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**SECTOR 10** — CHART INFORMATION

## SECTOR 10

### MORAY FIRTH —TARBAT NESS TO BURGHEAD

**Plan.**—This sector describes the area lying between Tarbat Ness and Burghead. Cromarty Firth, Inverness Firth, and the Caledonian Canal are also included. The descriptive sequence is from N to S.

#### General Remarks

**10.1** The approaches to Cromarty Firth and Inverness Firth lie within the inner part of Moray Firth which is entered between Tarbat Ness and Burghead.

**Tides—Currents.**—The currents set very strongly off Duncansby Head, but they are weak in the vicinity of the entrance to Moray Firth.

In the SE part of Moray Firth, S of a line extending between a position 20 miles N of Kinnairds Head and a position 5 miles N of Covesea, the tidal currents begin at times which differ by nearly 4 hours from those in the NE part of the firth.

At a position about midway between Duncansby Head and Pentland Skerries, the SE current begins 5 hours before HW at Dover and the NW current begins 1 hour 15 minutes after HW at Dover. These currents both attain rates up to 8 knots at springs.

To the SE of Duncansby Head, the rates of the currents decrease, at first very quickly, but later more slowly. In addition, the times at which the currents begin become gradually later.

In a position about 23 miles SE of Duncansby Head, the SE current begins about 4 hours before HW at Dover and the NW current begins about 2 hours 15 minutes after HW at Dover. Both of these currents attain a rate of 1 knot at springs. The SE current is more or less rotary and changes direction from 140° to 190°.

Farther SE, at a position 20 miles NNW of Kinnairds Head, the SE current begins about 3 hours 15 minutes before HW at Dover and the NW current begins about 3 hours after HW at Dover. Both these currents attain rates of 0.5 knot at springs. The SE current is more or less rotary, counterclockwise, and changes direction irregularly from 170° to 140°.

At a position about 25 miles outside the middle of the entrance to Moray Firth, the S current begins 3 hours before HW at Dover and the N current begins 3 hours 30 minutes after HW at Dover. Both these currents attain rates of 0.8 knot at springs. The S current runs in directions varying from 170° to 190° and the N current runs in directions varying from 330° to 360°.

In the middle of the entrance to the firth, the SE current begins about 3 hours 30 minutes before HW at Dover and the NW current begins about 2 hours 45 minutes after HW at Dover. Both these currents attain rates of 0.8 knot at springs. The SE current probably runs in varying directions between SE and S, and the NW current probably runs in a general NNW direction.

In the middle parts of Moray Firth, the currents are generally weak and their directions variable. The WSW current begins about 5 hours 30 minutes before HW at Dover and the ENE current begins about 1 hour after HW at Dover. Both these currents attain rates of 0.5 knot at springs. The WSW current

runs in directions varying from 220° to 290° and the ENE current runs in directions varying from 045° to 100°.

In the inner part of Moray Firth, at a position about 2 miles E of the entrance to Cromarty Firth, the WSW current begins about 6 hours before HW at Dover and the ENE current begins about 30 minutes after HW at Dover. At springs, the WSW current attains a rate of 0.7 knot and the ENE current attains a rate of 1 knot.

The direction of the tidal current at the head of Moray Firth depends largely on the force and the direction of the wind. During W gales, a strong current sets constantly E between the S shore of the firth and a line 3 or 4 miles offshore. However, in the middle of the inner part of the firth the current turns W shortly after LW and sets strongly in that direction. In ordinary weather, the currents run parallel to the coast, turning at the same times as those off Inverness Firth.

At a position about 0.5 mile offshore in the vicinity of Shandwick and Three Kings, the N current begins about 1 hour after HW at Dover and attains a rate 0.5 knot at springs. This N current slackens 6 hours after HW at Dover and slack water prevails for about 2 hours, after which the S current begins and attains a maximum rate of 0.8 knot. At neaps, the S current is almost imperceptible and the water remains slack from about 5 hours before HW until about 2 hours after HW at Dover.

On the NW side of the inner part of Moray Firth, and S of Tarbat Ness, the SW current begins 5 hours 30 minutes before HW at Dover and the NE current begins about 1 hour after HW at Dover. Generally, slack water lasts for about 30 minutes at the end of the NE current, but there is little or none at the end of the SW current. Except at or near springs, the NE current is stronger than the SW current and when S winds prevail, the latter current is imperceptible. In general, the rates of the currents at springs are less than 1 knot. The turn of the currents, duration of slack water, and the rates of the currents are considerably affected by the wind and weather conditions.

