SCUFN.

There should be a Generic Term for every type of undersea feature, therefore Generic Term definitions need to be wide-ranging to encompass all features within the oceans. Strictly adhering to the criteria in this cookbook may, at times, lead to the inability to find a Generic Term that fits the feature. It is for this reason that terms such as “typically” and “usually” are often used in the criteria in this cookbook. In these cases, SCUFN has some flexibility in allowing Generic Terms that do not adhere directly to the guidelines in this cookbook. For example, the terms PROMONTORY and SEABIGHT, used for harmonization with other gazetteers, do not have equivalents in the primary list of Generic Terms. One option maybe to use the SPUR term for a PROMONTORY and the VALLEY term for SEABIGHT. In addition, the proximity of land can affect the morphology of features. For example, narrow BASINS with length to width ratios far greater than 3:1 often occur within fjords. Therefore, the criteria set out in this cookbook should be used with caution for features within territorial seas.

Some features may have several components that can be classified with different Generic Terms. Alternatively, a feature may occur within another feature. For example, a seamount may include several ridge-like parts and have a caldera at the summit. Such features can be delineated as a single feature with a single term that corresponds to the most significant part of the feature (ie that component that makes up more than 50% of the feature), and individual components of a feature may be defined and named separately. In cases where components are quite discrete and easily delineated it is better to name these as separate features.

Generic Terms for features that have a genetic implication are identified with an asterisk in B6. Currently these are CALDERA, FRACTURE ZONE, MOUND, MUD VOLCANO, REEF, RIFT, SALT DOME, SAND RIDGE, SHOAL and RIDGE. Except in cases where the process of formation for a feature is obvious from the morphology (e.g. CALDERA, FRACTURE ZONE, REEF, RIFT, SALT DOME), geological information is usually required to use these Generic Terms. If this information is not available, an alternative Generic Term should be used. There are Generic Terms that are not listed above that have definitions that require distinct geological processes and therefore have genetic implications (eg LEVEE, FAN, SHOAL). It is assumed that in these cases the process of formation for a feature is obvious from the morphology.

## Length to width ratio

The ratio of length to width is useful when identifying the correct Generic Term. The ratio of 3:1 is key and used to draw a distinction between many features. Features that typically have length to width ratios less than 3:1 include ABYSSAL PLAIN, APRON, BANK, BASIN, CALDERA, DEEP, FAN, GUYOT, HILL, HOLE, KNOLL, MOUND, MUD VOLCANO, PEAK, PINNACLE, PLATEAU, SALT DOME, RISE and SEAMOUNT. Features with a length to width ratio greater than 3:1 include CANYON,

ESCARPMENT, FRACTURE ZONE, LEVEE, MOAT, RIDGE, RIFT, SAND RIDGE, SEA CHANNEL, SPUR, TRENCH, TROUGH and VALLEY.

Some features typically have length to width ratios greater than 10:1. These are CANYON, FRACTURE ZONE, and SEA CHANNEL and their associated LEVEEs. Although these generally have a high length to width ratios, in some cases this may be as little as 3:1.

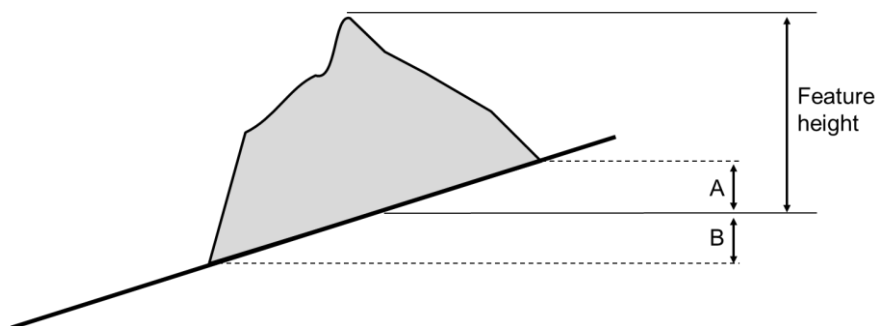
Features of variable length to width ratio are GAP, PROVINCE, REEF, SADDLE, SHELF, SHOAL, SILL, SLOPE and TERRACE.

#### Depths and heights of features

Only a few features have definitions that include water depth (ABYSSAL PLAIN, BANK, SHELF and SHOAL). However, many other features typically occur in particular settings, and this cookbook provides some guidance on these. For example, SEA CHANNELs usually occur from the base of a SLOPE and often found on the ABYSSAL PLAIN, but they may occur at shallower depths, greater than 200 m where the seafloor is gently sloping.

In addition, water depth is inherent in definitions for SEAMOUNT and GUYOT that have a height greater than 1000 m above the surrounding relief as measured from the deepest isobath that surrounds most of the feature. These features cannot occur in water depths less than 1000 m.

Measuring the height of feature on sloping or irregular seafloor can be challenging because it can be difficult to identify the deepest isobath that surrounds most of the feature. In some cases, but not all, this can be simplified to a height from the summit to the mean depth of the deepest contour and shallowest contour that define the base of the feature (Figure 1).



*Figure 1: Determining the height of a feature on sloping or irregular seafloor.*

#### Steepness of features

This cookbook identifies key inclination angles of features. Flat features that dip at less than one degree are ABYSSAL PLAIN, APRON and SHELF. Almost flat features that dip at less than two degrees are BANK, BASIN, FAN, GUYOT tops (see section on Guyots), PLATEAU, RISE, SHOAL and TERRACE.

Many features often have one or more steep sides that dip at angles greater than 5 degrees. These are HILL, KNOLL, MOUND, MUD VOLCANO, PEEK, PLATEAU, SALT DOME, SEAMOUNT, TRENCH, TROUGH and VALLEY, although in some cases these features may have more gently sloping sides. Features with very steep sides, greater than 10 degrees, are CANYON (sides), ESCARPMENT, PINNACLE and SEA CHANNEL (sides).

The steepness of sides can be useful in differentiating between a KNOLL, a RISE and a PLATEAU (Figure 2). All are smooth features with rounded profiles although the RISE and PLATEAU can be flat



or almost flat (less than two degrees) over a large proportion of the feature. KNOLL and PLATEAU have at least one side that is steeper than 5 degrees, whereas the RISE has gently sloping sides.

