Table 1. Characteristics of the shelf Late Jurassic – earliest Cretaceous black shales in the temperate and high latitudes of the Northern Hemisphere

Region	***Stratigraphic distribution of black shales***	***Max / average thickness of individual black shale beds***	***Max / average thickness of black shale – bearing unit***	***Type of kerogen***	***TOC max / average***	***Depositional environments***	***Reference section***	***References***
England, Dorset and Yorkshire coasts	Upper Kimmeridgian to middle Volgian (eudoxus – fittoni zones)	1 m / 0.1-0.2 m	300-350 m / 100 m	II	25 / 8-10	Shelf, 150-200 m	Dorset coast, Kimmerdge Bay	Gallois, 2004; Morgans-Bell *et al.*, 2001
Northern France	Upper Kimmeridgian – lowermost Middle Volgian (eudoxus – rotunda zones)	7 m / ~0.5 m	up to 100 m	II	9 / 3	Shelf	Boulonnais, Boulogne sur Mer	Geyssant *et al.*, 1993; Proust *et al.*, 1995; Herbin *et al.*, 1995
Central Poland	Upper Kimmeridgian – lower Volgian (eudoxus-sokolovi zones)		100-125 m	II	9.2 / 2.5	Shelf	Uniejów IGH 1 borehole	Wierzbowski & Wierzbowski, 2019
European part of Russia	Lowermost upper Oxfordian – early Ryazanian (glosense – rjasanensis zones); most widespread and thick black-shale-bearing unit is earliest middle Volgian (panderi zone)	5 m / 0.2 m	~ 120 m /7-8 m	II and rarely III, IV	~ 45 / 10	Shallow shelf, mainly between 50 and 100 m	Gorodischi	Zakharov *et al*., 2017 (for review of all black shale units); Turov, 1995 (for Volgian black shales); Hantzpergue *et al.,* 1998; Gavrilov *et al.*, 2014 (for Gorodischi)
Subpolar Urals	Upper Kimmeridgian, ? eudoxus zone	0.15 m/ 0.06 m	- (single band)	II	13.8 / 10.5	Shallow shelf	Lopsia	Zakharov *et al.*, 2005
North sea shelf	Oxfordian-Ryazanian (or Volgian-Ryazanian)		807 / ~100	II	15/4	Shallow shelf	Borehole 30/6-	Vollset and Doré, 1984; Cornford, 1998; Gautier, 2005
North Sea Central Graben	Upper Kimmeridgian – lowermost Valanginian			II to II-III	5-6/ 12-15		222 of Mandal Formation samples	Cornford, 1994; Ziegs *et al*., 2017
Viking Graben in the Norwegian North Sea	Upper Oxfordian to Ryazanian		from 12-25 m to 120-300 m	II to II-III	4.5 /7-8		21 wells (16 of Draupne Formation samples)	Badics *et al*., 2015
East	Middle Oxfordian – lower	25 m / 10 m	More than	III	19 / 5.9	Shelf	Jameson	Alsen, Piasecki, 2018;

Greenland	Ryazanian		200 m				Land, borehole Blokelv-1	Bojesen-Koefoed *et al.*, 2018
Norwegian sea shelf	Upper Oxfordian – Ryazanian	~ up to 40-50 m	260 m / ~ 50 m	I and II / II and III	37/ ~10	Deep shelf	Borehole 7430/10-U-01	Smelror *et* al., 2001; Mutterlose *et al.,* 2003
Barents sea shelf	Upper Oxfordian – upper Ryazanian		~ 120 m / ~ 50 m	II and III	7 / 3	Shelf	Well 6307/07-U-02	Mutterlose *et al.,* 2003
Southwestern Barents Sea	Upper Kimmeridgian - Ryazanian		856 m / ~ 100-150	I-II and II-III	6.0/16 (Alge Member)	Deep shelf	15 well (33 of Alge Member samples):	Helleren, 2019
Spitsbergen	Callovian – upper Volgian	70 m / ~ 5 m	~250 / 200	II and III	12 / 5	Shelf	DH2 and DH5R wells	Dypvik, 1985; Koevoets *et al.*, 2016, 2019
Western Siberia	Upper Oxfordian - Hauterivian	10 m / 2-3 m	~ 400 m / 30-40 m	I and II	~30 / 7,7	Shallow shelf (mainly 50-100 m)	Well no. 6 in Panchenko *et al*., 2016	Braduchan *et al.*, 1986, 1989; Panchenko *et al.*, 2015, 2016; Ponomareva *et al.*, 2018
Northern Siberia	Upper Oxfordian – Ryazanian	~ 30 / ~3-5 m	~ 350 m / 50 m	II and III	5,8 / 3	Shelf	Nordvik	Zakharov *et al.*, 2014; Kashirtsev *et al.*, 2018
Arctic Canada	Kimmeridgian - Ryazanian	No data	~ 300 m / 100 m	II	6,9 / 4,95	Shelf	Skybattle C-15 well	Gentzis *et al.*, 1996
Alaska	Oxfordian – Valanginian	No data	~ 300 m / 100 m	III and rarely II/III	4,03 / 1,9	Shelf	Kavik-1 well	Magoon *et al.*, 1987; Bayliss and Magoon, 1988

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