In the entrance of Cromarty Firth and up to the vicinity of Invergordon, the W current usually begins about 5 hours 15 minutes before HW at Invergordon, but the time may vary considerably. The E current begins between 15 minutes before and 30 minutes after HW at Invergordon, depending on the wind and the weather. Both currents attain rates of about 1.5 knots at springs, except abreast of Cromarty where rates of 2.5 knots have been observed.

Close W of the outer extremity of the shoals extending SW from North Sutor, the flood current sets SW, diagonally across the entrance of the firth, and the ebb current sets E. Both these currents attain rates of 1.5 knots.

Off Invergordon, the E current may attain a rate of 2.5 knots and a dangerous and variable eddy may be encountered in this vicinity.

At Invergordon, the time of the turn of the tidal current varies considerably with the amount of fresh water flowing into the head of the firth. When the snow is melting in April, an E surface current may exist during the flood tide.

In the inner part of Inverness Firth, both the duration and rate of the E current are increased during freshets and after periods of heavy rain. The W current is correspondingly reduced. Under such circumstances, the E current setting off Craighton Point may attain a rate up to 6 knots at springs. Heavy tide rips may be encountered in the channel between Kessock and Inverness.

**Caution.**—Submarines exercise frequently inside Moray Firth and in the approaches.

During the fishing season, from the middle of February to late August, salmon nets may extend up to 0.3 mile from the shores of Moray Firth.

Marine farms and their associated moorings have been established along the shores of Moray Firth. These farms are usually marked by buoys or beacons.

Numerous fishing vessels may be encountered in the waters described within this sector.

### Moray Firth—North Side

**10.2 Tarbat Ness** (57°52'N., 3°46'W.), marked by a light, is fully described in Sector 9.

Between Tarbat Ness and the entrance to Cromarty Firth, 13 miles SSW, the N coast of the firth is generally formed by steep cliffs, 25 to 90m high, and fringed by rocks. A break occurs in the cliffs in the vicinity of Shandwick where the land slopes to the coast and is fringed by a sandy beach, 30 to 60m wide.

Rockfield, a village, stands 3 miles SW of Tarbat Ness and is fronted by a small jetty. Coasters can obtain anchorage in a depth of 15m about 0.5 mile E of this village, but the roadstead is exposed and open. The prominent ruined walls of a castle stand on the cliff edge, 0.8 mile NE of the village.

Cadboll Point, located 6.5 miles SSW of Tarbat Ness, is formed by perpendicular cliffs, 46m high. Creag a Chinn Bhig, a rock conspicuous from NE or SW, lies close offshore, 0.5 mile NNE of this point.

**Shandwick Bay** (57°45'N., 3°55'W.), a small indentation, is entered 1.7 miles SW of Cadboll Point. The village of Balintore is situated in the N part of this bay and is fronted by a small craft harbor. The harbor is protected by a curved breakwater and dries. It provides fair shelter although the sea breaks over the breakwater during E gales. Exposed anchorage can be taken in a depth of 14m, sand, about 0.5 mile SE of the harbor breakwater, but this berth is untenable with E winds. A conspicuous black silo is reported to stand 1 mile WNW of Balintore.

The village of Shandwick, which is fronted by a white and sandy beach, is situated 0.5 mile SW of Balintore, at the head of the bay.

**10.3 Port an Righ** (57°44'N., 3°56'W.), located 1 mile SW of Shandwick Bay, can be identified by a distinct break in the cliffs through which a stream flows into the sea.

Three Kings, a reef, extends up to 0.8 mile E from the shore, close S of Port an Righ, and is marked by a lighted buoy. This reef partly dries and the sea breaks over it when there is a swell.

**Guillam Bank** (57°42'N., 3°48'W.), with depths of 11.6 to 17.6m, lies 4 miles ESE of Port an Righ and has a bottom composed of stones, gravel, and shells.

**Caution.**—A spoil ground area, which may best be seen on the chart, lies 3.8 miles E of Port an Righ.

A submarine oil pipeline, which may best be seen on the chart, extends NE from the vicinity of the S part of Shandwick Bay to the Beatrice Oil Field, which is situated 28 miles NE of Tarbat Ness. (See Sector 9.)

### Cromarty Firth Approaches

**10.4** Cromarty Firth is the best harbor of refuge along this part of the coast and affords shelter from all winds at all times. It is entered between North Sutor, located 3 miles SW of Port an Righ, and South Sutor, 0.8 mile SSW.