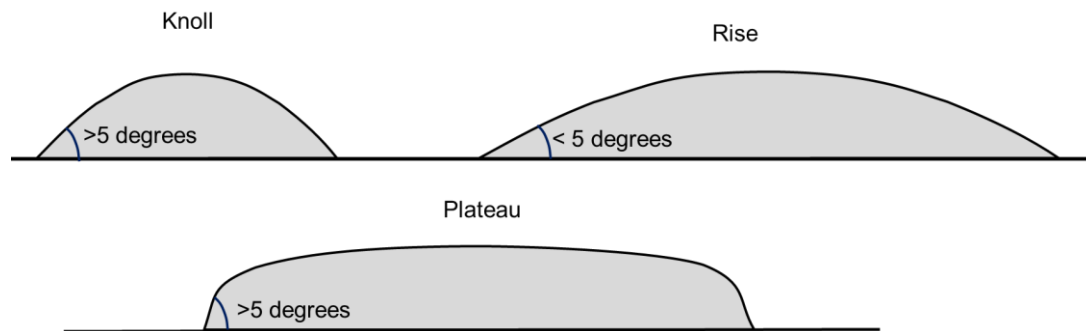


Figure 2: KNOLL and PLATEAU have at least one side that is steeper than 5 degrees, whereas the RISE has gently sloping sides.

### Knolls and Hills

The difference between a HILL and a KNOLL is quite subtle. Both features are less than 1000 m high and have sides that are steeper than 5 degrees. The difference between the features is the smoothness of form. KNOLLS tend to be almost symmetrical and have a rounded or conical profile with a smooth top, whereas HILLS are generally of irregular shape. Some examples that show these differences are shown in Figure 3.

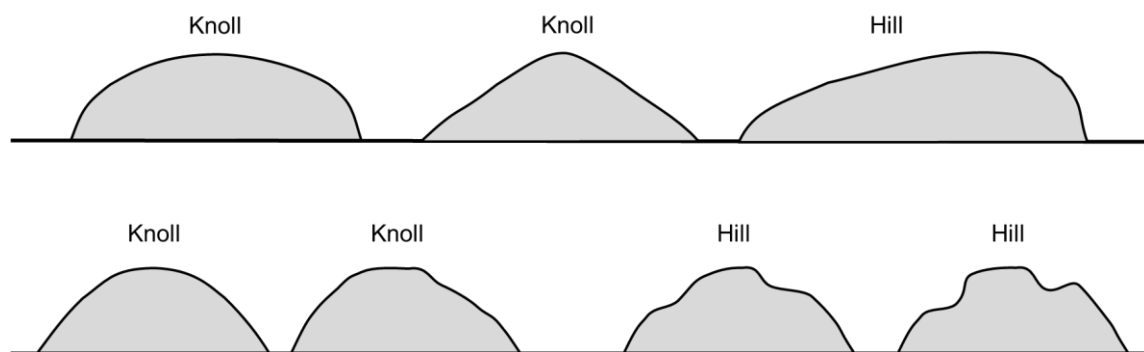


Figure 3: Profiles that show the difference between HILLS and KNOLLS.

### Guyot definition

In the B-6 publication a GUYOT is defined as a SEAMOUNT with a comparatively smooth flat top. According to the generally accepted theory GUYOTs originate as volcanic islands that are truncated by wave erosion and become more deeply submerged with time as the seafloor migrates away from mid-ocean spreading ridges. These features vary in area from a few 10s of square kilometres to hundreds of square kilometres.

The area of flat terrain on top of the GUYOT can also vary greatly but is generally greater than 10 square kilometres. A feature with less than 1 square kilometre of flat terrain is usually considered a SEAMOUNT. The term comparatively smooth in the definition means almost flat (dip of less than two degrees). In the context of flat terrain on top of the GUYOT a dip of less than two degrees means the shortest dimension across the summit plateau is greater than 28 times the topography of summit plateau (Figure 4). For example, a Guyot with a summit plateau of 10 kilometres width, the topography can vary from 175m for a central summit to 350 m in the case where the highest point is

at one side (Figure 4). Exceptions are made if there is a discrete peak or pinnacle on summit plateau (Figure 5).

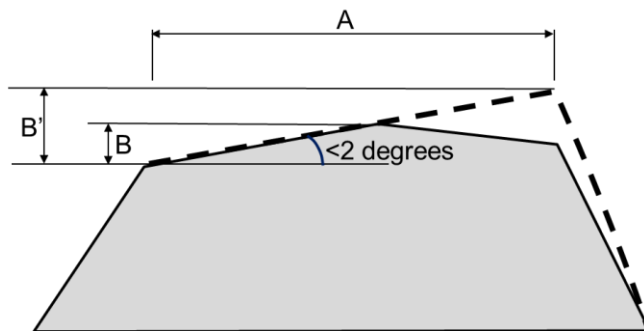


Figure 4: The almost flat terrain on top of a GUYOT should have a dip of less than two degrees. In the above example, for a GUYOT of 10 kilometres width (A) the topography shall be less than 175m (B) for central summit, or 350m (B') for highest point at one side.

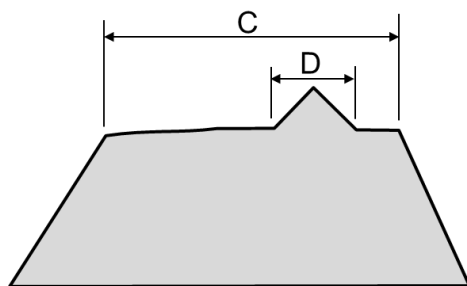


Figure 5: A GUYOT may have a discrete PEAK or PINNACLE on summit plateau that is less than 1/5 the width of summit plateau ( $D < C/5$ ).

### Minimum dimension

The size of undersea features that are named has always been dependent of the mapping technology. At the time SCUFN was established, in 1975, single beam sounding systems were the “standard” equipment used and features were identified, defined and named based on a few ship tracks. This meant that only significantly large features, usually greater than 10 kilometres across were mapped and named. Also, there were often assumptions on the form of the feature resulting in the assignment of Generic Terms that do not comply with the criteria set in this cookbook.

By 2000 multibeam sounders were commonly used on research vessels and smaller features less than 10 square kilometres were being routinely mapped in detail and named. Shipborne multibeam sounders used for offshore surveys typically have a resolution of 10 to 50 m depending on water depth and currently feature architecture on the scale of about 500 m is used to define Generic Terms. With multibeam sounding systems now being used on autonomous underwater vehicles (AUVs) the mapping resolution is better than 1 metre and features of a few 10s in size of meters are being defined.

SCUFN does not have any minimum size for features to be named. However as with terrestrial features, undersea features less than a few hundred metres across are usually not named except in special case that are usually based on historical significance.

