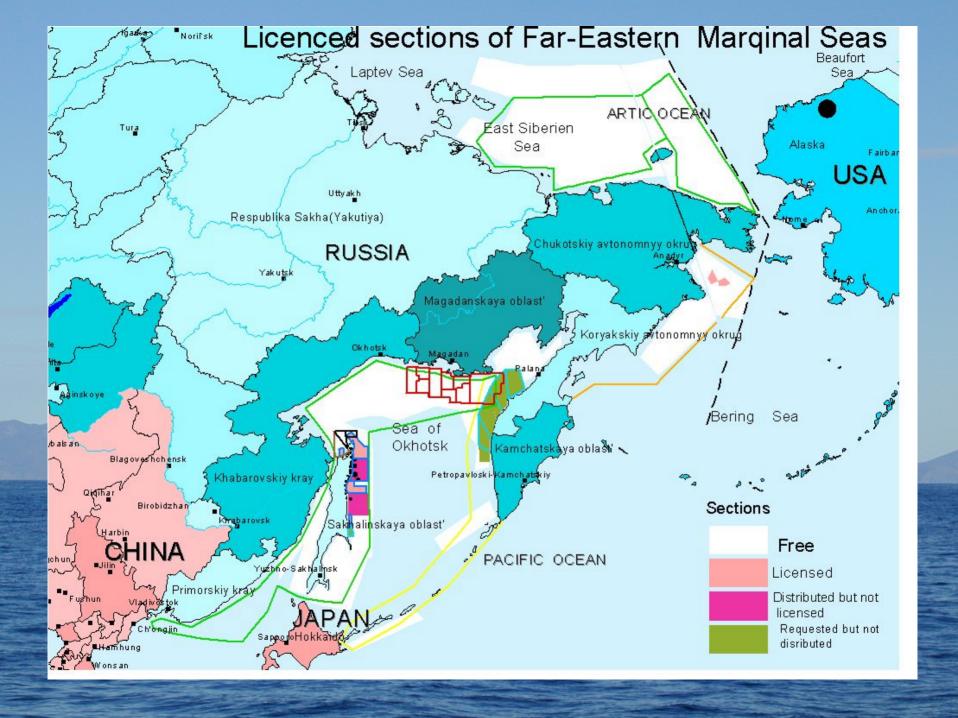




 Wide-area and long-perspective works of sea oil and gas development start on the shelf of Far Eastern and East Siberian regions.

According to the scientific prognosis, there are billions tones of hydrocarbon supplies in conventional fuel. Almost all he supplies are concentrated in the Okhotsk, Bering, Chukchi and East Siberian seas.

There are explored more than 20 factual and potential oil and gas fields of different geotectonic nature.



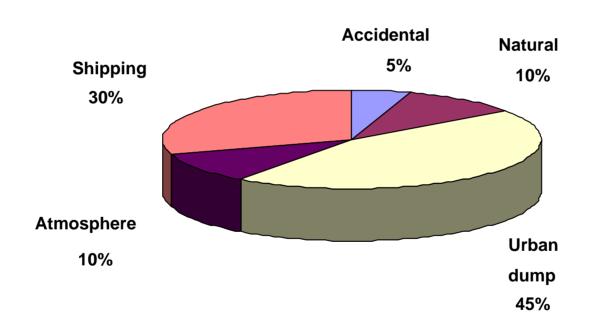
According to classification of International Tanker Owners Petroleum Federation [ITOPF, 1999] oil spills are sorted into three categories depending on their volumes: "small" (less than 7t), "medium" (between 7 and 700t), and large (more than 700t).

registered between 1974 and 1999, are less than 7t. The cause of "medium" spills analysis shows, that 35% of them happen during ordinary (mostly while loading and discharging) operations. St the portion of accidental situations afte collisions and groundings is also big enough - 41%.

Accidental spills while offshore oil production total to 1,3-1,6% (50-80 thousand t), which is considerably less than all other natural and man-caused sources of oil intake into marine environment.