From seaward, the entrance of the firth appears as a distinct break in the line of cliffs and can easily be identified by the two bold and prominent entrance points. In addition, the conspicuous summit of Ben Wyvis, 1,043m high, rises 20 miles W of the entrance.

**Tides—Currents.**—Tides at Cromarty Firth rise about 4.3m at springs and 3.4m at neaps.

**Depths—Limitations.**—The entrance channel, leading between North Sutor and South Sutor, has a least depth of 15.1m at LW and a width of 500m. Within the entrance, the firth widens out and, for 6 miles, affords sheltered anchorage in depths of 9 to 31m.

**Aspect.**—An outer fairway lighted buoy, equipped with a racon, is moored about 3 miles ESE of South Sutor.

**Pilotage.**—Pilotage is compulsory for vessels of 300 grt and over and for fishing vessels of 47.5m in length and over, proceeding W of the meridian of 4°00'W. Vessels should send an ETA 24 hours in advance through Wick (GKR) if approaching from the N, and through Stonehaven (GND) if approaching from the E. Vessels should then contact the Port Control by VHF when about 30 miles from the entrance. Pilots board tankers bound for Nigg Oil Terminal and other deep-draft vessels in the vicinity of the outer fairway lighted buoy. Pilots board all other vessels about 1 mile ENE of The Ness.

**Anchorage.**—An outer anchorage for tankers lies in a depth of 21m, sand, about 3.2 miles ESE of South Sutor.

**Caution.**—Semi-submersible and jack-up oil drilling rigs are liable to be encountered in the vicinity of Cromarty Firth. Anchors, buoys, and small craft may be encountered up to about 900m from moored rigs. Vessels should give such rigs a wide berth and proceed with caution in their vicinity.

Marine farms are situated in several places along the shores in the vicinity of the firth.

During the summer, a ferry operates in the vicinity of the entrance.

### Cromarty Firth

**10.5** The firth extends inland for 7.5 miles in a W direction and then for another 9 miles in a SW direction to the town of Dingwall, which is situated at the head. Numerous sandbanks encumber the inner part of the firth and a conspicuous road bridge, with a vertical clearance of only 3m, spans it, 2 miles below this town. A causeway, 15m wide, extends about 0.7 mile E, across the drying sandbanks, from a point on the shore located 4 miles WSW of Invergordon. A berth, which is mostly used for loading submarine pipelines and offshore supplies, is

situated at the head of this causeway. It has a depth of 6m alongside and can accommodate vessels of up to 80m in length.

Cromarty Firth is a major base for the fabrication of offshore oil platforms and an oil terminal is situated on its N side. The port of Invergordon lies 5 miles W of the entrance.

**10.6 North side.—North Sutor** (57°42'N., 3°59'W.), the N entrance point, rises to a summit, 150m high, near its E side. From this summit, it slopes gradually W for 1 mile to Majicks Point, which is fronted by a small pier. North Sutor is bold, prominent, and fringed by drying rocks.

Cromarty Bank, with depths of less than 10m, extends up to about 1 mile ESE of the point and is marked by a lighted buoy.

An oil rig fabrication yard is situated on an area of reclaimed land immediately W of Majicks Point and a prominent tank farm stands close N of it. Several buildings stand in the yard and include three conspicuous fabrication shops, with gantry cranes, and a large warehouse. A graving dock, 366m long and 125m wide, lies at the E side of the yard and is equipped with three conspicuous gantry cranes.

**Nigg Oil Terminal** (57°42'N., 4°03'W.) consists of a pier which extends 500m SW from the shore at the SW corner of the fabrication yard. A berth at the head of the pier, which is formed by a central island and mooring dolphins, has a depth of 22.5m alongside. A light is shown from a framework tower, 27m high and floodlit, standing on the central platform. Tankers are limited by the depths in the entrance fairway, but vessels of up to 158,000 dwt, 290m in length, and 17.5m draft have been handled.

**Nigg Bay** (57°42'N., 4°04'W.) indents the N side of the firth and extends between the oil terminal and the town of Invergordon. Nigg Sands, an extensive bank, almost completely fills this bay. This partially drying bank is studded with stones and rocks and weeds cover it in places.

**10.7 South side.—South Sutor** (57°41'N., 4°00'W.), the S entrance point, is 139m high and fringed by a reef and numerous detached rocks. Gallow Hill rises 0.7 mile SW of the point. It has a very prominent summit and is 154m high.

Buss Bank, steep-to and rocky, extends up to about 0.2 mile NE of the NE side of South Sutor and is marked by a lighted buoy.