## Generic Terms

### ABYSSAL PLAIN

**Definition:** A long depression generally wide and flat bottomed with symmetrical and parallel sides.

**Dimensions:** Generally greater than 100 x 100 kilometres.

**Length to width ratio:** Typically, about 1:1, but can be elongate up to 3:1.

**Depth:** Usually greater than 4000 m

**Steepness:** Usually less than 1 degree - 175 m change in elevation over 10 kilometres.

**Comments:** These are deep-sea features and should not be confused with BASINS that can also occur at shallower depths. ABYSSAL PLAINS differ from BASINS in that they are part of the deep ocean floor, sometimes extending around isolated SEAMOUNTs and RIDGEs, and often have little or no sediment cover. The edges of ABYSSAL PLAINS can be difficult to define as they tend to merge with the SLOPE at continental margins.

**Similar Features:** If length to width ratio is greater than 3:1 consider TROUGH or TRENCH definitions. If smaller than 100 x 100 kilometres consider BASIN, DEEP and HOLE definitions.

### APRON

**Definition:** A gently dipping SLOPE, with a smooth surface, commonly found around groups of islands and SEAMOUNTs.

**Dimensions:** Can vary greatly from less than one square kilometre to 100s of square kilometres.

**Length to width ratio:** Typically, about 1:1, but can be elongate up to 3:1.

**Depth:** Any water depth.

**Steepness:** Usually less than 1 degree - 175 m change in elevation over 10 kilometres.

**Comments:** There are few of these in the gazetteer.

**Similar Features:** If not associated with a SEAMOUNT consider FAN definition. If steeper than two degrees consider SLOPE definition.

### BANK

**Definition:** An elevation of the seafloor at depths generally less than 200 m, but sufficient for safe surface navigation, commonly found on the CONTINENTAL SHELF or near an island.

**Dimensions:** Can vary greatly from less than one square kilometre to 100s of square kilometres.

**Length to width ratio:** Typically, about 1:1, but can be elongate up to 3:1. In rare cases may be greater than 3:1.

**Depth:** Less than 200 m and greater than 30 m (largest ships today have a draft of 25 m)

**Steepness:** Usually less than two degrees - 350 m change in elevation over 10 kilometres.

**Comments:** BANKs are commonly found on the SHELF but may also occur at the summit of a SEAMOUNT or GUYOT. The definition is only for that part of the feature less than 200 m, therefore a BANK with one name may occur on a SEAMOUNT with a different name.

**Similar Features:** If length to width ratio is greater than 3:1 consider RIDGE definition.

## BASIN

**Definition:** A depression more or less equidimensional in plan and of variable extent.

**Dimensions:** Usually greater than 10 kilometres in largest dimension.

**Length to width ratio:** Can be up to 3:1.

**Depth:** Any water depth.

**Steepness:** Usually less than two degrees - 350 m change in elevation over 10 kilometres

**Comments:** Definition can cover many different features but try to restrict this term to features with length to width ratios of less than 3:1. This term should not be confused with "sedimentary basin", a sediment deposition centre that can occur in within several different morphological depressions.

**Similar Features:** If depth is greater than 4000 m and area is more than 100 x 100 kilometres consider ABYSSAL PLAIN definition. If the length to width ratio is greater than 3:1 consider TROUGH or TRENCH definitions.

## CALDERA\*

**Definition:** A roughly circular, cauldron-like depression generally characterized by steep sides and formed by collapse, or partial collapse, during or following a volcanic eruption.

**Dimensions:** Usually greater than one kilometre across, some are more than 100 kilometres across.

**Length to width ratio:** Usually close to 1:1.

**Depth:** Any water depth.

**Steepness:** Variable.

**Comments:** CALDERAs are commonly found in volcanic PROVINCEs and also occur within a SEAMOUNT. The definition is only for that part of the feature that is the cauldron-like depression, therefore a CALDERA with one name may occur on a SEAMOUNT with a different name. The shape of some CALDERAs is controlled by underlying, regional faulting and resulting in a more rectangular shape rather than being roughly circular.

**Similar Features:** If the feature does not have a volcanic in origin consider HOLE or DEEP definitions.

## CANYON

**Definition:** An elongated, narrow, steep-sided depression that generally deepens down-slope.

**Dimensions:** Usually greater than one kilometre across, some are more than 100 kilometres across. CANYONS are rarely less than 10 kilometres in length and can be more than 100 kilometres.

**Length to width ratio:** Greater than 3:1, usually greater than 10:1.

**Depth:** Usually originate on the SHELF (less than 200m). Can extend to ABYSSAL PLAIN depth.

**Steepness:** Side usually steeper than 10 degrees - 175 m change in elevation over one kilometre.

**Comments:** Sometime confused with a VALLEY or SEA CHANNEL. CANYONS are steep sided and do not widen by more than 3 times down-slope. They do not usually occur on gently sloping seafloor such as within BASINS or on FANS and APRONS.

**Similar Features:** If the feature widens down-slope by more than 3 times, consider VALLEY definition, and if it has meandering path with oxbows and LEVEEs and occurs on gently sloping seafloor consider SEA CHANNEL definition.

**Precedents:** If a proposed CANYON feature includes its network of tributary canyons, then this is known as CANYONS (See Jeffrey CANYONS, SCUFN33/15).

## DEEP

**Definition:** A localized depression within the confines of a larger feature, such as a TROUGH, BASIN or TRENCH.

**Dimensions:** Usually greater than one kilometre across, the largest dimension for some is more than 100 kilometres.

**Length to width ratio:** Can be up to 3:1, and greater if within a TRENCH or TROUGH.

**Depth:** Any water depth.

**Steepness:** Variable.

**Comments:** Often found in or on other features such as ABYSSAL PLAINS, TRENCHES, TROUGHS etc.

**Similar Features:** For features that are within the confines of a larger feature but with dimensions larger than 100 kilometres, consider BASIN definition, and if the length to width ratio is greater than 3:1 consider TROUGH definition.

## ESCARPMENT

**Definition:** An elongated, characteristically linear, steep slope separating horizontal or gently sloping areas of the sea floor.

**Dimensions:** Usually greater than 10 kilometre in length and can be 100s kilometres long.

**Length to width ratio:** Greater than 3:1, but usually greater than 10:1.

**Depth:** Any water depth.

**Steepness:** Usually steeper than 10 degrees - 175 m change in elevation over one kilometre.

**Comments:** Can occur at the edge of other features such as TROUGHS, CANYONS and TERRACES.

**Similar Features:** May be the riser of a TERRACE.

## FAN

**Definition:** A relatively smooth, depositional feature continuously deepening away from a sediment source commonly located at the lower termination of a CANYON or canyon system.