#### Sources of hydrocarbon intake into ocean

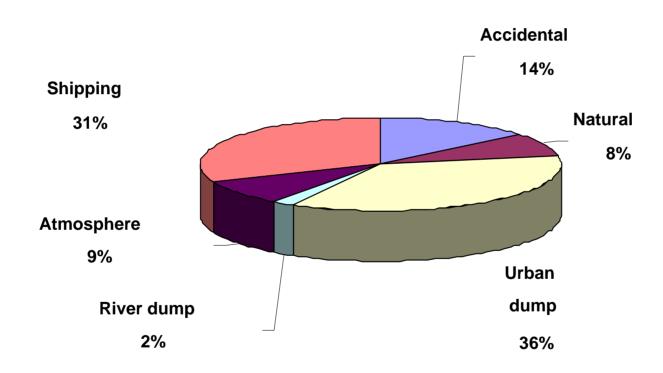




[ Etkins et al., 1998 ]

### Sources of hydrocarbon intake into ocean

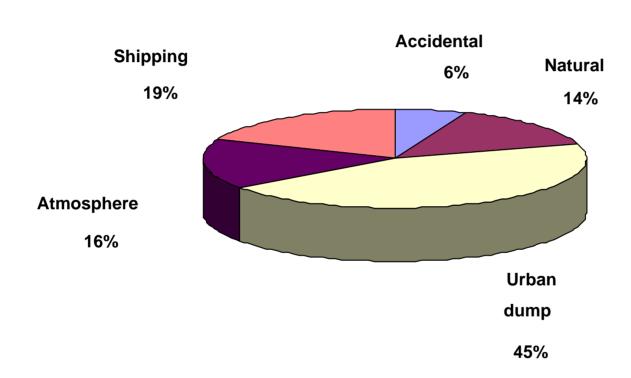
#### 1981



[ Etkins et al., 1998 ]

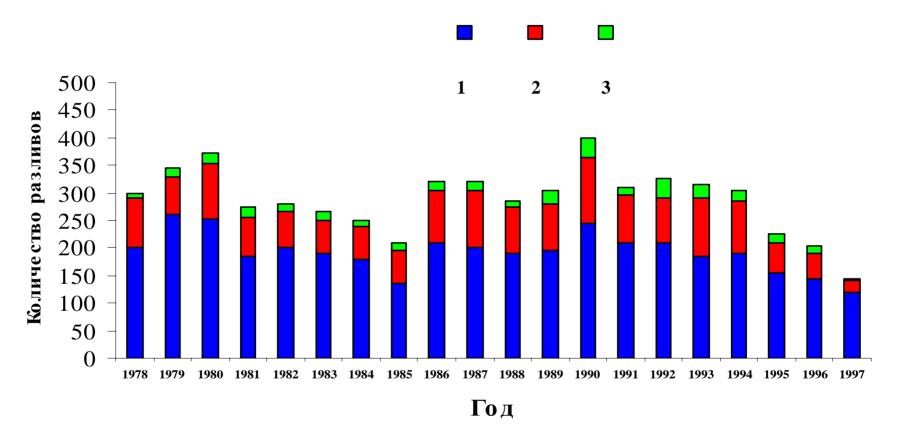
### Sources of hydrocarbon intake into ocean





[Etkins et al., 1998]

Number of oil spills while different operations: oil production, transportation and storage at sea (Etkin, 1999)



1-coastal transportation; 2- platform and storage;

3 – pipelines and tankers

# Possible damage from accidental oil spills

Tapes of damage	Medium 700t	
	Biomass (t)	Cost (\$)
Pelagial – dispersion oil – plancton	12,1	79027
Surface layer – emulsion – ichthyoplancton	0,01	23
Coastline – oil – benthos, macrophyts	8404,3	44821735
Bottom- oil - benthos	70,24	163590
Total damage	8486,6	45064375

# Possible damage from accidental oil spills

Types od damage	lagre 2000t	
	Biomass (t)	Cost (\$)
Pelagial – dispersion oil – plancton	10,12	55346
Surface layer – emulsion – ichthyoplancton	0,048	85
Coastline – oil – benthos, macrophyts	111	593907
Bottom- oil - benthos	97,09	226126
Total damage	218,3	875464

### Possible damage from accidental oil spills

Types od damage	large 30 000 t.	
	Biomass (t)	Cost (\$)
Pelagial – dispersion oil – plancton	46,39	253707
Surface layer – emulsion – ichthyoplancton	0,276	489
Coastline – oil – benthos, macrophyts	2110,4	11270879
Bottom- oil - benthos	463,57	1079648
Total damage	2620,6	12604723