**The Ness** (57°41'N., 4°02'W.), a low cape, projects N from the coast, 1.5 miles W of the NE end of South Sutor. A main light (Cromarty Light) is shown from a conspicuous tower, 13m high, standing on this cape.

The village of Cromarty stands on the low ground near The Ness and is fronted by a small harbor, most of which dries. This harbor is used by a ferry, fishing vessels, and small craft.

Hugh Miller's Monument, a large statue resembling a minaret, stands on the hillside, 0.3 mile SSE of The Ness, with a church situated close W of it. Both the monument and the spire of the church are very conspicuous and should not be confused.

From The Ness, the S shore of the firth forms a large bight by trending WSW for 4.5 miles and then N for 1 mile to Chapelton Point (Newhall Point). The E part of this bight is known as Cromarty Bay and the W part as Udale Bay. Drying sands completely fill Udale Bay and extend up to 1 mile

offshore in places. A shell-fish farm area, the limits of which may best be seen on the chart, lies within Udale Bay.

## **Invergordon (57°41'N., 4°10'W.)**

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**10.8** The port of Invergordon lies on the N side of the firth, 5 miles W of the entrance. It has extensive commercial facilities and is also a major support base for the offshore oil and gas industry.

**Tides—Currents.**—Tides at Invergordon rise about 4.4m at springs and 3.5m at neaps.

**Depths—Limitations.**—At the E end of the port, the British Alcan Pier (Saltburn Pier) extends 0.5 mile SE from the shore and has two berths, with mooring dolphins, at its head. The outer berth, 97m long, has a depth of 11.5m alongside and the inner berth, 61m long, has a depth of 6.1m alongside. Vessels up to 55,000 dwt, 244m in length, and 11m draft can be handled.

Admiralty Pier, a T-shaped jetty with mooring dolphins, projects SSE from the shore, 0.7 mile W of the British Alcan Pier. It has an outer berth, 270m long, with a dredged depth of 10.5m alongside and two inner berths, 61 and 88m long, with depths of 6m alongside. Vessels of up to 290m in length and 11m draft can be handled.

Supply Base Quay has berths, 60 to 150m long, with dredged depths of 5.5 to 14.5m alongside. It can be used for the refit, inspection, or maintenance of oil rigs. In addition, commercial vessels of up to 274m in length and ro-ro ferries of up to 108m in length can be accommodated alongside.

Queens Dock, at the supply base, has a berth, 150m long, with a dredged depth of 12m alongside. It is used as a repair facility for oil rigs and diving support vessels, but bulk and general cargo vessels of up to 25,000 dwt and 170m in length can also be accommodated alongside.

**Aspect.**—A disused smelting plant, with several large and conspicuous buildings, is situated 0.7 mile NW of the root of the British Alcan Pier (Saltburn Pier). A prominent distillery, with two towers, stands 0.5 mile W of the root of the same pier. Two prominent storage tanks stand in the supply base and a conspicuous spire is situated 0.3 mile N of them.

**Regulations.**—Vessels are limited to a speed of 8 knots when proceeding in the channel between North Sutor and Nigg Oil Terminal. With this exception, speeds of up to 15 knots are permissible elsewhere.

**Anchorage.**—Vessels can anchor in depths of 9 to 30m, fair holding ground, at designated anchorage berths, which may best be seen on the chart, lying between Cromarty and Invergordon.

**Caution.**—Oil rigs are frequently moored within the port area and must be given a wide berth.

An area of foul ground lies 1 mile ESE of the head of the British Alcan Pier (Saltburn Pier).

A wreck, with a swept depth of 10.9m, lies about 1.5 miles E of the head of the British Alcan Pier (Saltburn Pier) and is marked by a lighted buoy.

Several mooring buoys are situated adjacent to the fairway and unlighted barges or pontoons, up to 300m in length, may be secured to them.

## Inverness Firth—Approaches

**10.9** Inverness Firth is entered between Fort George and Chanonry Point, 0.7 mile SW. This inlet extends SW for 7 miles to where the channel narrows to a width of only 0.3 mile, between Craigton Point and the mouth of the River Ness. Beaully Basin extends W for about 6 miles from Craigton Point and is almost completely filled by shallow sandbanks.

Inverness, the principal town in this area, stands on the banks of the River Ness. The entrance to the Caledonian Canal, a waterway connecting the E and W coasts of Scotland, lies 1 mile W of the mouth of this river.

**10.10 Northwest side.**—From South Sutor, the coast trends SW for 7 miles to Chanonry Point. A wooded ridge backs the shoreline which is formed by dark red, steep cliffs and fringed by rocks.