**Dimensions:** Usually greater than one kilometre across, some are more than 100 kilometres across.

**Length to width ratio:** Usually about 1:1 but can be elongated (up to 3:1) in places where formation is controlled by seabed topography and/or sea currents.

**Depth:** Often at abyssal depths but may occur in shallow basins in more than 200 m water depth.

**Steepness:** Usually less than two degrees - 350 m change in elevation over 10 kilometres.

**Comments:** Meandering SEA CHANNELs may occur on a FAN, so steepness is generally less than one degree. FANs may also occur at the base of submarine landslides.

**Similar Features:** Consider APRON definition if associated with a SEAMOUNT.

#### FRACTURE ZONE\*

**Definition:** A long narrow zone of irregular topography formed by the movement of tectonic plates associated with an offset of a spreading ridge axis, characterized by steep-sided and/or asymmetrical RIDGES, TROUGHS or ESCARPMENTS.

**Dimensions:** Usually longer than 100 km and can be several 1000 kilometres long.

**Length to width ratio:** Usually greater than 10:1.

**Depth:** Any water depth, but usually at abyssal depths on the deep ocean floor.

**Steepness:** Variable.

**Comments:** Morphologically FRACTURE ZONEs include both the active transform fault between spreading ridges and the inactive fault beyond the spreading ridges that may extend to the edge of a continental margin. Usually associated with a single fault but can sometimes include a zone of multiple closely-spaced parallel faults.

**Similar Features:** If not associated with seafloor spreading consider RIFT definition.

#### GAP

**Definition:** A narrow break in a RIDGE, RISE or other elevation. Also called PASSAGE.

**Dimensions:** Less than 100 kilometres between elevations along a RIDGE or RISE.

**Length to width ratio:** Variable, it can be hard to define extent perpendicular to axis of RIDGE, RISE or other elevation, so is sometimes defined with a length to width ratio of about 1:1.

**Depth:** Any water depth.

**Steepness:** Variable, but usually has dips greater than two degrees - 350 m change in elevation over 10 kilometres.

**Comments:** Often confused with a SADDLE but is usually less than 100 kilometres across. Tends to occur in steep topography such as between peaks on steep sided ridges, whereas SADDLES tend to be broader and not as steep occurring on RISEs or RIDGES with gently sloping sides.

**Similar Features:** Consider SADDLE if the sides are gently sloping.

#### GUYOT

**Definition:** A SEAMOUNT with a comparatively smooth flat top.

**Dimensions:** Usually greater than 10 square kilometres and can be greater than 10,000 square kilometres (100 x 100 kilometres).

**Length to width ratio:** Can be up to 3:1.

**Depth:** Any water depth over 1000 m.

**Steepness:** Shortest dimension across the summit plateau of the feature is greater than 28 x topography of summit plateau (dips of less than two degrees). Exceptions are made if there is a discrete peak or pinnacle on summit plateau that is less than 1/5 the width of summit plateau. See section on GUYOT definition.

**Comments:** Has to be greater than 1000 m high (because of the SEAMOUNT term in the definition). The comparatively smooth flat top can be small in comparison the extent of the feature (i.e. can be as little as 10 square kilometres of flat terrain on top of a feature with several 100 kilometres of total area). If shallow enough the flat top may be a BANK with a separate name.

**Similar Features:** Consider SEAMOUNT definition if not flat-topped or there is less than one square kilometre of flat terrain on top of the feature. Consider RIDGE definition if the length to width ratio is greater than 3:1. larger features may better fit definition for RISE.

## HILL

**Definition:** A distinct elevation generally of irregular shape, less than 1000 m above the surrounding relief as measured from the deepest isobath that surrounds most of the feature.

**Dimensions:** Can be smaller than one square kilometre and can also be greater than 1000 square kilometres (33 x 33 kilometres).

**Length to width ratio:** Can be up to 3:1.

**Depth:** Any water depth.

**Steepness:** Sides are usually steeper than 5 degrees - 450 m change in elevation over 5 kilometres.

**Comments:** Often confused with KNOLL which has a smooth rounded shape. Deepest isobath has to encircle at least 50% of the feature.

**Similar Features:** Consider KNOLL definition if smooth rounded shape. Features more than 100 kilometres in any dimension with almost flat tops may better fit the definition for RISE or PLATEAU. If the feature has a length to width ratio greater than 3:1 consider RIDGE definition.

## HOLE

**Definition:** A depression of limited extent with all sides rising steeply from a relatively flat-bottom.

**Dimensions:** Usually less than 50 x 50 kilometres and sometimes less than 10 square kilometres.

**Length to width ratio:** Can be up to 3:1.

**Depth:** Any water depth.

**Steepness:** Variable.

**Comments:** Has to be distinctly deeper than surrounding seabed. The height of the sides should be greater than 1/10 of the feature width (more than one kilometre deep if 10 kilometres across).

**Similar Features:** Features with length to width ratios greater than 3:1 consider TROUGH, TRENCH definitions. If within a TROUGH, TRENCH or BASIN consider DEEP definition. If size

greater than 50 x 50 kilometres, consider BASIN definition. If the height of the sides is less than 1/10 of the width of the depression, consider BASIN definition.

#### KNOLL

**Definition:** A distinct elevation with a rounded profile less than 1000 m above the surrounding relief as measured from the deepest isobath that surrounds most of the feature.

**Dimensions:** Can be smaller than 1 square kilometre and can also be greater than 1000 square kilometres (33 x 33 kilometres).

**Length to width ratio:** Can be up to 3:1.

**Depth:** Any water depth.

**Steepness:** Sides usually steeper than 5 degrees - 450 m change in elevation over 5 kilometres.

**Comments:** Often confused with HILL which has a more irregular topography. Deepest isobath has to encircle at least 50% of the feature.

**Similar Features:** If the feature is not smooth and rounded or conical in shape consider HILL definition. If the length to width ratio is greater than 3:1 consider RIDGE definition. Features more than 50 kilometres in any dimension may better fit the definition for RISE or PLATEAU definitions.

#### LEVEE

**Definition:** A depositional embankment bordering a CANYON, VALLEY or SEA CHANNEL.

**Dimensions:** Usually no more than a few kilometres wide but can extend for 100s of kilometres along the edge of a SEA CHANNEL.

**Length to width ratio:** Typically, greater than 10:1, but may not be continuous and occur as larger lobes separated by less distinct topography that together form a single feature.