A conspicuous television mast, 125m high, stands on the ridge, 3.8 miles SW of South Sutor.

**Navity Bank** (57°38'N., 4°02'W.) extends about 1 mile offshore, 2.4 miles SW of South Sutor. This shoal has a least depth of 2.4m and is marked by a lighted buoy.

Craigolie lies 3.4 miles SW of South Sutor. This rock dries 24m and is the largest of a group extending up to about 0.2 mile from the shore.

**Buckle Rock** (57°35'N., 4°06'W.), with a depth of 1.5m, lies on the W side of the entrance channel, 2.8 miles SW of Craigolie.

**Chanonry Point** (57°34'N., 4°05'W.), the W entrance point of the firth, is the SE extremity of Chanonry Ness, a low spit of sand and shingle, which projects 1.2 miles SE from the general shoreline. A light is shown from a prominent tower, 13m high, standing on the point. A conspicuous water tower is situated 0.2 mile WNW of the light. A conspicuous radio mast, 245m high, stands on a hill, 6 miles WNW of Chanonry Point.

**10.11 Southeast side.**—The coast between Fort George and Burghead, 21 miles ENE, forms the S shore of the approach to Inverness Firth.

**Fort George** (57°35'N., 4°04'W.), a military depot, stands on the E entrance point of Inverness Firth. This prominent fort is situated on a low gravel spit and a conspicuous water tower, 25m high and resembling a high house, stands 0.8 mile E of it. A helicopter landing site is situated close E of the fort.

Craigmee, a steep-to and stony ledge, extends up to about 0.4 mile N of Fort George and has depths of 2 to 4m. White Ness Sand, an extensive sandy flat, fronts the shore and stretches up to 3 miles ENE from Fort George. It dries and extends up to about 0.7 mile seaward in places.

**McDermott Base** (57°36'N., 4°00'W.), an oil rig fabrication yard, is situated on an area of reclaimed land, 2.5 miles ENE of Fort George. A very large and conspicuous hangar-like building, 37m high, stands at the yard. A narrow channel, dredged to a depth of 2.8m, extends SE from the S side of South Channel to the yard. It is indicated by a directional light and marked by buoys. A quay, 1,100m long, fronts the yard and has dredged depths of 2.8 to 4.8m alongside.

**Nairn** (57°35'N., 3°51'W.), a resort town, is situated at the W side of the mouth of the Nairn River. Two piers extend N from the river entrance and form a small harbor which is used by



FORT GEORGE

pleasure craft. A prominent clock tower, surmounted by a spire, is reported to stand in the town, 0.5 mile SSW of the harbor entrance.

Fearn Head, consisting of a detached group of drying rocks, lies about 0.2 mile offshore, 0.8 miles WNW of Nairn. The sea generally breaks over these rocks with any breeze.

Ord, the conspicuous summit of the Hill of Urchany, is 213m high and stands 3.5 miles S of Nairn.

**10.12 The Bar** (Old Bar), a series of narrow and shingle ridges, lies with its W end 1.5 miles NE of Nairn. It extends, parallel to the shore, for about 3.5 miles. The ridges are covered by coarse grass in places and are 3 to 7m high. They lie on a sandy flat which nearly dries and fronts the shore between Nairn and the mouth of the River Findhorn.

The ridges are subject to continual changes and the shoreline in this area is not easily distinguished from seaward. The shore in this area is mostly backed by forest with bare and shifting sandhills in places.

**Findhorn Bay** (57°40'N., 3°37'W.), which mostly dries, is the estuary of the River Findhorn. It is entered through a winding and narrow channel which is unmarked and subject to frequent change. A bar fronts the seaward entrance of this channel and the sea breaks over it even in moderate weather. The village of Findhorn stands on the E bank of the river entrance and a wind generator is situated 1 mile E of it. The small town of Forres is situated 3 miles S of Findhorn and Nelson's Monument stands close E of it.

Burghead Bay lies between the narrow mouth of Findhorn Bay and Burghead, 5 miles ESE, and is fringed by a sandy beach. Low sandhills, backed by wooded slopes, front the shores of this bay.

**10.13 Burghead** (57°42'N., 3°30'W.), a bluff and rocky promontory, is 24m high and projects 0.5 mile WNW from the coast. It is located 13 miles SE of Tarbat Ness and forms the S entrance point of the inner part of Moray Firth. Rocky ledges front the N and W sides of this promontory and an outfall pipeline extends 0.5 mile NW from it.

A prominent coastguard lookout tower, 24m high, stands on the NW end of the promontory and is surmounted by a

flagstaff. A large and conspicuous concrete building is situated 0.4 mile E of this tower. Several very prominent radio masts are situated E of the promontory.

**Burghead Harbor** (57°42'N., 3°30'W.), formed by two piers, lies on the SW side of the promontory and is mostly used by fishing vessels. There is a least depth of 0.6m in the approach channel, which is subject to frequent changes, and the entrance is only 18.6m wide. The harbor consists of a quayed basin and has depths of 3.7m at HWN and 4.3m at HWS. Coasters of up to 57m in length and 3.5m draft can be handled. Pilotage is compulsory for vessels over 40 grt. Pilots can be contacted by VHF and generally board about 1 mile N of the entrance. Anchorage may be taken in a depth of 11m, sand, about 1 mile W of the harbor entrance. Several disused submarine cables lie in this vicinity, but are no longer considered to be a hazard.

Strong winds, especially from the NE or E, usually raise a rough sea in the vicinity of the harbor and a scend may be experienced in the basin during winter gales. However, this harbor, because of its sheltered location, may generally be entered when others in the area are closed.

### Inverness Firth

**10.14** A middle ground bank lies between the shore banks and obstructs the approach to the firth. Channels lead N and S of this bank and into the entrance.

**Riff Bank** (57°37'N., 4°00'W.), marked by lighted buoys, lies with its S end located 0.9 mile NNE of Fort George. It extends NE for about 3.5 miles and has depths of 2 to 5m. A narrow ridge, which dries in places, lies on the SW part of this bank and the sea breaks over it with onshore winds.

**North Channel** (57°38'N., 4°02'W.), the widest and most used passage, leads NW of Riff Bank. The narrowest part of this channel is about 0.6 mile wide and has depths in the fairway of 6.4 to 11.8m.

**South Channel** (57°37'N., 4°00'W.) leads SE of Riff Bank. The fairway is deep throughout, but narrows to a width of only 160m at its SW end. There is a least depth of 9.7m in South Channel, but the fairway is not marked and should not be used without local knowledge.

**Tides—Currents.**—In North Channel and in South Channel, the tidal currents set in the general directions of the fairways. Between Fort George and Chanonry Point, the WSW current usually begins 4 hours before HW at Dover and attains a rate of 2.5 knots at springs. The ENE current begins about 1 hour after HW at Dover and attains a rate of 3.2 knots at springs. Off Fortrose, the tidal currents attain rates of about 1 knot at springs, but they are hardly perceptible at neaps.

**Caution.**—A ferry operates in the entrance to the firth, between Chanonry Point and Fort George.

During the fishing season, from the middle of February to late August, salmon nets may extend up to 0.3 mile from the shores of Inverness Firth.

Marine farms and their associated moorings have been established in places along the shores of Inverness Firth. These farms are usually marked by buoys or beacons.

### Inverness Firth—Outer Part

**10.15** From Fort George, the S shore of the firth extends 1.5 miles SE to Campbeltown (Ardersier) and then about 8 miles in a general SW direction to the mouth of the River Ness. Between Campbeltown and the river, the coast is backed inland by a hilly ridge which rises gradually to heights of 150m.

This entire stretch of shore is fronted by extensive drying banks which extend up to about 0.6 mile seaward in places and may best be seen on the chart.

**Alturlie Point** (57°31'N., 4°09'W.), located 4.5 miles SW of Fort George, forms the S side of Alturlie Bay. This open bay lies on the E side of the point and is completely filled by a drying bank of mud and sand. Petty Bank, which partially dries, fronts this bay and is marked by a lighted buoy. A cairn and several conspicuous white houses stand on the point.

An airfield is situated 3.5 miles ENE of Alturlie Point and a conspicuous water tower, with two black tanks, stands near the shore, 0.8 mile W of it.

**Longman Point** (57°30'N., 4°13'W.) is the N extremity of the alluvial flat which forms the E side of the entrance to the River Ness. A drying bank extends up to 0.3 mile N of the point and is marked by a lighted beacon.

**Kessock Road Bridge** (57°30'N., 4°13'W.) spans the narrows lying between Longman Point and Craigton Point, 0.5 mile NW. It has a navigable span, 183m wide, with a vertical clearance of 29m. Two conspicuous towers, each 75m high, support the bridge. A daymark, equipped with a racon and illuminated at night, is situated on the bridge and indicates the center of the fairway.