**Depth:** Often at abyssal depths but may occur in shallow basins in more than 200 m water depth.

**Steepness:** Variable.

**Comments:** Usually associated with a SEA CHANNEL, not commonly associated with a CANYON or VALLEY.

**Similar Features:** Should not be confused with a sediment drift along the base of the SLOPE.

#### MOAT

**Definition:** An annular or partially annular depression commonly located at the base of SEAMOUNTS, islands and other isolated elevations.

**Dimensions:** Can be less than 10 kilometres long but may extend to 100s of kilometres around an isolated feature.

**Length to width ratio:** Often arcuate shape with a length to width ratio greater than 3:1.

**Depth:** Any water depth.

**Steepness:** Variable.



**Comments:** The edges of moats can be difficult to define as they tend to merge with the flat topography of the adjacent seafloor.

**Similar Features:** If not associated with a SEAMOUNT, HILL or KNOLL consider HOLE or DEEP definitions.

#### MOUND\*

**Definition:** A distinct elevation with a rounded profile generally less than 500 m above the surrounding relief as measured from the deepest isobath that surrounds most of the feature, commonly formed by the expulsion of fluids or by coral reef development, sedimentation and (bio)erosion.

**Dimensions:** Often less than one square kilometre but in exceptional cases can be greater 20 square kilometres.

**Length to width ratio:** Typically, about 1:1, but can be up to 3:1.

**Depth:** Any water depth.

**Steepness:** Sides are usually steeper than 5 degrees - 175 m change in elevation over two kilometres.

**Comments:** Should not be confused with SALT DOME, that has a different process of formation.

**Similar Features:** Consider KNOLL definition if the process of formation is not known.

#### MUD VOLCANO\*

**Definition:** A MOUND or cone-shaped elevation formed by the expulsion of non-magmatic liquids and gasses.

**Dimensions:** Often less than one square kilometre but in exceptional cases can be greater 20 square kilometres.

**Length to width ratio:** Typically, about 1:1, but can be up to 3:1.

**Depth:** Any water depth.

**Steepness:** Sides are usually steeper than 5 degrees - 175 m change in elevation over two kilometres.

**Comments:** Often of low relief, less than 200 m, and can be quite rounded in shape.

**Similar Features:** Consider KNOLL definition if the process of formation is not known.

#### PEAK

**Definition:** A conical or pointed elevation on a larger feature such as a SEAMOUNT.

**Dimensions:** Usually less than 10 square kilometres but in exceptional cases can be greater than 100 square kilometres in area.

**Length to width ratio:** Typically, about 1:1, but can be elongate up to 3:1.

**Depth:** Any water depth.

**Steepness:** Sides usually steeper than 5 degrees - 450 m change in elevation over 5 kilometres.

**Comments:** A peak may occur on a RIDGE or a SEAMOUNT but may not be at the highest point. Indeed, a PEAK may occur on the lower flanks of a SEAMOUNT.

**Similar Features:** If spire-shaped and sides steeper than 20 degrees consider PINNACLE definition. If larger than 100 square kilometres, consider HILL or KNOLL definitions. If the length to width ratio greater than 3:1 consider RIDGE definition.

#### PINNACLE

**Definition:** A spire-shaped pillar either isolated or on a larger feature.

**Dimensions:** Usually less than 5 square kilometres.

**Length to width ratio:** Typically, about 1:1, but can be elongate up to 3:1.

**Depth:** Any water depth.

**Steepness:** Sides steeper than 20 degrees - 350 m change in elevation over one kilometre.

**Comments:** A Pinnacle may occur on a ridge or a seamount but may not be at the highest point.

**Similar Features:** If conical shape and sides less than 20 degrees, consider PEAK. If larger than 2 x 2 kilometres, consider PEAK, HILL or KNOLL definitions. If the length to width ratio greater than 3:1 consider RIDGE definition.

#### PLATEAU

**Definition:** A large, relatively flat elevation that is higher than the surrounding relief with one or more relatively steep sides.

**Dimensions:** Usually greater than 20 x 20 kilometres. The largest dimension can be more than 500 kilometres

**Length to width ratio:** Typically, about 1:1, but can be elongate up to 3:1, and rarely have larger length to width ratios.

**Depth:** Any water depth, but usually greater than 200 m.

**Steepness:** Usually less than two degrees - 350 m change in elevation over 10 kilometres. A least one side should be greater than 5 degrees - 450m change in height over 5 kilometres

**Comments:** Should not be confused with GUYOT that has steep sides on all sides and is more than 1000 m high. Often confused with TERRACE that is differentiated by a steeper ascending slope along one edge. Also confused with RISE but has one or more relatively steep sides.

**Similar Features:** If greater than 1000 m high and has steep sides on all aspects consider GUYOT. If feature has a steeper ascending slope along one edge, consider TERRACE definition. If the length to width ratio greater than 3:1 consider RIDGE definition.

#### PROVINCE

**Definition:** A geographically distinct region with a number of shared physiographic characteristics that contrast with those in the surrounding areas. This term should be modified with the Generic Term that best describes the majority of features in the region (e.g., Seamount in "Baja California Seamount Province").

**Dimensions:** Variable, from a few 100 of square kilometres to many 1000s of square kilometres.

**Length to width ratio:** Variable.

**Depth:** Any water depth.

**Steepness:** Variable.

**Comments:** More than 50% of the features within the PROVINCE have to fit the definition of shared physiographic characteristic.

**Similar Features:** If a line of SEAMOUNTs consider SEAMOUNT CHAIN definition.

#### REEF\*

**Definition:** A shallow elevation composed of consolidated material that may constitute a hazard to surface navigation.

**Dimensions:** Can vary greatly from less than one square kilometres to 10,000s of square kilometres.

**Length to width ratio:** Any length to width ratio, often elongate and in some cases very long (e.g. Great Barrier Reef).

**Depth:** Less than 30 m, but in special cases may be as much as 50 m.

**Steepness:** Variable.

**Comments:** REEFS need to be hard and composed of consolidated material (not sandy). To fit definition of being avoided by shipping should be less than 30 m depth (or 50 m in some circumstances).

**Similar Features:** Consider SHOAL definition if composed of unconsolidated material (sand).

#### RIDGE

**Definition:** An elongated elevation of varying complexity, size and gradient.

**Dimensions:** Usually greater than 10 kilometres long and can be over 1000 kilometres in length.

**Length to width ratio:** Greater than 3:1.

**Depth:** Any water depth.

**Steepness:** Variable, but usually has sloping sides greater than 5 degrees - 450 m rise over 5 kilometres.

**Comments:** RIDGES can host other features such as PEAKs, PINNACLEs, SEAMOUNTs, SPURs etc. RIDGES can be confused with SEAMOUNT CHAINS, but they should be a continuous feature with no gaps between SEAMOUNTs.