**Caution.**—A submarine gas pipeline crosses the narrows, close NE of the bridge, and may best be seen on the chart.

**10.16 Fortrose** (57°35'N., 4°08'W.), a small harbor, lies 1.2 mile WNW of Chanonry Point. It dries and is used by small craft. A ruined cathedral, with a prominent belfry, and a church, with a conspicuous spire, stand in the small town which backs the harbor. Small craft moorings front the shore in the vicinity of this harbor and Craigan Roan, a rocky ledge which dries 1.8m, lies 0.2 mile ESE of the entrance.

Coasters can obtain anchorage in a depth of 13m in the middle of the fairway, about 0.3 mile S of the harbor.

The village of Avoch is situated 1.5 miles WSW of Fortrose. It is fronted by a small drying harbor which is used by small craft and protected by a curving breakwater. Drying flats, consisting of sand and gravel, extend up to 0.3 mile offshore in the vicinity of this harbor.

**Munlochy Bay** (57°33'N., 4°12'W.), entered 1.5 miles SSW of Avoch, extends W for 2 miles. It almost completely dries and is a bird sanctuary. Wood Hill, 117m high, rises near the N entrance point and Craigiehowe, 127m high, rises near the S entrance point.

**Craigton Point** (57°30'N., 4°14'W.), located 2.8 miles SSW of the entrance to Munlochy Bay, forms the N entrance point of the inner part of Inverness Firth. A light, obscured from the E, is shown from a conspicuous beacon, 6m high, standing on this point. A steep-to and shallow spit extends up to about 150m SSE from this point.



KES SOCK ROAD BRIDGE

A wooded ridge backs the shore extending between Munloch Bay and Craighton Point. It culminates in Ord Hill which rises 0.8 mile N of Craighton Point. This hill is conspicuous and has a bare summit, 189m high.

**10.17 Skate Bank** (57°34'N., 4°07'W.), with depths of less than 5m, occupies almost the entire area of the NW portion of the outer part of Inverness Firth, between Chanonry Point and Munloch Bay. It has a maximum width of about 1 mile and may best be seen on the chart. The shallowest part of this bank, which is awash, lies near the middle of its SE edge, about 1.2 miles SW of Chanonry Point. A lighted buoy is moored about 1.7 miles SW of Chanonry Point and 0.5 mile S of the shallowest part.

**Middle Bank** (57°31'N., 4°10'W.), with depths of 1.2 to 3.6m, extends SW from close S of Skate Bank. A narrow channel separates these banks and has depths of 4 to 6.1m. The SE side of Middle Bank merges into Petty Bank and the SW side is separated from Meikle Mee by a narrow passage. A bar, with a depth of less than 1.5m, extends S from Middle Bank to the S shore of the outer part of the firth.

**10.18 Meikle Mee** (57°30'N., 4°13'W.), a shoal flat, extends 1 mile ENE from Craighton Point to within about 0.2 mile of the SW end of Middle Bank. It has depths of less than 1m and is marked by a lighted buoy at the SE end.

Two channels lead through the outer part of Inverness Firth, one on each side of Skate Bank and Middle Bank. These channels merge in the shallow area lying SE of Meikle Mee. Vessels proceeding W into the inner part of the firth must cross the bar lying S of Meikle Mee.

The NW channel lies between the shorebank and the N sides of Skate Bank and Middle Bank. It follows the curve of the shore from off Chanonry Point to near the S entrance point of Munloch Bay and has a least depth of 6.1m in the fairway as far as that point. This channel then leads S and passes between the E edge of Meikle Mee and the W side of Middle Bank. Vessels should pass close E and S of the lighted buoy marking Meikle Mee and then adjust course to pass under the bridge.

The SE channel provides the most direct route to Inverness. It leads SE of Skate Bank and Middle Bank and has a least depth of only 2.4m in the fairway. Vessels should pass close S of the lighted buoy marking Meikle Mee and then adjust course to pass under the bridge.

Both channels merge in the shallow area lying SE of Meikle Mee and the controlling depth over this bar is about 2.5m.

### Inverness Firth—Inner Part

**10.19** The inner part of the firth lies W of Craighton Point and is entered through Kessock Road. The port of Inverness lies opposite Craighton Point, at the mouth of the River Ness. To the W of Kessock Road, the firth widens to form Beauuly Basin. This W extension of the firth is shallow and almost completely filled by drying sands. The Caledonian Canal is entered on the S side of the firth, 1 mile SW of Craighton Point.

**Pilotage.**—Pilotage is compulsory for vessels over 50m in length proceeding W of the lighted buoy marking Meikle Mee. Pilots can be contacted by VHF and normally board close NE of this lighted buoy. Vessels or their agents should send an ETA, together with all relevant details including air draft, at least 24 hours in advance.



RIVER NESS AND THE CALEDONIAN CANAL

**Kessock Road** (57°30'N., 4°15'W.) affords sheltered anchorage in depths of 9 to 35m, good holding ground. However, the tidal currents are strong and may cause turbulent water at times.

**Caution.**—A spoil ground area and an abandoned submarine cable, which may be seen on the chart, lie in the E part of the roadstead.

**10.20 Inverness** (57°29'N., 4°14'W.) ([World Port Index No. 32330](#)) is the principal town in the N part of Scotland. The port area occupies both banks of the River Ness and extends for about 0.8 mile above the entrance.

**Tides—Currents.**—Tides rise about 4.8m at springs and 3.7m at neaps.

**Depths—Limitations.**—The river entrance and fairway, including turning basins, are dredged to a depth of 3m.

Longman Quay, 180m long, lies at the E side of the harbor and has a dredged depth of 5m alongside. Thornbush Quay, 156m long, lies at the W side of the harbor and has a dredged depth of 3m alongside. In addition, a continuous berth at the E side of the upper harbor provides 470m of quayage with a dredged depth of 3m alongside.

Vessels of up to 120m in length can be accommodated alongside with drafts up to 6.3m at springs and 5m at neaps. Vessel of up to 93m in length can be handled at the upper harbor berths. The river bed is formed by soft mud and gravel, and vessels can safely take the ground at LW.

**Aspect.**—The edge of the drying flat extending seaward at the E side of the river entrance is marked by lighted beacons.

A conspicuous castle stands on high ground at the E side of the river, about 1 mile above the mouth. Several prominent bridges span the river above the harbor and several prominent church spires may be seen in the town.

Red obstruction lights, which have been reported to be visible from a considerable distance, are shown from the top of the suspension towers at the Kessock Bridge. Several floodlight towers, 31m high, stand on the E side of the harbor, in the vicinity of the entrance.

**Pilotage.**—Pilotage is compulsory. See Inverness Firth—Inner Part. Entry into the harbor is generally restricted to a 2-hour period prior to local HW.

**Caution.**—A submarine pipeline, which may best be seen on the chart, lies across the harbor entrance.

**10.21 The Caledonian Canal** (56°50'N., 5°07'W.) provides a sheltered passage between the E and W coasts of Scotland for small vessels. This route is 350 miles shorter than that through the Pentland Firth, North Minch, and Little Minch. The canal was constructed and opened in 1822.

The canal, about 50 miles long, extends SW from Clachnaharry, near Inverness, to Corpach, at the N end of Loch Linnhe (See Sector 2). The canal forms about 18 miles of the waterway, the remainder is formed by Loch Dochfour, Loch Ness, Loch Oich, and Loch Lochy.

The canal has a least depth of 4.3m with an average surface width of 33.5m and a bottom width of 12.2m. It is open throughout the year, but the locks are operated only between

certain times, dependent on the time of year. In summer, the locks are generally operated between 0800 and 1800 hours every day. In winter, they are operated between 0915 and 1600 hours, Monday through Friday, but are always closed for a period of 50 minutes between 1200 and 1400 hours each day.

It is possible, depending on the volume of traffic, to transit the canal during the normal working hours of one day in the summer, but it is reported that the volume of traffic is now such that two full days are normally required. During the winter and in any adverse weather conditions, two full days should be allowed.

There are twenty-nine locks throughout the canal; fourteen are situated in the NE part and the remaining fifteen in the SW part of the waterway. Generally, vessels of up to 45.7m in length, 10.7m beam, and 4.1m fresh water draft can transit the waterway. Vessels of up to 48.8m in length can use the canal and locks provided their drafts do not exceed 2.9m.

The sea lock at Corpach can handle vessels of up to 62m in length, 10.7m beam, and 4.1m draft. All the locks within the waterway are power operated.

The canal is spanned by ten swing bridges. Vessels approaching these bridges must sound a warning blast on their whistle and reduce speed or stop until the bridge has been swung clear of the channel. In addition, several high-tension electric cables span the waterway and have a minimum vertical clearance of 35m.

Buoys, posts, beacons, and cairns mark the fairway through the canal. Bollards are placed at several locations along the canal to assist vessels when warping round the bends. Pilotage is compulsory only at the E end of the canal which lies within the limits of the port of Inverness. Pilotage in the remainder of the canal is not compulsory. However, pilots are available and pilotage is recommended for vessels without local knowledge, especially because of the sharp bends, bridges, and locks.

Several small craft moorings and marinas are situated throughout the canal area.