**Similar Features:** If the length to width ratio is less than 3:1 consider GUYOT, HILL, KNOLL or SEAMOUNT definitions. If feature is composed of individual SEAMOUNTs and is not continuous, consider SEAMOUNT CHAIN definition.

#### RIFT\*

**Definition:** An elongated depression bounded by two or more faults formed as a breach or split between two bodies that were once joined.

**Dimensions:** Usually greater than 10 kilometres long and can be over 1000 kilometres in length.

**Length to width ratio:** Greater than 3:1, often greater than 10:1.

**Depth:** Any water depth, often found at abyssal depths.

**Steepness:** Variable.

**Comments:** Key to this term is that this feature is bounded a fault/s. Rifts can sometimes be associated with sections of FRACTURE ZONES.

**Similar Features:** Consider FRACTURE ZONE definition if the feature is a long continuous feature associated with sea floor spreading.

## RISE

**Definition:** A broad elevation that generally rises gently and smoothly from the surrounding relief.

**Dimensions:** Usually greater than 100 square kilometres and can be more than 100 x 100 kilometres.

**Length to width ratio:** Typically, less than 3:1.

**Depth:** Any water depth, often found at abyssal depths.

**Steepness:** Usually less than two degrees - 350 m change in elevation over 10 kilometres.

**Comments:** Not to be confused with the CONTINENTAL RISE definition.

**Similar Features:** If the length to width ratio is greater than 3:1 and if sides do not rise gently and smoothly from the surrounding relief consider RIDGE definition.

## SADDLE

**Definition:** A broad pass or col in a RIDGE, RISE or other elevation.

**Dimensions:** Greater than 100 kilometres between elevations on RIDGE or RISE and typically about same perpendicular dimension.

**Length to width ratio:** Variable, it can be hard to define extent perpendicular to axis of RIDGE, RISE or other elevation, so is sometimes defined with a length to width ratio of about 1:1.

**Depth:** Any water depth.

**Steepness:** Variable, but usually has dips less than two degrees - 350 m change in elevation over 10 kilometres.

**Comments:** Often confused with a GAP but is usually greater than 100 kilometres across. Ideally SADDLES tend to occur on broad gently sloping RIDGES and RISEs whereas GAPS occur in steep topography such as between PEAKs or SEAMOUNTs on a RIDGE with steeply sloping sides.

**Similar Features:** Consider GAP if sides are steeply sloping.

## SALT DOME\*

**Definition:** A distinct elevation, often with a rounded profile, one km or more in diameter that is the geomorphologic expression of a diapir formed by vertical intrusion of salt. Commonly found in a PROVINCE of similar features.

**Dimensions:** Typically, one to 10 kilometres in diameter, and rarely larger.

**Length to width ratio:** Usually about 1:1 but can be elongate (up to 3:1) in places controlled by seabed topography.

**Depth:** Any water depth.

**Steepness:** Sides usually steeper than 5 degrees - 450 m rise over 5 kilometres.

**Comments:** Usually less than 500 m elevation.

**Similar Features:** If geology and process of formation is not known consider KNOLL definition.

#### SAND RIDGE\*

**Definition:** An elongated feature of unconsolidated sediment of limited vertical relief and sometimes crescent shaped. Commonly found in a PROVINCE of similar features.

**Dimensions:** Individual ridges can be less than 100 metres in length and 10s of metres in width.

**Length to width ratio:** Usually elongated greater than 3:1.

**Depth:** Most common at SHELF depths.

**Steepness:** Variable.

**Comments:**

**Similar Features:** If geology and process of formation is not known consider RIDGE definition.

#### SEA CHANNEL

**Definition:** An elongated, meandering depression, usually occurring on a gently sloping plain or FAN.

**Dimensions:** Typically, greater than 100 kilometres in length. In rare cases can be less than 10 kilometres long.

**Length to width ratio:** Greater than 3:1. Usually greater than 10:1

**Depth:** Usually occurs from the base of a SLOPE and often found on the ABYSSAL PLAIN but may occur at shallower depths of more than 200 m where the seafloor is gently sloping.

**Steepness:** Sides usually steeper than 5 degrees - 80 m change in elevation over 1 kilometre along more than 50% of its length.

**Comments:** Often occur at the end of a CANYON or a VALLEY.

**Similar Features:** If not distinctly meandering or on gently sloping plain or FAN consider VALLEY of CANYON definition.

#### SEAMOUNT

**Definition:** A distinct generally equidimensional elevation greater than 1000 m above the surrounding relief as measured from the deepest isobath that surrounds most of the feature.

**Dimensions:** Not usually smaller than 10 square kilometres. Can be greater than 100 x 100 kilometres.

**Length to width ratio:** Typically, about 1:1, but can be elongate up to 3:1.

**Depth:** Any water depth greater than 1000 m.

**Steepness:** Sides usually steeper than 5 degrees - 450 m rise over 5 kilometres.

**Comments:** Not all SEAMOUNTS are of volcanic in origin.

**Similar Features:** For larger features 100 x 100 kilometres or greater consider RISE or PLATEAU definition. If the length to width ratio is greater than 3:1 consider RIDGE definition. If flat-topped, consider GUYOT definition. If height is less than 1000 m consider HILL or KNOLL definitions.

#### SEAMOUNT CHAIN

**Definition:** A linear or arcuate alignment of discrete SEAMOUNTS.

**Dimensions:** Usually 100s of kilometres in length.

**Length to width ratio:** Typically, 10:1 or greater.

**Depth:** Any water depth greater than 1000 m.

**Steepness:** Sides of SEAMOUNTS usually steeper than over 5 degrees - 450 m rise over 5 kilometres.

**Comments:** SEAMOUNTS must form a distinct chain of more than 4 features to qualify for this definition. Classically a chain of SEAMOUNTS is formed as the seafloor moves away from a spreading ridge over a single hot spot and in this case the space between seamounts can be quite variable. The term has been used for any line of volcanoes without being certain of their origin. More than 50 % of the features in the chain must be greater than 1000 m in height.

**Similar Features:** If SEAMOUNTS are not in a line consider PROVINCE definition.

#### SHELF

**Definition:** The flat or gently sloping region adjacent to a continent or around an island that extends from the low water line to a depth, generally about 200 m, where there is a marked increase in downward slope.

**Dimensions:** Can be less than 10 kilometres wide, but often extend for 100s kilometres from shore line.

**Length to width ratio:** Variable - depends on the shape of the coastline.

**Depth:** Less than 200 m.

**Steepness:** Usually less than 1 degree - 175 m change in elevation over 10 kilometres, except in the case of very narrow shelves less than one or two kilometres wide.

**Comments:** Same definition as CONTINENTAL SHELF.

**Similar Features:** If not adjacent to a continent or around an island consider TERRACE definition.

#### SHOAL\*

**Definition:** A shallow elevation composed of unconsolidated material that may constitute a hazard to surface navigation.

**Dimensions:** Can vary greatly from less than one square kilometre to greater than 1000 square kilometres.

**Length to width ratio:** Any length to width ratio.

**Depth:** Less than 30 m, but in some cases may be as deep as 50 m.

**Steepness:** Usually less than two degrees - 350 m change in elevation over 10 kilometres.

**Comments:** Shoals are composed of unconsolidated material (sand and mud rather than hard rock or coral). To fit definition of being avoided by shipping should be less than 30 m depth (or 50 m in some circumstances).

**Similar Features:** Use REEF definition if composed of consolidated material (rock, coral).

## SILL

**Definition:** A relatively shallow barrier between BASINS that may inhibit water movement.

**Dimensions:** Usually less than 200 kilometres in the largest dimension.

**Length to width ratio:** Any length to width ratio, typically elongate greater than 3:1.

**Depth:** Any water depth.

**Steepness:** Variable.

**Comments:** A SILL can occur within BASINS, TROUGHS, TRENCHs and RIFTs, dividing these features into several distinct sub-features (sometimes termed Bridges in scientific literature).

**Similar Features:** If the feature does not form a barrier between BASINS, TROUGHS, TRENCHs, RIFTs etc consider RIDGE definition.

## SLOPE

**Definition:** The sloping region that deepens from a SHELF to the point where there is a general decrease in gradient.

**Dimensions:** Can be less than 1 kilometre wide, but often extends for 10s kilometres from edge of SHELF and rarely 100s of kilometres along the edge of the SHELF.

**Length to width ratio:** Variable, depends on dimensions of SHELF.

**Depth:** Greater than 200 m and may extend to abyssal depths but can be less than 500 m depth at its foot.

**Steepness:** Greater than two degrees - 350 m change in elevation over 10 kilometres.

**Comments:** Should not be confused with the CONTINENTAL SLOPE which can be quite complex and composed of a series of TERRACES, RIDGEs and TROUGHS extending from the SHELF to the CONTINENTAL RISE. The Gazetteer says Slope = Continental Slope, but this is wrong as the Continental Shelf comprises all the margin between the Shelf and the Continental Rise whereas a SLOPE may not extend to the rise.

**Similar Features:** The continental margin can be quite complex descending from the SHELF in a series of TERRACES, RIDGEs and TROUGHS. If this is the case consider restricting SLOPE to the region of more or less continuously deepening seabed from the SHELF to its foot and identify TERRACES, RIDGEs and TROUGHS on the margin as separate features for naming.

## SPUR

**Definition:** A subordinate RIDGE protruding from a larger feature.

**Dimensions:** Not usually less than 10 kilometres in length but in rare cases may extend for more than 100 kilometres from RIDGE.

**Length to width ratio:** Greater than 3:1.

**Depth:** Any water depth.

**Steepness:** Sides are usually steeper than over 5 degrees - 450 m rise over 5 kilometres.

**Comments:** Often confused with RIDGE. SPURS are subordinate to another feature, but if the SPUR has greater than 50% of the area of the feature it protrudes from then it may be called a RIDGE.

**Similar Features:** Consider RIDGE definition if the feature has greater than 50% of the area of the feature it protrudes from.

## TERRACE

**Definition:** A flat or gently sloping region, generally long and narrow, bounded along one edge by a steeper descending slope and along the other by a steeper ascending slope.

**Dimensions:** Usually greater than 20 kilometres wide, however the largest dimension can be more than 500 kilometres.

**Length to width ratio:** Any length to width ratio, but typically greater than 3:1.

**Depth:** Any water depth, but usually greater than 200 m.

**Steepness:** Usually less than two degrees - 350 m change in elevation over 10 kilometres.

**Comments:** Should not be confused with PLATEAU, a TERRACE is bounded along one edge by a steeper ascending slope.

**Similar Features:** If not bounded along one edge by a steeper descending slope and along the other by a steeper ascending slope consider PLATEAU or RISE definitions.

## TRENCH\*

**Definition:** A long, deep, asymmetrical depression with relatively steep sides, that is associated with subduction.

**Dimensions:** Typically, 100s of kilometres in length and up to 200 kilometres in width.

**Length to width ratio:** Usually greater than 3:1, but there may be special cases where the feature is constrained in length by adjacent continental margins.

**Depth:** Greater than 200 m and can be greater than 10,000 m depth at deepest point.

**Steepness:** One side is usually greater than 5 degrees - 900 m change in elevation over 10 kilometres, while the other side is distinctly less steep.

**Comments:** The definition may apply to an inactive or fossil subduction zone provided the feature fits the definition.

**Similar Features:** Distinguished from TROUGH and BASIN by characteristic asymmetric structure. If not related to a subduction zone, consider using TROUGH definition. If the length to width ratio is less than 3:1 consider BASIN definition.



## TROUGH

**Definition:** A long depression generally wide and flat-bottomed with symmetrical and parallel sides.

**Dimensions:** Usually more than 10 kilometres in largest dimension and can be over 1000 kilometres in some cases.

**Length to width ratio:** Greater than 3:1.

**Depth:** Any water depth.

**Steepness:** Sides usually steeper than 5 degrees - 450 m change in elevation over 5 kilometres.

**Comments:** The sides of troughs are sometimes not continuous and are broken by gaps or saddles. Sides can be of variable height but should have dips of greater than 5 degrees along at least 50% of the length of each side.

**Similar Features:** Consider BASIN, DEEP or HOLE definitions if the length to width ratio is less than 3:1. If the feature is related to subduction zone consider TRENCH definition.

## VALLEY

**Definition:** An elongated depression that generally widens and deepens down-slope.

**Dimensions:** Usually more than 10 kilometres in largest dimension and can be over 1000 kilometres in some cases.

**Length to width ratio:** These features vary in width, so the head of the VALLEY may be very narrow (few 10s of meters) and the foot of the VALLEY may be 10s of kilometres wide. The width at the foot of the VALLEY can be up to 1/2 the length of the VALLEY.

**Depth:** Any water depth. Usually extend from the shelf depths but may occur up to abyssal depths.

**Steepness:** Sides usually steeper than 5 degrees 450 m change in elevation over 5 kilometres.

**Comments:** Widening down-slope is the key part of this definition. CANYONS for example, do not widen down slope by more than a factor of three.

**Similar Features:** If the feature widens downslope by a factor of less than three consider CANYON definition, and if the feature has meandering path consider SEA CHANNEL definition.

## Terms used for harmonization with other gazetteers

Generic Terms that have been used in the past that are no longer recommended for undersea feature names are listed below. These Generic Terms are acceptable for undersea feature names that are being adopted into the GEBCO Gazetteer from other gazetteers or where long-term usage (25 years) can be clearly demonstrated. They are kept in the B-6 publication to facilitate harmonization between gazetteers, but where possible usage of these terms should be avoided.

## ABYSSAL HILL

**Definition:** An isolated small elevation on the deep seafloor.

**Comments:**

**Alternative Term:** HILL.

### ARCHIPELAGIC APRON

**Definition:** A gentle SLOPE with a generally smooth surface of the seafloor, characteristically found around groups of islands or SEAMOUNTS.

**Comments:**

**Alternative Term:** APRON.

### BORDERLAND

**Definition:** A region adjacent to a continent, normally occupied by or bordering a SHELF and sometimes emerging as islands, that is irregular or blocky in plan or profile, with depths well in excess of those typical of a SHELF.

**Comments:**

**Alternative Term:** Identify TERRACEs, RIDGEs and TROUGHs etc on the margin as separate features for naming.

### CAP

**Definition:** See BANK.

**Comments:**

**Alternative Term:** BANK, SHOAL or REEF where applicable.

### CHANNEL

**Definition:** See SEA CHANNEL.

**Comments:**

**Alternative Term:** SEA CHANNEL.

### CONE

**Definition:** See FAN.

**Comments:**

**Alternative Term:** FAN.

### CONTINENTAL MARGIN

**Definition:** The zone, generally consisting of SHELF, SLOPE and CONTINENTAL RISE, separating the continent from the deep seafloor or ABYSSAL PLAIN or PLAIN. Occasionally a TRENCH may be present in place of a CONTINENTAL RISE.

**Comments:** A general term adopted by the UNCLOS, but not a morphological term and should not be used.

**Alternative Term:** Identifying the SHELF, SLOPE, TERRACEs, and TROUGHs etc on the margin as separate features for naming.

### CONTINENTAL RISE

**Definition:** A gently sloping region that extends from the oceanic depths to the foot of a CONTINENTAL SLOPE.

**Comments:** Not to be confused with RISE.

**Alternative Term:** FAN.

#### CONTINENTAL SHELF

**Definition:** See SHELF.

**Comments:**

**Alternative Term:** SHELF.

#### CONTINENTAL SLOPE

**Definition:** See SLOPE. This is wrong as the Continental Shelf comprises all the margin between the Shelf and the Continental Rise whereas a SLOPE may not extend to the rise.

**Comments:** Should not be confused with the SLOPE, the CONTINENTAL SLOPE can be quite complex and composed of a series of TERRACES, RIDGES and TROUGHS extending from the SHELF to the ABYSSAL PLAIN.

**Alternative Term:** SLOPE if applicable or Identify TERRACES, RIDGES and TROUGHS etc on the margin as separate features for naming.

#### DISCORDANCE

**Definition:** An area of the seafloor within a MID-OCEANIC RIDGE with rough and disordered morphology.

**Comments:** There is only one example in the Gazetteer.

**Alternative Term:** Identify RIDGES, TERRACES, and TROUGHS etc on the MID-OCEANIC RIDGE as separate features for naming.

#### FRACTURE ZONE SYSTEM\*

**Definition:** A group of closely spaced FRACTURE ZONES, which can also be called FRACTURE ZONE PROVINCE.

**Comments:**

**Alternative Term:** FRACTURE ZONES or FRACTURE ZONE PROVINCE.

#### GROUND

**Definition:** See BANK.

**Comments:**

**Alternative Term:** BANK, REEF or SHOAL.

#### MEDIAN VALLEY

**Definition:** The axial depression of the MID-OCEANIC RIDGE.

**Comments:**

**Alternative Term:** TROUGH.

#### MID-OCEAN RIDGE

**Definition:** The linked major mid-oceanic mountain systems of global extent.

**Comments:**

**Alternative Term:** RIDGE.

## PASS

**Definition:** See SADDLE.

**Comments:**

**Alternative Term:** SADDLE or GAP.

## PASSAGE

**Definition:** See GAP.

**Comments:**

**Alternative Term:** GAP or SADDLE.

## PLAIN

**Definition:** An extensive, flat or gently sloping region, usually found at depths less than 4000 m.

**Comments:**

**Alternative Term:** Not really an equivalent in preferred terms

## PROMONTORY

**Definition:** A major SPUR-like protrusion of the CONTINENTAL SLOPE extending to the deep seafloor. Characteristically, the crest deepens seaward.

**Comments:** Not really an equivalent in the preferred terms. A useful term for subordinate features with less than 3:1 length to width ratio.

**Alternative Term:** SPUR or RIDGE.

## RE-ENTRANT

**Definition:** A prominent indentation in a SHELF-EDGE.

**Comments:**

**Alternative Term:** Not really an equivalent in preferred terms

## SCARP

**Definition:** See escarpment.

**Comments:**

**Alternative Term:** ESCARPMENT.

## SEA VALLEY

**Definition:** See VALLEY.

**Comments:**

**Alternative Term:** VALLEY.

## SEABIGHT

**Definition:** See VALLEY.

**Comments:** Not really an equivalent in preferred terms

**Alternative Term:** VALLEY.

#### SEACHANNEL

**Definition:** See SEA CHANNEL.

**Comments:**

**Alternative Term:** SEA CHANNEL.

#### SEAMOUNT GROUP

**Definition:** Several closely spaced SEAMOUNTS not in a line, which can also be called SEAMOUNT PROVINCE.

**Comments:**

**Alternative Term:** SEAMOUNT PROVINCE.

#### SHELF BREAK

**Definition:** See SHELF-EDGE.

**Comments:** This is part of the SHELF or SLOPE and not a distinct feature.

**Alternative Term:** SHELF or SLOPE.

#### SHELF-EDGE

**Definition:** The line along which there is a marked increase in slope at the seaward margin of a SHELF. Also called SHELF BREAK.

**Comments:** This is part of the SHELF or SLOPE and not a distinct feature.

**Alternative Term:** SHELF or SLOPE.

#### SUBMARINE VALLEY

**Definition:** See VALLEY.

**Comments:**

**Alternative Term:** VALLEY.

#### TABLEMOUNT

**Definition:** See GUYOT.

**Comments:**

**Alternative Term:** GUYOT.